

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 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 perform 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 : Washington DC, USA

Injured : 2 **Dead :** 0

Abstract

Two pupils were injured at a high school when a two-gallon container of methyl alcohol exploded in a chemistry laboratory. The building was evacuated in the incident.

An investigation into the incident is being carried out.

[explosion, laboratory work, evacuation]

Lessons

[None Reported]

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 perform 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]

1319405 November 2000

Source : BBC NEWS, 6 NOVEMBER 2000, (<http://www.bbc.co.uk>).

Location : Jilin Province, CHINA

Injured : - **Dead** : -

Abstract

A gas explosion occurred in a coal mine trapping thirty one miners underground. It is not known what casualties there are.

[mining]

Lessons

[None Reported]

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 perform 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]

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 perform 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 : Alberta, CANADA

Injured : 12 **Dead :** 0

Abstract

A hydrocarbon storage tank leaked at a chemical company exposing twelve construction workers to the fumes.

The leak occurred due to the failure of a rupture disk on the tank's fire protection line. The rupture disk is designed to allow fire suppression foam to be pumped into the line in the event of a fire in the tank. All twelve workers were taken to hospital and treated for inhalation of the fumes.

Repairs to the line are now underway as the fumes dispersed to safe levels within minutes.

[storage tanks, gas / vapour release, bursting disc failure, injury]

Lessons

[None Reported]

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 perform 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]

1321611 October 2000

Source : BBC NEWS, OCTOBER 11, 2000, (<http://www.bbc.co.uk>).

Location : Xinhua, CHINA

Injured : - Dead : 25

Abstract

An explosion occurred in a coal mine killing twenty-five workers. The cause of the explosion is not known. Rescuers are continuing their search for survivors.
[mining, fatality]

Lessons

[None Reported]

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 perform 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]

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 perform 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 20, 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 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 perform 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 : Salamanca, MEXICO

Injured : 170 **Dead :** 0

Abstract

An explosion occurred in a warehouse at a pesticide factory. Yellow clouds were released as a result. Chemical involved: malathion pesticide. Over a thousand people were evacuated.

It is reported that approximately one hundred and seventy people were injured in the incident.

The explosion occurred when pressure rose in tanks containing the chemical. The resultant pressure automatically opened the emergency valves. No workers were injured in the incident.

[gas / vapour release, evacuation, warehousing, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 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 perform 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 : 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]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 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 perform 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 : 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]

1297410 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 10, 2000, (<http://www.cnn.com>).

Location : Texas, USA

Injured : 0 **Dead :** 3

Abstract

A support beam collapsed on a lake construction site dragging three workers underwater. The workers were clipped to the top of the concrete column when it collapsed. The entire structure toppled into waters 40 to 60 feet deep and approximately 50 feet off the shore. The column was to support a pumping station for a water pipeline.

[fatality]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, AUGUST 9, 2000, (<http://www.cnn.com>).

Location : Milwaukee, USA

Injured : 0 Dead : 1

Abstract

Part of a crane broke on a construction site killing a worker 220 feet off the ground.

[fatality]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 8, 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 7, 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 perform 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 : 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]

Source : BBC NEWS, 2 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : Taketoyo, JAPAN

Injured : 56 **Dead** : 0

Abstract

An explosion occurred in a gunpowder warehouse of a chemical factory injuring fifty-six people. The warehouse was completely destroyed and damage occurred to the surrounding residential area.

The explosion occurred in a store room containing several tonnes of gunpowder.

An investigation is being carried out into the cause of the explosion.

[black powder (gunpowder), warehousing, damage to equipment, fatality, people, injury]

Lessons

[None Reported]

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]

1286823 July 2000

Source : BBC NEWS, 23 JULY, 2000, (<http://www.bbc.co.uk>).

Location : Staffordshire, UK

Injured : 0 **Dead** : 2

Abstract

Two contractors were killed when a 100-metre kiln they were demolishing collapsed.

The incident occurred as the contractors were salvaging bricks. It is thought that they were cutting away a metal structure when the kiln collapsed.

An investigation into the incident is being carried out.

[demolition, fatality]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 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 perform 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 : 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]

1282610 July 2000

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

Location : Halifax, CANADA

Injured : 2 **Dead** : 0

Abstract

An explosion occurred in a laboratory at a brewery. The incident occurred when a mixture of glycol and sulphuric acid exploded in a beaker. Two workers were injured in the incident.

The plant was shut down and evacuated.

An investigation into the cause of the explosion is underway.

[laboratory work, evacuation, burns, container, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 10, 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (<http://www.chemsafety.gov>).
(<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 perform 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 : Missoula, USA

Injured : 0 **Dead :** 0

Abstract

Forty to fifty people were evacuated from a chemistry laboratory when a spill of nitrous oxide occurred releasing noxious fumes. A fan was used to disperse the fumes before the building was declared safe.

[evacuation, laboratory work, gas / vapour release]

Lessons

[None Reported]

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 perform 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]

Source : CNN.COM, U.S. NEWS, JUNE 26, 2000, (<http://www.cnn.com>).

Location : Los Alamos, USA

Injured : 0 Dead : 0

Abstract

Truckloads of contaminated soil two miles from a reactor one used in nuclear weapons research and manufacturing is being moved to a waste storage site due to seasonal heavy rains, which could cause flooding in an area that has been affected by fire.

The operation is being carried out, as there's little or no vegetation to slow water or stop sediment from pouring into the areas canyons that lead to a main river. [excavation, contamination, preventative measures]

Lessons

[None Reported]

Source : BBC NEWS, 22 JUNE, 2000, (<http://www.bbc.co.uk>);, CNN.COM, U.S. NEWS, JUNE 22, 2000, (<http://www.cnn.com>).

Location : Miami, USA

Injured : 0 Dead : 0

Abstract

More than 95 million litres of raw sewage spilled into the sea causing a health alert. Swimming has been banned along a 40km stretch of coastline.

The incident occurred after marine construction workers drilled through the sewage pipe.

Sewage has been diverted from the punctured pipeline to an old waste pipe for the time being whilst the hole is repaired.

[human causes]

Lessons

[None Reported]

Source : THE CHEMICAL ENGINEER, 22 JUNE 2000.

Location : , NORTH SEA

Injured : 0 Dead : 0

Abstract

An oil platform was evacuated after it broke loose from its moorings during heavy storms. Twenty-one people stayed on board to stabilise the semi-submersible platform.

Workers aboard the platform were carrying out exploration work at the time of the incident.

The platform drifted 300 m before the remaining anchor chains took up the slack.

[offshore, exploration, evacuation, weather effects]

Lessons

[None Reported]

1253831 May 2000

Source : BBC NEWS, 31 MAY, 2000, (<http://www.bbc.co.uk>).

Location : Bangladesh, Chittagong, SOUTH ASIA

Injured : 40+ **Dead** : 11+

Abstract

An explosion occurred on a disused marine oil tanker in a ship-breaking yard killing at least eleven people and injuring forty others.

Workers are believed to have been using gas torches to dismantle the vessel when the explosion occurred.

[marine tanker, demolition, fatality, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 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 perform 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 : 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 within two hours. No injuries were reported.

[fire - consequence, storage tanks, explosion]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 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 perform 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 : St Tammany Parish, USA

Injured : 5 **Dead :** 0

Abstract

A noxious chemical was unearthed during construction. Five people were affected by the fumes. The incident occurred when a backhoe operator dug up a blue container, which had no identifiable markings.

The people affected suffered attacks of nausea, headaches and burning eyes and throats.

[gas / vapour release, people, damage by backhoe, bulldozer/jcb/digger, chemical fumes, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MAY, 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 perform 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 : 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]

1250721 May 2000

Source : BBC NEWS, 21 MAY, 2000, (<http://www.bbc.co.uk>).

Location : London, UK

Injured : - **Dead** : 3

Abstract

A crane collapsed during construction work killing three workers. The crane arm and its cab fell between two buildings under construction.

An investigation is underway into the cause of the collapse.

[fatality]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 MAY, 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 perform 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 : 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]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 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 perform 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 : 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]

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]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 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 perform 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 :** 1

Abstract

An explosion occurred at a liquid petroleum gas plant killing one worker and injuring two others. The incident occurred in a gas bottle storage building at the plant whilst a gas tanker was being loaded.

A cylinder was gassing off at the time of the explosion.

An investigation into the cause of the incident is being carried out.

[loading, fatality, injury]

Lessons

[None Reported]

Source : BBC NEWS, 20 APRIL, 2000, (<http://www.bbc.co.uk>).

Location : Pakistan, SOUTH ASIA

Injured : 13 **Dead** : 7

Abstract

A methane gas explosion occurred in a mine killing seven workers and injuring thirteen others. An investigation into the incident is being carried out.
[fatality, injury, mining]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 APRIL, 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 perform 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 : Xiliu, CHINA

Injured : 2 **Dead :** 7

Abstract

An explosion occurred in a mineshaft killing around seven miners and injuring two others. Nine miners were working in the mine at the time of the explosion.

[fatality, injury, mining]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 3 APRIL, 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 perform 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 : Fullerton, California, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a university laboratory. The incident occurred when a lab student mixed a small amount of alcohol into a gallon tub of acid waste. It shattered beakers and caused a cabinet to burst open.

Property damage was estimated to be approximately \$100 (2000).

[laboratory work, mixing, unwanted chemical reaction, damage to equipment, container]

Lessons

[None Reported]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 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 perform 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 : 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]

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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 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 perform 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 : 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]

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 perform 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 : 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]

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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 21 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 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 perform 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, 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 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 perform 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 : New Brunswick, CANADA

Injured : 0 **Dead :** 0

Abstract

A chemical spill at a science centre forced the evacuation of approximately 800 people.

The incident occurred when a cooler unit used to store volatile chemicals malfunctioned, causing a chemical reaction.

The refrigeration unit contained 30 to 35 containers of chemicals. The chemicals included a styrene monomer, a special alcohol used in the production of plastics and approximately 11 kilograms of initiator.

[unwanted chemical reaction, storage]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 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 perform 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 : 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 combustibile adhesives and rubber stored inside.

An investigation into the incident is being carried out.

[fire - consequence, damage to equipment, storage, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 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 perform 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 : 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]

Source : AUSTRALIAN BROADCASTING COMPANY, 14, MARCH, 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 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 perform 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 : Collie, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

An explosion occurred on a construction site when a pipe containing caustic soda burst. The caustic soda sprayed 100 meters in the air. Fortunately no one was injured in the incident.

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, 12 MARCH, 2000, (<http://www.cnn.com>).
CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 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 perform 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 : Krasnodon, UKRAINE

Injured : 6+ **Dead :** 81+

Abstract

A coal dust explosion occurred at 2,191 feet underground killing 81 miners and injuring 6.

It is thought that coal dust and methane may have caused the explosion.

An investigation into the incident found that the cause might have been due to a faulty cutting torch, which released a stream of oxygen and caused coal dust to explode.

[fatality, safety procedures inadequate, injury, mining]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 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 perform 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 : Aomori, JAPAN

Injured : 5 **Dead :** 0

Abstract

An explosion occurred at a research facility injuring five people. The incident occurred when the five were pouring liquid oxygen into an experimental device.

The injured suffered burns.

[laboratory work, injury]

Lessons

[None Reported]

1224208 March 2000

Source : BBC NEWS, 8 MARCH, 2000, (<http://www.bbc.co.uk>); CNI NEWS, 8 MARCH, 2000, (<http://www.cnionline.com>); CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.

Location : Cheshire, UK

Injured : 7 **Dead :** 0

Abstract

A major gas leak occurred at a chemical plant after an explosion. Approximately half a tonne of hydrogen chloride gas was released from a storage container. It is thought that the cause of the incident was due to the failure of a set of bellows.

Fire crews used a curtain of water jets to minimise the amount of gas spreading.

Nearby residents were advised to keep windows and doors closed until further notice.

A report stated seven minor casualties.

[gas / vapour release, mechanical equipment failure, injury]

Lessons

[None Reported]

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 perform 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 : Morral, USA

Injured : 0 **Dead :** 0

Abstract

A chemical spill forced the evacuation of an entire town when two small tanks containing fertiliser collapsed. A dike surrounding the facility successfully contained the spill.

The tank contained non-toxic farm fertiliser, but there was cause for concern that the fertiliser could mix with other chemicals creating a toxic substance.
[mechanical equipment failure, storage]

Lessons

[None Reported]

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 perform 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 : Millsboro, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 600,000 gallons of oil is thought to have leaked over a period of 8-12 years from a hole in an underground pipeline previously discovered. The problem emerged after contractors sank a well and began pumping oil from the ground.

So far approximately 40,000 gallons of oil had been pumped from the ground at a rate of approximately 3,000 gallons a day.

[diesel fuel, excavation, spill]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 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 perform 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 : Gulgong, AUSTRALIA

Injured : 3 **Dead :** 0

Abstract

A pesticide leak occurred when an excavator ran over three chemical cylinders. The substance was identified as aluminium phosphide, which is potentially lethal and can cause environmental damage.

The spill was cordoned off and a nearby school evacuated. Three fire fighters were taken to hospital for observation.

[excavation damage, evacuation, injury]

Lessons

[None Reported]

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 perform 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 19, 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 perform 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, UK

Injured : 5 **Dead :** 0

Abstract

An explosion occurred when a construction worker accidentally cut through a gas pipe carrying an unspecified substance.

A spark from the disk cutter triggered the explosion injuring the construction worker and four other workers.

[hot work, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 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 perform 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 : Oklahoma City, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 25 barrels of diesel fuel spilled into a creek killing an undetermined amount of fish, the cause is being investigated.

A vacuum truck was sent to the incident to contain the spill.

The diesel was used to run the motors that power the drilling rig at the site, which had been dismantled.

[ecological damage, pollution, demolition]

Lessons

[None Reported]

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 perform 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 : Hong Kong, CHINA

Injured : 4 **Dead :** 3

Abstract

An explosion occurred at a construction site killing three and injuring four workers. The incident occurred when workers were welding near pipes containing highly flammable (unidentified) gases. The pipes exploded and sent metal flying into the air.

An investigation into what caused the leak is underway.

[fatality, gas - flammable, injury]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, FEBRUARY 10, 2000. (<http://www.cnn.com>).

Location : Philadelphia, USA

Injured : 13+ Dead : 0

Abstract

Tonnes of freshly poured concrete with reinforcing rods and forms collapsed at a construction site, injuring at least 13 workers

It is thought that the injured fell approximately 30 feet and were covered in concrete, scaffolding and a steel reinforcing bar.

Two of the injured were reported to be in a serious condition.

[fall, injury]

Lessons

[None Reported]

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 perform 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 : Fargo, USA

Injured : 1 **Dead :** 0

Abstract

A worker welding a pipe onto a 55-gallon drum was seriously injured when oil vapours from the drum ignited causing an explosion. The drum had been used to store waste oil.

[drums, leak, storage, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 7, 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 perform 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 : , FRANCE

Injured : 17 **Dead :** 0

Abstract

An oil leak occurred from the radiator of a mechanical digger in a traffic tunnel under construction, sending a wave of toxic smoke through the tunnel.

Fourteen workers and three fire fighters were affected.

[bulldozer/jcb/digger, gas / vapour release, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 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 perform 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 :** 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 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 perform 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 : 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 15, 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 perform 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 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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 15, 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 perform 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 : St Petersburg, USA**Injured :** 1 **Dead :** 0**Abstract**

A gas pipeline ruptured during construction work. A contractor was digging a hole in a highway when he hit the 2-inch natural gas line.

A gas employee who responded to the leak climbed into the 6-foot hole but was overcome by the gas. He passed out, fortunately three fire fighters managed to lift him to the surface and revive him with oxygen.

[operator error, asphyxiation, injury]

Lessons

[None Reported]

1212814 January 2000

Source : BBC NEWS, 14 JANUARY, 2000, (<http://www.bbc.co.uk>).

Location : , CHINA

Injured : 0 Dead : 3

Abstract

Three workers are known to have died when a section of a mine collapsed, twenty three miners were rescued.

[fatality, mining]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 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 perform 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 : La Guaira, VENEZUELA

Injured : 0 **Dead :** 0

Abstract

Cargo containers were found to be leaking a toxic mix of chemicals after the containers were battered by massive floods. As a result of this, residents of the area were evacuated and access to the area was restricted.

Chemicals leaking from some containers were identified as toxic and posed a threat to public health.

Authorities stated, the chemicals could contaminate the ground and sea, emit dangerous gases and cause an explosion.

Health officials issued public warnings that any survivors from the floods suffering from skin rashes, respiratory ailments or other health problems are to seek medical attention.

The flooding killed between 5,000 and 30,000 people, making it the worst natural disaster in the country this past century.

[evacuation, storage, toxic chemical]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 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 perform 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 : , 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]

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 perform 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

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]

Source : HAZARDOUS CARBO BULLETIN, JUNE 2000.

Location : Ohio, USA

Injured : 0 Dead : 0

Abstract

A catastrophic failure of a storage tank occurred causing the release of approximately one million gallons of fertiliser into the environment. The most likely cause of the failure is thought to be due to weld failure. Four adjacent tanks were damaged by the outflow of the product. An estimated 3,300m³ of product was spilt into a nearby river; the remainder was contained in bunds.
[tank failure, spill, pollution, damage to equipment, storage tanks]

Lessons

[None Reported]

129462000

Source : THE ENGINEER, 4 AUGUST, 2000.

Location : , UK OFFSHORE

Injured : 0 **Dead :** 0

Abstract

A major gas leak on an offshore oil platform lead to the evacuation of sixty workers. Several personnel remained on the rig to bring the leak under control.

Lessons

[Non Reported]

1070002 December 1999

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

Location : Harare, AFRICA

Injured : 0 **Dead** : 15

Abstract

An incident occurred on a construction site. A lift carrying fifteen workers fell to the ground from the tenth floor of an office block under construction.

It is thought that a power failure caused the lift to fall.

[lifting equipment, fatality, electrical equipment failure]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, NOVEMBER 23, 1999,
(<http://www.cnn.com>).

Location : , USA

Injured : 5 Dead : 1

Abstract

Workers on a construction site were pouring concrete when part of the building they were working on collapsed, plunging them three stories and burying them in debris and wet concrete.

One worker was killed and five injured.

[fatality, fall, safety procedures inadequate, injury]

Lessons

[None Reported]

1206925 October 1999

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

Location : Scotland, UK

Injured : 4 Dead : 1

Abstract

A chemical leak occurred in a laboratory killing a laboratory assistant and injuring four other people.

The assistant died after liquid nitrogen was spilled in a basement storage room. It was stressed that the nitrogen had not leaked outside the building.

Forty people were evacuated.

[laboratory work, evacuation, fatality, injury]

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]

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]

Source : CNN.COM, U.S. NEWS, SEPTEMBER 25, 1999, (<http://www.cnn.com>).

Location : , GULF OF MEXICO

Injured : 11 Dead : -

Abstract

An offshore incident. A 122 ft drilling rig collapsed and capsized leaving 11 crew to be rescued and one missing.

The incident happened when one of four legs of the jack-up rig gave way in approximately 150-180 ft of water.

[exploration, capsize of platform, mechanical equipment failure]

Lessons

Jack-up rigs are platforms which are used for oil and for other subsurface exploration. They can be floated into place and jacked up on retractable legs to proper height.

Source : HAZARDOUS CARGO BULLETIN, JANUARY 2000.

Location : Damper, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

Approximately 60 m³ of diesel oil spilt from storage tanks onboard a production platform. The spill dispersed quickly.
[spill, offshore]

Lessons

[None Reported]

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

Location : , USA

Injured : 4+ Dead : 2

Abstract

The roof of a coal mine collapsed 700 ft underground, killing two miners and injuring several others. At least three miners were taken to hospital, including one other who suffered severe shoulder injuries.

[fatality, injury, mining]

Lessons

[None Reported]

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]

Source : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<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 perform 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 : Alberta, CANADA

Injured : 1 **Dead :** 1

Abstract

An explosion occurred whilst using a perforating gun, which is designed to explode inside an oil well, at an oil well site. The gun detonated above ground.

[exploration, fatality, explosive]

Lessons

[None Reported]

1175208 September 1999

Source : BBC NEWS, SEPTEMBER 8, 1999, (<http://www.bbc.co.uk>).

Location : Bristol, M5, UK

Injured : 0 **Dead** : 4

Abstract

Four construction workers fell 80 ft from a motorway viaduct. They were working on a bridge when the platform on which they were standing gave way. A large part of the gantry, about 35 ft long and 12 ft wide, ended up dangling underneath the bridge. Workers on a nearby industrial estate were evacuated after gas bottles fell off the gantry.

No-one else was hurt in the accident.

Two of the workers were welders and two were specialist steel platers.

An investigation is underway into the cause of the accident.

[fall, fatality, evacuation]

Lessons

[None Reported]

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

Location : , UK

Injured : 31 Dead : 0

Abstract

Thirty one workers were sent to hospital suffering breathing problems and nausea after a chemical leak at a warehouse. The workers were under observation after formaldehyde escapes from a container at the warehouse.

It is thought that a forklift truck punctured a container in a chemical handling area.

[gas / vapour release, warehousing, fracture, operator error, people]

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]

1210725 August 1999

Source : BBC NEWS, 11 JANUARY, 1999, (<http://www.bbc.co.uk>).

Location : , SOUTH AFRICA

Injured : - Dead : 9

Abstract

Fifteen miners became trapped 2,1000 metres underground in a mine. The rock fall is believed to have been caused by an earth tremor measuring 2.9 on the Richter scale. Rescue teams removed 140 tonnes of rubble before they were able to make contact with the miners. Six miners were found alive but four were found dead and five are missing.

[solids processing, injury, fatality, mining]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999.; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : Texas, USA

Injured : 0 **Dead** : 1

Abstract

An explosion occurred when a worker punctured an ethane propane pipeline whilst digging holes for electric utility poles. The worker was killed.
[excavation, fatality]

Lessons

[None Reported]

1262608 August 1999

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : Surrey, UK

Injured : 0 Dead : 0

Abstract

Transformer oil was discharged into a nearby river from a fractured sight-gauge valve on a tank. The spillage was made worse by the sight-gauge being left in the open position allowing approximately 900 gallons of oil to escape into the bund. At this stage the spilt oil should have been immediately pumped out of the bund by the tanker.

However, due to human error the oil was left in the bund for a while. When a tanker did arrive to pump it out, the oil had disappeared.

Following heavy rain the oil was forced out through the company's oil interceptor system to discharge into two nearby watercourses.

It is thought that due to the oil being left in the bund for about eleven days, the oil had weathered and emulsified, thus defeating or 'tricking' the oil interceptor device and causing the oil to be pumped out into a drain leading to the interceptor system. This should have prevented any release of oil to the surface water system, but further failure in the form of a floating valve jammed in the on position in the interceptor, coupled with the fact the electronic alarm failed to operate, meant that no one was aware when the interceptor overflowed into the river. This was due to heavy rainfall taking up the very minimal storage capacity left in the interceptor once the 900-gallon spillage had entered it.

The company was fined £15,000 and costs of £1,1000 (2000).

[spill, pollution, mechanical equipment failure, design or procedure error, storage tanks]

Lessons

[None Reported]

1290306 August 1999

Source : ICHEME

Location : , UK OFFSHORE

Injured : 0 Dead : 1

Abstract

An underwater explosion occurred during cutting operations killing a diver. The diver was using oxy-arc cutting equipment when the incident occurred.

An investigation into the incident is being carried out although there's one potential explanation for the incident; it is possible that exhaust gases from the thermic reaction on the pipework may have entered the diver's protective suit and trapped between the suit and the hot water suit. These gases may have subsequently ignited by the striking of the burning rod, causing a localised explosion.

[hot work, fatality, offshore]

Lessons

[None Reported]

Source : BBC NEWS, JULY 30, 1999,
(<http://www.bbc.co.uk>).

Location : , SOUTH AFRICA

Injured : - **Dead :** 18+

Abstract

An explosion occurred in a gold mine 3km underground, killing at least 18 miners. It is thought that methane gas caused the explosion. The miners had already sounded the gas alarm and were in the process of evacuating the shaft. They had been drilling holes in the rock to check for pockets of gas or water while they were extending an access tunnel. It is not yet known what caused the gas to ignite.
[evacuation, inspection, fatality, mining]

Lessons

[None Reported]

1148526 July 1999

Source : BBC NEWS, JULY 26, 1999,
(<http://www.bbc.co.uk>).

Location : Kuzbass Region, RUSSIA

Injured : 3+ **Dead** : 3

Abstract

A gas explosion occurred in a coal mine killing three people and injuring at least three others. The mine has been closed and an investigation has started.
[fatality, injury, mining]

Lessons

[None Reported]

1194014 July 1999

Source : CNN.COM, U.S. NEWS, 14 JULY, 1999,
(<http://www.cnn.com>).

Location : Milwaukee, USA

Injured : 5 **Dead** : 3

Abstract

A tower crane collapsed while lifting a roof section into place on a building site adjacent to a baseball stadium. The roof section was one of seven sections with a reported total weight of 12,000 tonnes. The wind was reported as gusting to 30 mph at the time of the incident.

The crane collapsed onto the building site and the stadium. Three workers were reported killed and five were injured including the crane operator.

[construction, fatality, injury]

Lessons

[None Reported]

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]

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]

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]

1210308 June 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; ENDS REP., AUG 1999, 1999(295), 7-8.

Location : , UK

Injured : 0 Dead : 0

Abstract

A public house next to a chemical plant suffered contamination of ground water with xylene. It is thought that the most likely pollution source was the chemical plants' underground xylene storage tanks.

An enforcement order was served on the company on 9 June 1999, to empty the tanks and have them tested for leaks.

The public house had to close a number of times due to the risk of explosions.

An investigation into the incident revealed that xylene may have leaked from the pipes entering the tanks at ground level. The ground water flow under the chemical plant is strongly effected by tidal flow in the river on its boundary.

Lessons

[None Reported]

1102108 June 1999

Source : BBC NEWS, JUNE 8, 1999,
(<http://www.bbc.co.uk>).

Location : , NORTH SEA

Injured : 0 **Dead** : 0

Abstract

About 30 workers were airlifted from an oil platform after a gas leak. Safety systems operated as designed and shutdown production. There were 91 people on the platform at the time, all had been accounted for and there were no injuries reported.
[offshore, evacuation]

Lessons

[None Reported]

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : , UK

Injured : 0 Dead : 0

Abstract

A company was fined £1,500 and costs of £600 (2000) for polluting a creek. The company cleans and jet washes heavy equipment taken from the factory floor. The operation was being undertaken from outside where the yard's concrete surface was heavily polluted with cutting oil and de-greasant. A storage container nearby was also found to be leaking oil from an open tap at the bottom.

Both effluents were found to be draining into a gutter that connected with a public surface water system.

[cleaning, pollution, container, design or procedure error]

Lessons

[None Reported]

1148324 May 1999

Source : BBC NEWS, 25 MAY, 1999,
(<http://www.bbc.co.uk>).

Location : , UKRAINE

Injured : 30+ **Dead** : 35

Abstract

An explosion occurred in a coal mine killing 35 miners and injuring more than thirty others. 130 miners were underground when natural gas from coal deposits exploded.
[fatality, injury, mining]

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]

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]

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]

Source : LOSS PREVENTION BULLETIN, 147, 27.

Location : Donbass Region, UKRAINE

Injured : - **Dead** : 3

Abstract

An underground methane explosion occurred in a coalmine killing three miners. The explosion occurred when a mixture of methane gas and coal dust ignited. The coal mining ministry recently reported that sixty-one miners died in mine accidents in the first three months of this year, most of them victims of ageing equipment and inadequate safety measures.

[fatality, mining]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; ENDS REP., SEP 1999, 1999(296), 48.

Location : , UK

Injured : 0 Dead : 0

Abstract

A company was fined £9,000 (1999) plus costs for causing polluting matter to enter controlled waters. High levels of ammonia discharging from a surface drain were traced to an ice cream manufacturing plant, which was being dismantled. The plant contained 1.5 tonnes of ammonia.

A tanker due to collect the refrigerant failed to arrive, so it was decided to dissolve the gas in water filled drums, but there was insufficient drums available. A trough filled with running water was then used but this overflowed into a drain leading to a tributary of a river. The discharge killed 11,000 fish and caused sore throats and stinging eyes to local residents. Clean-up costs amounted to approximately £14,000 (1999).

[pollution, demolition, leak, ecological damage, people, environmental]

Lessons

[None Reported]

1101012 March 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MAY 1999, ISSN 0265-5271,; BUSINESS LINE, 13 MAR, 1999, 1.

Location :

Injured : 0 Dead : 0

Abstract

A gas leak occurred at an offshore well. Three multi support vessels were put into service, and efforts were made to cap the well. The cause of the gas leak is not known.

Lessons

[None Reported]

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]

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]

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]

1261625 January 1999

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : Hampshire, UK

Injured : 0 **Dead** : 0

Abstract

A metal connector linking a tube on a storage tank sheared off causing oil to leak onto the ground. Fish in a nearby river were affected as a result of the spillage.

The company was fined £2,250 and costs of £387 (2000).

[material of construction failure, storage tanks, pollution, ecological damage]

Lessons

[None Reported]

1053814 January 1999

Source : BBC NEWS, JAN 15, 1999,
(<http://www.bbc.co.uk>).

Location : , CHINA

Injured : 13 **Dead :** 8+

Abstract

At least eight people were killed when a gas explosion occurred in an underground shaft of a mine. Thirteen people were injured.
[fatality, injury, mining]

Lessons

[None Reported]

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.

110331999

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271.; ENDS REPORT, FEB 1999, (289), 5-6.

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak of hydrochloric acid occurred at a site. The area contains a Greenabella Marsh bird and is a roosting and feeding site for wading birds. Acid contaminated over half of the marsh.

The leak was from a fractured underground pipeline taking waste to storage lagoons.

[pollution, ecological damage, material transfer]

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]

1045714 December 1998

Source : BBC ONLINE NETWORK, 1998,
(<http://www.bbc.co.uk>).

Location : , CHINA

Injured : 10 **Dead :** 32+

Abstract

An explosion occurred in a coal mine killing at least 32 miners and injured 10. The explosion was caused by a spark, which ignited coal gas.
[vapour cloud explosion, injury, mining]

Lessons

[None Reported]

1301911 December 1998

Source : NATIONAL TRANSPORTATION SAFETY BOARD ABSTRACT OF FINAL REPORT, PIPELINE ACCIDENT REPORT, NTSB/PAR-00/01, NATURAL GAS PIPELINE RUPTURE AND SUBSEQUENT EXPLOSION, ST. CLOUD MINNESOTA, DECEMBER 11, 1998.

Location : St. Cloud, Minesota, USA

Injured : 13 **Dead :** 4

Abstract

An explosion occurred on a 1-inch diameter high-pressure plastic gas pipeline. The incident occurred when an installation crew struck and ruptured the pipeline causing a gas leak. Approximately forty minutes later an explosion occurred. Four people were killed and thirteen people injured in the incident. Damage to buildings and equipment is estimated at \$399,000 (1998).

An investigation into the incident revealed the following:

1. The marked location of the ruptured gas line was accurate and therefore was not a factor in the incident.
2. Installation procedures were inadequate in that they did not address steps to take under unusual circumstances such as striking a significant underground obstacle, to ensure that buried utilities were protected during the entire installation process including the underground portion.
3. Has someone immediately called for emergency assistance after the rupture, they may have had time to fully assess the risk and to take actions that could have helped either to prevent the explosion or to avoid the resulting loss of life.
4. The risk to people and property was not fully addressed by emergency personnel.
5. Had the gas line in this incident been equipped with an excess flow valve, the valve may have closed after the pipeline ruptured and the explosion may not have occurred.

[excavation damage, human causes, fatality, injury]

Lessons

[None Reported]

1260309 December 1998

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : Wales, UK

Injured : 0 Dead : 0

Abstract

A spillage of approximately 20 tonnes of hydrochloric acid occurred and an unauthorised discharge of mercury into a nearby estuary.

The incident occurred when a tank flange failed on a 150 tonne storage tank containing acid. The tank contained only 40 tonnes at the time of the incident, half of which was quickly discharged into a nearby road tanker.

The 20 tonne spillage generated a gas cloud, which required dousing with water to minimise its off-site impact.

The bund containing the tank breached after 30 minutes and allowed diluted acid to spill into the surface water systems that were contaminated with mercury.

The acid mobilised the mercury and one third of a kilogram was discharged into the estuary.

The cause of the incident was due to completely inadequate procedures for maintenance and inspection of plant and equipment.

The company was fined £21,000 and costs of £17,950 (2000).

[flange failure, storage tanks, gas / vapour release, environmental, ecological damage, human causes]

Lessons

Mercury is highly toxic and cumulative poison, which in the environment continues to be recycled within living plants and animals.

After the investigation the following was addressed to ensure compliance with IPC authorisation:

1. To ensure the tank farm bund was acid resistant.
 2. To review the integrity of effluent drains on site.
 3. To review the location and performance of environmental acid gas detectors.
 4. Review the best available techniques for monitoring tank levels on site.
-

1078901 December 1998

Source : 1998 CABLE NEWS NETWORK.

Location : , CHINA

Injured : 18 Dead : 38+

Abstract

A gas explosion in a coal mine killed 38 miners and seriously injured 18. More than 80 people were working in the mine No.2 shaft when the explosion occurred.

Six miners unaccounted for.

The miners were dynamiting the shaft, touching off the gas explosion.

[solids processing, injury, mining]

Lessons

[None Reported]

Source : ICHEME

Location : , CHINA

Injured : 18 Dead : 38

Abstract

A gas explosion in a coal mine killed 38 miners and seriously injured 18. More than 80 people were working in the mine No.2 shaft when the explosion occurred. Six miners unaccounted for.

The miners were dynamiting the shaft, touching off the gas explosion.

[design or procedure error, vapour cloud explosion, injury, mining]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A storage sphere partially collapsed due to vacuum. The incident occurred during blending operations. Blending was immediately stopped and the sphere blocked in, the area was evacuated and nitrogen was introduced into the sphere to relieve the vacuum. The material in the sphere was transferred to a crude tank.

An investigation into the cause revealed that introduction and removal of flow natural gasoline to and from the sphere, which was not designed for a vacuum. [evacuation, design or procedure error]

Lessons

The following lessons were learned:

1. Vessels designed for a low pressure may not withstand a vacuum.
 2. Vacuum may be created by a number of factors including a high pumping out rate, lower ambient temperature, lower vapour pressure of the liquid in the vessel.
-

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]

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]

Source : EUROPEAN CHEMICAL NEWS, 26 OCT, 1 NOV, 1998.

Location : , UK

Injured : 0 Dead : 0

Abstract

Approximately 80 tonnes of 36% hydrochloric acid leaked from a 200 tonne stock tank.

A pipe at the base of the failed, causing a gas cloud.

[storage tanks, pipeline failure, gas / vapour release, spill]

Lessons

[None Reported]

1138410 August 1998

Source : ICHEME

Location : , GERMANY

Injured : 0 Dead : 2

Abstract

An explosion occurred in a tank on a polystyrene plant killing two people. The tank stored an aqueous suspension of small polystyrene beads containing some pentane as foaming agent.

[fatality, storage tanks, propane]

Lessons

[None Reported]

1261202 June 1998

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : Somerset, UK

Injured : 0 Dead : 0

Abstract

Gas oil leaked from a large storage tank at a cellophane and film manufacturer and contaminated a wide area of land and underground water. An investigation found a small hole in the storage tank.

Approximately 160,000 litres (35,000 gallons) leaked into the ground around the tank compound. Checks revealed that the floor of the bund had not been properly converted from a previous use.

Decontamination of the site is thought to cost over £500,000 (2000).

The company was fined £30,000 and costs of £4,885 (2000).

[storage tanks, corrosion, design or procedure error, pollution, environmental]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Fourteen tonnes of concentrated sulphuric acid was lost in 3.5 hours into the sump and kerbed bunded area around a sulphuric acid storage tank. The alert was raised by an area operator who noticed that the sump was full and the bund area partially full. Earlier the same operator had noticed a leak from the feed pump in commission and decided to switch over to the stand-by pump. This stand-by pump was noted in the night order book as being on emergency stand-by due to an earlier pin hole leak on the pipework.

The operation of the pump was checked several times by the operator in the first few hours of its operation, but the rise in the level in the sump was not noticed until the liquid level was present within the main kerbed area as noted above. The rapid fall in the sulphuric acid tank level was not noticed by the control room operator. The cause of the leak was found to be an open pump casing drain valve. This valve was shut and the area barriered off.

As the spillage was contained and under control it was decided to deal with the spillage the following morning when a suitable external company was appointed to suck out the spillage into a road tanker for subsequent disposal. This was completed without further incident.

[storage tanks, spill, design or procedure error]

Lessons

1. Counsel staff to enforce the requirement to follow procedures carefully and fully understand the dangers of concentrated sulphuric acid.
 2. The Operating instructions should be revised to include the reasons for the high level alarm settings and importance of controlling the sump level.
 3. The operating team should install a rate of change alarm on the sulphuric acid tank and level instrumentation on the associated sump.
 4. The operating team should check the pipework for erosion/corrosion.
 5. Manufacturing Managers should ensure that formal risk assessments are used for the installation of patches on hazardous systems across the site.
-

1199214 April 1998

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Ammonia was released through a small hole when a contractor, dismantling a redundant plant, cut into a pipe. The site was evacuated as a precaution.
[contractor error, demolition, evacuation, gas / vapour release]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

An ethanol day storage facility consisted of five tanks within a bund.

In preparation for sampling one of the tanks, a technician put it on re-circulation and jet mixing. This involved lining up the tank and starting the pump.

About half an hour later he returned to the tank to take a sample and noticed that ethanol was spilling into the bund from an open drain valve on the jet mix line. He closed the valve, stopped the pump and called for assistance.

The fire service arrived at the scene. The ethanol spill, assessed at 2.5 tonne, was dealt with by allowing some to evaporate, the remainder was diluted with fire water and soaked away within the bund.

[storage tanks, operation inadequate]

Lessons

Company recommendations following the accident included the following:

Shutdown documentation should be formalised to link the documentation for maintenance activities with the process reinstatement and line checks based on marked P&ID's.

Source : ICHEME

Location : , USA

Injured : 7 Dead : 2

Abstract

A BLEVE (Boiling Liquid Expanding Vapour Explosion) occurred on a propane storage tank at a paltry farm. The incident occurred when a vehicle collided with two pipes attached to the 18,000 gallon tank.

This caused the pipe to rupture, releasing propane which then ignited.

Two fire fighters were killed and seven others injured.

[storage tanks, road vehicle, human causes, fatality, injury]

Lessons

[None Reported]

1260117 March 1998

Source : ENVIRONMENTAL TIMES, VOLUME 6, ISSUE 3, SPRING 2000.

Location : Wales, UK

Injured : 0 Dead : 0

Abstract

Approximately 500 - 1,000 litres of heating oil spilled from a tank into a nearby watercourse. An investigation found that vandals had tampered with the tank. Poor pollution prevention at the site had indirectly been the cause of the pollution. It was found that the oil storage tank was unbunded and was situated directly over a surface water drain. The company was fined £1,000 and costs of £2,662 (2000).
[storage tanks, vandalism, design or procedure error, pollution]

Lessons

[None Reported]

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]

9059 18 January 1998

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

Location : , RUSSIA

Injured : 24 Dead : 4

Abstract

A methane gas explosion occurred in a coal mine. The explosion occurred during the overnight shift, when 49 miners were inside the mine at a depth of nearly 3,000 feet.

The blast caused the shaft where the miners were working to collapse and set off a fire that raged throughout the day.

Methane, a naturally occurring colourless and odourless gas that seeps out of coal seams, can build up in poorly ventilated mine shafts and is easily ignited by a spark.

[fatality, mining, injury]

Lessons

[None Reported]

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

Location : Serbia, YUGOSLAVIA

Injured : 2 Dead : 29

Abstract

A methane gas explosion occurred in a coal mine killing 29 miners.

Methane, a naturally occurring colourless and odourless gas that seeps out of coal seams, can build up in poorly ventilated mine shafts and is easily ignited by a spark.

[fatality, mining, injury]

Lessons

[None Reported]

11751January 1998

Source : BBC NEWS, SEPTEMBER 8, 1999, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 0 Dead : 2

Abstract

Two workers fell eight floors, 100 ft, from a building after cutting a hole most of the way round themselves, with out wearing safety harnesses, and had no way of saving themselves.

A demolition firm was fined £200,000 (1999).

[fall, fatality, safety procedures inadequate, management system inadequate, demolition, tools & access equipment]

Lessons

[None Reported]

104471998

Source : BBC ONLINE NETWORK, 1998,
(<http://www.bbc.co.uk>).

Location : San Francisco, USA

Injured : 0 **Dead** : 0

Abstract

A power failure caused severe disruption at the height of rush hour, stalling numerous overland and subway trains. The power failure also caused traffic chaos and led to the suspension of flights into the international airport.

The problem was eventually traced back to a power station where a construction crew interrupted a main electricity line.

Workers adjusted several 115-kilovolt lines turned power on without proper grounding (earthing), this caused a chain reaction, shutting down other power stations, pulling the plug on most of the city and its southern suburbs.

[rail transport, electrical equipment failure

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]

Source : CHEMISTRY IN BRITAIN, JULY, 1998.

Location : , UK

Injured : 1 Dead : 0

Abstract

During an attempt to make 4-chloro-2-butyn-1-ol a serious explosion occurred. Although actual bodily injury was sustained by the person involved, who required 3 days in hospital, it is fortunate that the injuries were not more severe. The procedure used was a modification of the method to make 4-chloro-2-butyne-1-ol in which a stoichiometric amount of thionyl chloride was used without pyridine or solvent. It was assumed that the product was a mixture of starting diol, the required mono-ol and the dichloro compound. The violent detonation occurred during an attempt to separate the product by fractional distillation under reduced pressure. In the original preparation of this compound, the product is isolated by fractional distillation (50 degrees C, 0.5mmHg). No mention of explosion is made in the original reference. The dichloro compound and the diol are commercially available which reports a boiling point of 238 degrees C for the diol and 165-168 degrees C for the dichloro compound. No hazard of explosion is reported in the MSD compilations for the dichloro compound, however, for the diol it is reported that it decomposes violently when heated above 340 degrees C. The bath temperature certainly did not reach 340 degrees C in our distillation, but it is likely that it reached 180 degrees C.

[alkyne, acetylene, laboratory work, distillation, injury]

Lessons

We hope that this incident will provide a timely reminder to others that alkynes (acetylenes) are potentially dangerous, especially when heated in concentrated form, and that one should not assume that because no explosion has been reported that they will not explode. References: W.J. Bailey and E. Fujiwara. J. Am. Chem. Soc. 1955, 77, 165A. W. Johnson, J. Chem. Soc., 1946, 1009. W. Reppe, Ann 1955, 78, 596.

123491998

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An offshore incident. A large volume of natural gas was released on an offshore gas platform. The release occurred from a leak in a pipework joint, which had been isolated for maintenance work. No one was injured in the incident.

Fortunately no fire or explosion occurred from the incident.

The company was fined £300,000 (2000).

[near miss, gas / vapour release]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 1 Dead : 0

Abstract

A contractor sustained six fractured ribs and bruised legs when brick fire insulation around the skirting of a redundant visbreaker column collapsed on top of him.

The immediate cause of the accident was the collapse of unsafe brickwork during the demolition process due to the following causes:

1. The removal of bricks from the bottom of the skirt making the structure unsafe.
2. No formal plan and risk assessment of the job.
3. Inadequate control of the proposed method for the job.

[design or procedure error]

Lessons

1. Never undertake demolition work without a detailed plan which has been scrutinised through a risk or task analysis.
 2. Ensure full-time supervision during demolition work and control each part of the job with a work permit.
-

106011998

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Approximately 150 tonnes of base oil escaped from a storage tank whilst a bottom outlet valve was being repaired. A substantial quantity of the oil soaked into the porous ground of the tank farm. Losses incurred included approximately \$150,000 (1998) for salvage and remediation and an additional \$15,000 (1998) due to downgrading of product.

The immediate cause of the spillage was an opening in the outlet branch due to the removal of the bonnet on the gate valve. The basic cause was a failure to isolate all the pipes to and from the tank required under the work permit system.

[storage tanks, design or procedure error]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A lube oil spillage occurred during the demolition of a redundant road tanker filling gantry due to inadequate isolation of the pipework. The redundant road tanker filling gantry consisted of numerous horizontally run overhead pipes that branched off from existing operational pipes going to other filling stations.

The demolition work was controlled under a permit-to-work that clearly required positive isolation of each filling line.

The permit considered the line in question to be positively isolated by a blind. Unfortunately due to the congestion of lines in the area, the line was mistakenly identified with an adjacent pipe which was fitted with a blind.

The fact that a blind had not been fitted or the ball valve was not in its closed position was not discovered until the main filling line was used again to the existing operational filling station.

The slop header could not cope with the flow of oil from the hose with the result that the tundishes overflowed onto the rail tracks and road. Approximately 8,500 litres of oil was

recovered by means of a vacuum truck or from the oily water sewer.

A further spillage occurred the following day. In spite of checking the position of the handles on the ball valves, it had not been identified or considered for the handles to be 90 degrees away from their normal position and no blinds had been fitted to the lines. The valve handles had been

modified sometime ago to enable a mechanical locking device to be fitted. Not only had the handles been modified, washers had been fitted which obscured the true position of the ports in

the valve itself. There was no way of determining whether the valve was open or closed and not all the valves had been modified. An inconsistent arrangement which was prone to human error. Approximately 4,500 litres was recovered from the second spillage under level control.

The immediate causes of the spillage was failure to positively isolate the pipes through shut and locked ball valves and the installation of blinds.

The basic causes were the failure to properly document previous modifications of the valve handles and failure to follow the correct isolation practices for demolition work before issuing work permits.

A contributory cause was a failure to carry out regular monitoring of the work permit system for this type of activity.

[isolation inadequate, design or procedure error]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A large oil spill (approximately 175 m³) occurred in a crude oil tank farm from two failed joints/gaskets. The failed joints/gaskets were at pipeline flanges on a 10 bar/150 psig section of the crude oil transfer line from the offshore production platform to crude tank at the refinery.

The flange joints/gaskets failed due to the transfer line being overpressured. The motorised inlet valve to the tank automatically closed following a spurious extra high tank level trip and this subjected the line to the maximum full discharge pressure of the offshore platform's main oil line pump. The line was not designed for the shut-in pressure.

The resultant spill of crude oil in the pipe trench was recovered using water and vacuum trucks.

The crude oil on the pig receiver slab was recovered in the oily/water sewer systems.

[joint failure, gasket failure, material transfer, refining]

Lessons

The report stated:

The implementation and continued integrity of process safety management systems must be assured through auditing and planned inspections

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]

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]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; HEALTH & SAFETY BULLETIN, NOVEMBER 1998, (273); 2.

Location : , UK

Injured : 2 **Dead :** 0

Abstract

Two workers were exposed to plutonium particles at a laboratory during dismantling of pipework from a redundant glove box. Two companies involved in the incident were fined, one £14,000 (1998) and the other £4,000 (1998).

[laboratory work, contamination, safety procedures inadequate, injury]

Lessons

[None Reported]

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]

Source : LLOYDS LIST, 15 DEC, 1997.

Location : , USA

Injured : 1 Dead : 1

Abstract

A flash explosion occurred on a 6,000 gallon underground gasoline tank, which was being prepared for lining with fibreglass. One person was inside the tank and another by the 3ft by 3 ft manhole.

[storage tanks, fatality, entry into confined space, underground storage, injury]

Lessons

[None Reported]

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]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDONESIA

Injured : 0 **Dead :** 0

Abstract

Mud burst from the ground near an onshore crude oil well after an explosion. Eruptions followed the withdrawal of the drill from the well which then caused a leak. Natural gas leaked from 11 different spots. 200 houses nearby were damaged as a result of the explosion and 1400 people were evacuated.
[exploration, evacuation, gas / vapour release, damage to equipment]

Lessons

[None Reported]

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]

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]

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]

Source : LLOYDS LIST, 8 NOV, 1997.

Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

An offshore well leaked gas for 10 days while attempts to close in the well were being carried out. Some crew were evacuated while release of gas continued.

[evacuation, gas / vapour release, exploration, natural gas]

Lessons

[None Reported]

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]

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 litre 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]

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]

Source : ICHEME

Location : , UK

Injured : 1 Dead : 0

Abstract

During the dismantling of a furnace coil support frame in a firebox, an employee suffered injuries to both feet and ankles, when the support frame fell, trapping his right foot. The accident was caused by the loss of grip between the coil and the support frame, during the procedure to install the coil in the furnace. The design of frame made use of friction to effect a grip between the coil and the frame, but for most of the installation it would also be independently rigged. The most likely cause of the loss of grip was insufficient bolt loading being applied to the tie rods which made up part of the frame assembly. The factory emergency services had severe difficulties in rescuing the injured man from his elevated position, both in terms of the type of equipment available and the ease of egress from the furnace. The worker was still off work due to his injuries two months later.

[demolition, mechanical equipment failure, injury]

Lessons

The following recommendations were made:

1. New procedures were to be written for many aspects of this operation and training given in their application.
 2. As part of the wash-up exercise, a thorough review of all aspects of the operation were to be carried out.
 3. The information on the incident was to be passed on to other ethylene producers.
 4. A review of the equipment available for casualty rescue was to be performed.
 5. Local procedures were to be reviewed to ensure that consideration was given to egress in work planning. The safety procedures should also be reviewed to ensure the Emergency Services could be correctly guided and advised when attempting a rescue from a confined space.
-

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

Location : Spitsbergen, NORWAY

Injured : 0 **Dead** : 23

Abstract

An explosion occurred in a coal mine which was fuelled by methane and coal dust. The blast occurred 300m down and 4.5 km from the main shaft.
[fatality, mining]

Lessons

[None Reported]

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]

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]

8941 31 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : Kirikkale, TURKEY

Injured : 0 **Dead** : 1

Abstract

An explosion occurred in a storage tank in an oil refinery killing a worker taking measurements on top of the tank. The blast was reported to have been due to gas compression in the asphalt filling tank.

[storage tanks, refining, fatality]

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]

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]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0 **Dead :** 0

Abstract

A self-elevating drilling platform broke loose from her moorings and collided with an offshore supply vessel, with spillage of 3,500 gallons of diesel oil. The platform then drifted against two double hulled barges.

[inadequate mooring, collision, marine transport]

Lessons

[None Reported]

9069 22 July 1997

Source : ICHEME

Location : Indianapolis, USA

Injured : 1 **Dead :** 1

Abstract

A gas pipeline exploded and touched off a fire, destroying six houses and damaging 50 others in an affluent subdivision.

Construction workers using a backhoe apparently punctured the gas 20 inch main and left 10 to 15 minutes before the explosion. One person suffered burns.

[damage by backhoe, fatality]

Lessons

[None Reported]

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]

8919 19 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. CHEM WEEK.

Location : , USA

Injured : 0 Dead : 0

Abstract

A rail transportation incident. Demolition experts blew up two tank cars of chloroprene following derailment of a train due to a buckled track, 6000 residents were evacuated prior to a controlled blast.

[evacuation]

Lessons

[None Reported]

9012 18 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , UK

Injured : 0 Dead : 0

Abstract

A chemical leak occurred killing thousands of young fish and eels. A faulty valve allowed a caustic soda solution to escape from a storage tank and flow down a drain into a nearby river near the sea. It turned the water alkaline which was fatal to the fish. No radioactive material was discharged.
[storage tanks, ecological damage]

Lessons

[None Reported]

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]

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]

Source : ENGINEERS AUSTRALIA, JANUARY 2000.

Location : , AUSTRALIA

Injured : - **Dead :** 1

Abstract

A 1kg fragment of steel expelled during a planned implosion of a hospital killing a spectator who was 430m away. Several other spectators were also injured in the incident.

[demolition, fatality, human causes, injury]

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]

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]

8936 08 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.

Location : , ECUADOR

Injured : 0 Dead : 0

Abstract

An explosion occurred allegedly due to a fire which could not be controlled at a military base ammunition store. 20 buildings in 2km radius were damaged.
[fire/explosion, damage to equipment, storage]

Lessons

[None Reported]

1134006 July 1997

Source : LLOYDS LIST, 26 JUL, 1997.

Location : , TAIWAN

Injured : 0 Dead : 0

Abstract

A leak in a fuel oil tank caused a nearby river to be seriously polluted. The spillage was caused by a malfunction in an automatic control system on the tank.
[pollution, mechanical equipment failure, process control & instrumentation, storage, environmental]

Lessons

[None Reported]

8935 06 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SPE. LLOYDS LIST.

Location : , TAIWAN

Injured : 0 Dead : 0

Abstract

Leaks from oil storage tanks seriously polluted streams, many fish were killed and residents suffered dizziness and nausea.
[ecological damage]

Lessons

[None Reported]

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]

8912 27 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : Beijing, CHINA

Injured : 62 **Dead** : 3

Abstract

An explosion occurred in a storage tank killing three and injuring 62, the explosion sent shards of metal flying and blew out windows 1 km away.
[fatality, injury]

Lessons

[None Reported]

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]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.

Location : , IRAN

Injured : 31 Dead : 8

Abstract

An explosion occurred in a colliery killing eight and injuring 31 and trapped 150 miners underground, allegedly due to electrical short circuit igniting methane gas.
[fatality, injury, mining]

Lessons

[None Reported]

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]

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]

Source : THE CHEMICAL ENGINEER, 11 JUNE, 1998.

Location : , NETHERLANDS

Injured : 0 **Dead :** 1

Abstract

An explosion occurred in the chemical area of a refinery whilst cleaning operations were being carried out in the methyl tert butyl ether storage tank. The contractor that was fatally injured was working on the empty tank.

[storage tanks, fatality]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , GULF OF MEXICO

Injured : 0 **Dead :** 0

Abstract

Blowout at gas well while drilling. The drill string broke above water and release of natural gas occurred. Thirty nine people were evacuated from the rig.
[offshore, gas / vapour release, evacuation]

Lessons

[None Reported]

8885 28 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. THE TIMES.

Location : Liaoning, CHINA

Injured : - **Dead** : 0

Abstract

A gas explosion occurred in a coal mine killing many miners.

[fatality, mining]

Lessons

[None Reported]

8968 28 May 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (<http://www.cnn.com>).

Location : Liaoning Province, NORTH EASTERN CHINA

Injured : 0 **Dead** : 68

Abstract

A gas explosion at a coal mine occurred. The cause of the explosion is under investigation.

[fatality, mining]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 4 **Dead :** 0

Abstract

An explosion caused a minor spillage. The offshore platform had been out of service for several years and was being refurbished by workers when the explosion occurred.

[maintenance, injury]

Lessons

[None Reported]

Source : LLOYDS LIST, 6 MAY, 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

Approximately 1000 tonnes of naphtha was released following a leak at a storage facility.

Two roads closed and people told to stay indoors. One of the walls in the storage facility failed.

The company was fined £2,500 and costs of £1,267 (1998). The clean up operation cost the company £750,000 (1998).

[mechanical equipment failure, gas / vapour release, storage equipment, spill]

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]

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]

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]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. OSIR.

Location : Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

A storage barge at a production facility spilled 55,000 litres of crude when the flow valve to an adjoining tank was shutdown. Cleanup recovered 47,000 litres.
[container, crude oil]

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]

9002 01 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , AUSTRALIA

Injured : 3 Dead : 0

Abstract

A storage tank ruptured releasing 11,600 litres of sulphuric acid.

[storage tanks, spill]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 10 Dead : 0

Abstract

A chemical explosion occurred releasing small amounts of plutonium to the environment and exposed 10 workers to airborne chemical contamination. The incident occurred in a shut down plutonium reclamation facility when 370 gal of hydroxylamine nitrate in dilute nitric acid spontaneously exploded. The mixture had been in "short term" storage for four years, and water had been slowly evaporating from the solution. Eventually, a concentration was reached that resulted in the chemical explosion.

[accidental mixing, environmental]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Hampshire, UK

Injured : 0 **Dead** : 0

Abstract

A spill of twenty two tonnes of trichloroethylene. The trichloroethylene leaked from a tank and through a bund towards a nearby river.
[storage tanks]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 0 **Dead :** 0

Abstract

The 10 inch natural gas liquids (NGL) pipeline ruptured 50 ft below a creek bed while a construction crew were laying a parallel pipeline. Blow-down valves closest to the rupture were opened to de-pressurise an 8 mile section of the line. While repairs were being carried out, product was diverted to a nearby pipeline. The local community was evacuated as a result of the incident and release.
[material of construction failure, evacuation]

Lessons

[None Reported]

9070 11 March 1997

Source : ICHEME

Location : Beijing, CHINA

Injured : 12 **Dead :** 68

Abstract

A gas explosion occurred at a coal mine caused by an accumulation of gases inside the mine.

[fatality, mining]

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]

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 leapt 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]

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]

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]

Source : LOSS PREVENTION BULLETIN, 136, 25.

Location : ,

Injured : 1 **Dead :** 0

Abstract

Two companies involved in a joint venture digging tunnels for the Jubilee line underground extension were fined £5,000 (1997) each after an accident which injured a carpenter. The carpenter fell 5.5 m onto his head while water-proofing a roof on an extension to the site office. No guard rails had been provided on this section of the roof. The carpenter suffered serious head injuries and numerous fractures. The two civil engineering companies pleaded guilty to the summonses under the Construction (Working Places) Regulations.

[safety procedures inadequate, fall, injury]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 134, 25.

Location : ,

Injured : 0 **Dead :** 1

Abstract

A maintenance assistant was working with a filter in silo used to store wood chips. The chips, produced by a chipping machine from broken pallets and waste wood, were loaded into the top of the silo by a charging conveyor, suspended vertically, moved up and down within the silo equalising the level of the contents.

To gain access to the upper end of the charging conveyor, the employee rode the equalising conveyor to the top of the silo. As it was lowered back down, it started automatically, and he became trapped between the conveyor's slats and a drive shaft. Rescue was carried out by the emergency services, but the employee died later from internal injuries. Fatality.

[silo/hopper, storage]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : ,

Injured : 0 **Dead :** 1

Abstract

During demolition work, sections of a high pressure pipework had to be lifted and relocated. Contrary to instructions to use an electromagnetic hoist to lift the pipe section, the foreman decided to attached a double chain to the centre of a section and lift that with a crane. He attached one length of the chain to the centre of the pipe, moved away and signalled to the crane operator. During the lift, the pipe twisted through 90 degrees and tilted slightly, jamming against a concrete up-right. The operator decided to lower the pipe to try and un-jam it, but this tilted the pipe even further and loosened the chain. The foreman tried to throw the other part of the chain over the pipe, which then fell, striking him on the upper part of the body. He died of internal injuries.

[fatality]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 2 Dead : 0

Abstract

An accident occurred on a platform during a lifting operation of three and a half inch drill pipe from the moving pipe deck to main deck which resulted in 2 people being injured.

The drill pipe was being lifted in bundles of 15 (11 joints per bundle being the recommended number). The injured persons had positioned themselves between the load and a wire line power pack unit, in addition there was a hanger module lying on the deck directly behind them. As the lift commenced the drill pipe was drawn together and rolled away from the persons involved towards the crane. Once the slack had been taken up in the slings and the load had cleared the dunnage the bundle swung away from the crane back towards the persons involved catching them both off guard. This resulted in one injuring his knee trying to avoid the load with the other being crushed between the bundle and the power pack unit. There were no protective posts in use to protect the persons from the swinging load.

[operational activities, offshore, lifting equipment, inadequate guarding, safety procedures inadequate, injury]

Lessons

The following recommendations were made:

1. Awareness of the risks involved when handling bundled pipe.
 2. The importance of the boom tip position in relation to the center of the load.
 3. Positioning of people during lifting operations.
 4. Ensuring that personnel involved in lifting operations are fully aware of and use the correct procedures.
 5. The use of protective posts for this type of lifting operation.
 6. The maximum recommended number of joints per bundle should not be exceeded.
-

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

During the removal of redundant piping as part of a demolition program, a contractor cut into a live propane line. The system was isolated immediately. The contractor had been issued with a general hot work permit to demolish piping at a molecular sieve treater by cutting with a band saw. Two cuts had been completed on two separate lines and cutting had commenced on a third when propane began to escape from the pipe. A safety review had been held with the contractor on the safety procedures to be followed. This included the marking with orange and blue paint those pipes that may be removed. The line in question was not marked for removal. Subsequent investigations showed that the refinery's safe work practices for issuing the permit and the requirements for lock out/tag out had not been followed, specifically:

1. Safe work practices for isolation including lock out/tag out were not followed by the operator or the contractor.
2. Procedures agreed to in the contractor safety meeting had not been followed.
3. The agreed procedure between the contractor and operator had not been followed.

[contractor error, safety procedures inadequate, spill]

Lessons

A number of immediate actions were taken including:

1. Ensuring that employees have sufficient knowledge to ensure compliance with the refinery's safe practices.
2. Tightening job safety analysis and procedures prior to issuance of permits.
3. Weekly meetings between the contractor and operations with special focus on planned job tasks and procedures to be followed were re-established.

In addition the removal of any redundant piping requires:

1. Careful planning.
2. Preparations, including specific task written procedures.
3. Stringent work permit control.
4. Good communication arrangements between the parties involved.
5. Site visits with clear identification of the piping to be removed.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 0 **Dead :** 0

Abstract

A spillage of a herbicide (fluroxypyr) occurred contaminating a water course. A leaking container of fluroxypyr had been stored in an area which had been thought to be isolated from surface water drains. This was not the case and the drains fed to a nearby stream. Levels of 21,5 mg/l of fluroxypyr were detected in the water.

[storage, drainage system, ecological damage, leak]

Lessons

[None Reported]

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]

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

During a monthly reconciliation inspection of a gasoline tank, it was discovered that the water bottom had virtually disappeared. When the inspector and tank farm operator returned on the following morning to check the dip, an oil leak from beneath the tank floor was visually evident. Investigations later revealed there had apparently been a low level leak from the tank since it was last filled in October 1996, and the leak increased significantly on December 31. Approximately 125 tonnes of product had leaked out. A major incident was declared at the site at 10.30 hrs., and gasoline was transferred out of the tank and water injected to re-establish the water bottom. Recovery of gasoline from the spill in the bund (dike) commenced that evening.

The tank farm consisted of six motor spirit storage tanks. The tank levels are monitored by a monitoring system at the central control room. Tank level information is then transferred to the refinery operating system and at every midnight into the information system. Within the monitoring system, a "deadband" of 12 mm was set within which the tank is defined as "inactive" - i.e., not moving. This means that an alarm is initiated if the tank level indication falls or rises by 12 mm. If the deadband is reset after an alarm, the original set-point is lost. There was no record of alarms and therefore no "trending" of a possible longer term leak.

All the motor spirit tanks had been inspected within the relevant code inspection period and had their repair recommendations carried out. There had been two previous floor failures, one of which involved the same tank in December 1985. No under floor corrosion was evident and following repair, the tank floor was vacuum box tested and fluorescent tested before returning to service.

A change in temperature of less than one degree is sufficient to change volume to activate the deadband alarm. The deadband alarm associated with these tanks has been seen as a "nuisance alarm" by the various shifts, and past inspections in reactions to alarms showed no evidence of leakage.

Loss reconciliation shows a loss of 573 tonnes with the possibility that part of a further 400 tonnes in pipe work probably contains some water.

[tank failure, rupture, storage]

Lessons

The following recommendations were made:

1. Open up the tank for cleaning for inspection as quickly as practicable to determine the nature and cause of failure.
 2. Review dead band alarming and the potential for nuisance alarms and discuss problem with operating teams.
 3. Make immediate efforts to empty two of the remaining "in service" tanks, one for inspection and one to be available for receipt in the unlikely event a problem arises with another tank.
 4. Repeat a loss reconciliation following the next tank movement to ensure all pipe work contains motor spirit, so that a full and final reconciliation can be made.
 5. Complete recovery operation and quantify the amount of gasoline recovered.
 6. It is important that the long term level trend of infrequently moved tanks be monitored to detect any low level leak.
- Frequent "nuisance" alarms must be thoroughly investigated; otherwise, they will be ignored in a real alert.

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Approximately 8 tonnes of monomer blend was released from a storage tank into a polymerisation tank.

The liquid was contained in a bounded area and quickly covered with foam, neutralised and sent to the sump tank. There was no liquid release and no injuries or damage to the plant.

The incident occurred when two contractors were working in the area and due to a mistake, they removed the bottom valve of a full storage tank, instead of the empty storage tank beside the full tank causing the release.

[storage tanks, spill, contractor error, maintenance]

Lessons

[None Reported]

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]

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]

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]

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]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Off Corpus Christi, USA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. An oil marine tanker containing ballast struck an unmanned gas platform 15 miles east of Port Aransas. Damage to legs of platform.

[damage to equipment, offshore, collision]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak of 2000 litres of fuel oil spillage from storage tank into river, causing pollution over an 8 km stretch.

[storage tanks]

Lessons

[None Reported]

8472 03 October 1996

Source : PROCESS ENGINEERING, 1996, NOV,.; EUROPEAN CHEMICAL NEWS, 1996, OCT, 7,.; PRESS ASSOCIATION.

Location : Avonmouth, UK

Injured : 18 **Dead** : 0

Abstract

A series of explosions ripped through an epichlorohydrin storage tank when a road tanker was unloading sodium chlorite. Smoke drifted across the M4 and M5 motorways which were closed. Rail services were closed. The documentation for the tanker appeared to be incorrect.
[storage tanks, document errors]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, JUL.

Location : North Carolina, USA

Injured : 0 Dead : 0

Abstract

A release of 132m³ of propane occurred during a delivery at a bulk storage facility. The incident occurred when during the unloading of a cargo tank into two 113m³ storage tanks, the discharge hose became separated from its coupling at the storage tank inlet connection. The driver shutdown the engine, stopping the discharge pump but could not access the remote closure control to close the internal stop valve.

The excess flow feature of the emergency discharge control system did not function and propane continued to be released from the system. In addition to this the back flow check valve on the storage tank system failed resulting in even greater loss.

[hose failure, spill]

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]

8634 21 August 1996

Source : LLOYDS LIST, 1996, AUG, 27.

Location : Muuga, ESTONIA

Injured : 0 Dead : 0

Abstract

Two dust explosions occurred in a malt silo.
[storage equipment]

Lessons

[None Reported]

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]

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]

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]

8618 22 July 1996

Source : LLOYDS LIST, 1996, JUL, 22. LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

Location : Ontario, CANADA

Injured : 0 **Dead** : 0

Abstract

Lightning struck a gasoline additive (raffinate) storage tank and blew off the roof. The tank contained 8.2 million litres.

The fire took 7 hours to extinguish. 300 evacuated.

[evacuation, raffinate]

Lessons

[None Reported]

8617 19 July 1996

Source : LLOYDS LIST, 1996, JUL, 22.

Location : Barcelona, SPAIN

Injured : 1 **Dead** : 0

Abstract

An explosion occurred in a packaging warehouse.

[packaging equipment, warehousing]

Lessons

[None Reported]

8614 12 July 1996

Source : LLOYDS LIST, 1996, JUL, 15. LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

Location : Sormenovo, RUSSIA

Injured : 0 **Dead** : 2

Abstract

An explosion occurred at a gas pipeline formed a crater more than 2 metres deep and 8 metres across.

The explosion occurred after a bulldozer hit the pipeline

[drilling/digging/ploughing vehicles, excavation, fatality]

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]

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]

Source : EUROPEAN CHEMICAL NEWS, 1996, JUL, 22,; ENDS REPORT 267, APRIL 1997.

Location : West Yorkshire, UK

Injured : 7 Dead : 0

Abstract

During routine cleaning of a storage tank prior to maintenance and inspection. The tank was used as a vent tank to relieve pressure during unloading of delivery tankers before the gases were discharged to the site's scrubbing system. The sight glasses were obscured and the process operators assumed that the tank was empty. When water was added to the tank it reacted with an estimated 3.5 tonnes of sulphur trioxide which had built up in the tank over several months. The result was a muffled bang and the release of a white cloud. The fumes filled the building and spread some 2 miles from the site. The firm was fined £13,000 (1996).

[storage tanks, gas / vapour release, operator error]

Lessons

[None Reported]

9011 July 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Yorkshire, UK

Injured : 1 Dead : 0

Abstract

A vapour cloud was released when a chemical storage tank was being cleaned prior to inspection. The vessel was used as a vent tank to relieve pressure during the unloading of delivery tankers before the gases were discharged to the scrubbing system. The sight glasses on the tank were obscured and the process operators assumed that the tank was empty. However, when water was added to the vessel it reacted with an estimated 3.5 tonnes of solid sulphur trioxide which had built up within the tank over several months. The result was a muffled bang followed by the release of a cloud of dense, acidic white mist. The plant manager sustained minor burns to his hand while trying to close the tank lid. The fumes filled the building and spread some two miles from the site. The cloud was blown over a largely un-populated area.

The company was fined £26,000 with costs of £12,800 (1997).

[gas / vapour release, storage tanks, cleaning, unwanted chemical reaction]

Lessons

[None Reported]

8623 22 June 1996

Source : THE GUARDIAN, 1996, JUL, 23.

Location : Nebraska, USA

Injured : 15 Dead : 1

Abstract

An explosion occurred at a sugar factory which damaged 7 silos and scattered sugar over a wide area. Fatality.

[damage to equipment, storage, silo/hopper, processing]

Lessons

[None Reported]

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]

Source : ICHEME

Location : ,

Injured : 0 Dead : 1

Abstract

Contractor fatality during tank construction at an LPG terminal. A contractor's fitter working on a 3 m high catwalk for the erection of a water storage tank fell head-down into the bottom of the tank. It was found that the fitter was not using/standing on a proper platform. The time was approaching the end of the working day and, instead of rearranging the catwalk (wooded plank), he chose to balance with one foot on the pointed edge of a slender angle bar, which gave way. Fatality.

[safety procedures inadequate]

Lessons

Detailed discussion with tank constructors by the project teams on how safe working platforms are to be provided is obviously necessary before the work starts, and requirements must be written into the contracts and checked on throughout the project.

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]

8596 01 June 1996

Source : LLOYDS LIST, 1996, JAN, 3.

Location : Sant Celoni, SPAIN

Injured : 0 **Dead** : 0

Abstract

A storage tank holding 6,000 litres of bleach broke. A toxic cloud formed when the bleach leaked into connecting pipes carrying hydrochloric acid.
[storage tanks, gas / vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Lisichansk, UKRAINE

Injured : 0 **Dead** : 0

Abstract

Shifting soil caused a break in an oil pipeline an a spillage of 500 tonnes of crude oil.

[excavation, damage to equipment, drilling/digging/ploughing vehicles]

Lessons

[None Reported]

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]

10409 May 1996

Source : LOSS PREVENTION BULLETIN, 139, 23-24.; HEALTH, SAFETY AND ENVIRONMENT BULLETIN, 264, DECEMBER 1997.; HEALTH AND SAFETY AT WORK, DECEMBER 1997.

Location : , UK

Injured : 2 **Dead** : 0

Abstract

A loosely-bound bundle of fifty scaffold tubes was being lifted from an adjacent street, over a building under construction and lowered onto scaffolding. Although a two sling chain was suspended by simply wrapping the chain once around the bundle. As the bundle was lowered, it caught on a scaffolding upstand, the chain slackened and the tubes fell into the street below. Two members of the public were slightly hurt when the taxi they were in was pierced by the falling poles.

[scaffolding, near miss, design or procedure error]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Ryazan, RUSSIA

Injured : 0 **Dead :** 6

Abstract

A road building enterprise had rented an obsolete part of the refinery and stored hot liquid bitumen in a 10,000 m³ underground storage facility. It is thought that corrosion and a damaged power cable were involved in the explosion.
[storage equipment, damage to equipment]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Moscow, RUSSIA

Injured : 1 **Dead** : 2

Abstract

An explosion involving underground storage of gasoline. Vessel was reported as 10,000 tonnes.
[storage equipment, fatality]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Frankfurt, GERMANY

Injured : 0 **Dead** : 0

Abstract

Spillage of potassium hydroxide into a river occurred following a storage container overflow. The reason for the leak is unknown.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , KUWAIT

Injured : 0 Dead : 0

Abstract

An oil leak occurred during drilling operations.

[exploration]

Lessons

[None Reported]

8576 05 March 1996

Source : LLOYDS LIST, 1996, MAR, 8.

Location : Montevideo, URUGUAY

Injured : 0 **Dead** : 0

Abstract

A fire broke out in a store and warehouse of chemical products. Fire caused by electrical short circuit.

[fire - consequence, storage, warehousing, unknown chemicals]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Amsterdam, NETHERLANDS

Injured : 2 **Dead** : 0

Abstract

A fire occurred in a laboratory when a reactor was charged with lithium aluminium hydride.

[fire - consequence, reactors and reaction equipment, laboratory work, charging reactor]

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, FEB, 26.

Location : Rotterdam, NETHERLANDS

Injured : 17 **Dead** : 0

Abstract

A warehouse containing 80 - 100 tonnes hydrochloric acid and chlorine based chemicals destroyed. Dense orange smoke caused problems to residents and industries. Release of chlorine gases caused by the fire but as within toxic level limits. Residents of the city were told to stay indoors. Some shipping operations at the port were suspended.

[fire - consequence, gas / vapour release, warehousing, storage]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , AUSTRALIA

Injured : 0 Dead : 0

Abstract

A fire occurred in a warehouse storeroom believed to have contained 100 drums of oxidising chemicals.

[fire - consequence, storage, warehousing, unknown chemicals]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER. ISSUE 1, 1996.

Location : , GULF OF MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a natural gas platform.

[fire - consequence, offshore]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , NORWAY

Injured : 0 Dead : 0

Abstract

A fire occurred in a drilling module causing damage to electrical cables.

[fire - consequence, damage to equipment, offshore]

Lessons

[None Reported]

1302 26 January 1996

Source : LLOYDS LIST, 1996, JAN, 30.

Location : ,

Injured : 0 Dead : 0

Abstract

Jack-up oil platform sunk in Gulf of Suez while on the move.

[sinking, offshore]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , EGYPT

Injured : 0 Dead : 0

Abstract

Water started to enter the rig while it was being moved for reasons which are not yet clear. A salvage operation may be feasible. Offshore.

[sinking]

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, JAN, 27, JAN, 30.

Location : GULF OF MEXICO,

Injured : 0 **Dead :** 0

Abstract

Natural gas offshore platform burned out of control after explosion when pipe was being attached to one of several wells feeding into platform. 45 workers safely evacuated.

[fire - consequence, evacuation]

Lessons

[None Reported]

8669 24 January 1996

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , GULF OF MEXICO

Injured : 0 Dead : 0

Abstract

A fire raged for four days following an explosion in a gas well during completion of drilling. Main damage was to drilling contractor's rig. No pollution followed the blowout. Well finally capped on the 7th Feb 1996. Offshore.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , EGYPT

Injured : 2 Dead : 2

Abstract

Explosion due possibly to a failure of the water injection equipment did not affect production. Fatality.
[offshore, mechanical equipment failure]

Lessons

[None Reported]

8670 17 January 1996

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , GULF OF MEXICO

Injured : 0 Dead : 0

Abstract

Because of severe weather following damage due to `punch through', the rig broke free of its legs. It was subsequently taken in tow.
[offshore, damage to equipment, weather effects]

Lessons

[None Reported]

8671 17 January 1996

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Explosion in the control room of the natural gas platform caused by a circuit breaker (electrical switchgear). No fire followed the blast. Production was shutdown for 1 day pending investigation. Offshore.

Lessons

[None Reported]

8660 16 January 1996

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : Ludwigshafen, GERMANY

Injured : 3 **Dead** : 0

Abstract

A tank containing amine burst while firemen were trying to prevent it from overheating. No air pollution was found outside the plant from the spillage.
[storage]

Lessons

[None Reported]

8570 11 January 1996

Source : LLOYDS LIST, 1996, JAN, 13.

Location : Saratov, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. An oil pipeline ruptured causing 650 ft by 160 ft wide spillage only 4 miles from a river. The break was caused by construction of a by-pass route onto the main pipeline.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.

Location : , RUSSIA

Injured : 0 Dead : 0

Abstract

1,220 mm oil pipeline damaged by bulldozer carrying out excavation. 242 tonnes oil spillage over an area of 650 sq. metres.
[excavation damage, bulldozer/JCB/digger]

Lessons

[None Reported]

124291996

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An lifting incident occurred on a construction site.

The incident occurred when part of a boiler was being lifted from the horizontal to the vertical position using two cranes.

One of the two tail end lifting lugs broke, and the resultant increased load on the second lug caused this to fail as well. The lower end of the boiler element hit the ground but the load was held vertically by the main crane, thus reducing the consequences of this serious incident.

[lifting equipment, mechanical equipment failure, near miss]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 1

Abstract

A contractor had been carrying out the work of moving catalyst drums. Upon entering the storage area, the unloaded forklift truck collided with a lamp post and knocked it down. The operator was thrown from the vehicle; but the vehicle overturned, trapping him between the safety roof and the ground. It was found that blind spots obstructed clear vision of the lamp post in the work area. The basic cause was overconfidence with regard to repetitive, routine work, without apparent risk and insufficient awareness in attitude toward safety.

[safety procedures inadequate, fatality]

Lessons

Even trained and experienced forklift truck operators have serious accidents, most likely through complacency.

Emphasis must be placed on maintaining an AWARENESS of good safety practice.

Source : THE SAN DIEGO UNION TRIBUNE, WORLD & NATION. REUTERS NEWS SERVICE. ASSOCIATED PRESS.

Location : ,

Injured : 3 **Dead :** 2

Abstract

Three explosions caused a 40 foot fireball throwing off 1,000 degree heat from a natural gas well.

Firefighters kept a steady flow of water on two 8,000 gallon tanks of diesel fuel nearby to prevent another explosion.

At the time of the incident the well was being serviced by a workover rig being used to re-drill perform maintenance on existing wells when it exploded.

[exploration, fatality, fire - consequence]

Lessons

[None Reported]

8201 17 December 1995

Source : LLOYDS LIST, 1995, DEC,18, DEC, 19.

Location : Somerset West, SOUTH AFRICA

Injured : 100 **Dead** : 3

Abstract

15,000 tonnes sulphur piles near a plant were ignited by a fire in a nearby field. Operations at the plant have not been affected. A cloud of sulphur dioxide forced the evacuation of 2,500 people. Fatality.

[fire - consequence, storage]

Lessons

[None Reported]

8239 13 December 1995

Source : LLOYDS LIST, 1995, DEC, 14.

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

A fire occurred in glycol regeneration unit but was soon put out.

[fire - consequence, offshore]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 4, 1995.

Location : Aschaffenburg, GERMANY

Injured : 0 **Dead** : 0

Abstract

A large fire burnt the storage unit containing a large number of unknown chemicals to the ground.

[fire - consequence]

Lessons

[None Reported]

8212 08 November 1995

Source : LLOYDS LIST, 1995, NOV, 11.

Location : Kingston, JAMAICA

Injured : 0 Dead : 0

Abstract

An explosion at the plant destroyed the raw material warehouse causing damage estimated at \$43 million (1995).
[damage to equipment, warehousing]

Lessons

[None Reported]

Source : EMERGENCY PLANNING NEWS, ISSUE 34.

Location : Knebworth, Hertfordshire, UK

Injured : 16 **Dead** : 0

Abstract

A fire in a small industrial unit storing swimming pool cleaning agents formed a huge chlorine based smoke cloud which resulted in the evacuation of horses from a nearby field and people were advised to close windows and doors. Flights into local airport were disrupted.

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

Lessons

1. Problems in communicating with the public. Emergency information was broadcast by the local radio and regional TV.
 2. An additional problem was warning people in transit on the adjacent motorway, where many were returning home after work.
-

8190 25 October 1995

Source : LLOYDS LIST, 1995, OCT, 26.

Location : Cilacap, INDONESIA

Injured : 0 Dead : 0

Abstract

A fire in 7 storage tanks at major oil refinery set alight by lightning. The blaze started in one tank and spread to others.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

8188 16 October 1995

Source : LLOYDS LIST, 1995, OCT, 18.

Location : Invercargill, NEW ZEALAND

Injured : 0 **Dead** : 0

Abstract

Warehouse fire contained unknown chemicals. Believed to be arson.

[fire - consequence, warehousing, storage]

Lessons

[None Reported]

8210 15 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Warrington, Cheshire, UK

Injured : 0 **Dead** : 0

Abstract

Leakage at storage tank caused spillage of 2,000 litres of heavy fuel oil to a river. Pollution occurred over an 8 km stretch of river.
[storage tanks]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.; ICHEME.

Location : Near Redcar, Cleveland, UK

Injured : 0 Dead : 0

Abstract

A fire occurred at two warehouses containing polypropylene plastic chips. Fire under control after 11 hours. Steelworks and 3 schools closed.
[fire - consequence, warehousing]

Lessons

1. Lighting systems on the site should be checked since the age and design contributed to the probable source of ignition.
 2. The design, location, alarms and annunciation of smoke and fire detection systems should provide effective and accurate early warning.
 3. Sprinkler systems should be considered for polypropylene storage if early fire detection is not possible and if fast firefighting response cannot be guaranteed.
 4. Management systems and controls should be regularly audited to ensure that procedures and standards do not deviate from their original intent and to ensure that the potential risks associated with any changes or developments are recognised and addressed.
 6. Risk assessments and hazard reviews should be prepared which consider the potential hazards and consequences of a major fire particularly where there could be an off-site impact. Results of the risk assessments and hazard reviews should be incorporated in the Site Major Emergency Plans.
 7. Existing warehouses and their materials of construction should be checked for potential hazards which could result from the impact of a fire or features which could encourage the spread of fire.
 8. The location of warehouses should be reviewed with respect to potential hazards they may pose to adjacent plants and services and vice versa.
 9. The presence of other facilities within warehouses should be reviewed from an operational and potential hazard impact.
-

Source : LOSS PREVENTION BULLETIN, 132, 9-11.; LLOYDS LIST, 1995, OCT, 10.

Location : , UK

Injured : 0 Dead : 0

Abstract

A fire broke out in a storage of polypropylene finished products.

A major emergency was declared and the site emergency plan was initiated. The scale of the fire escalated rapidly ultimately resulting in the attendance of some 200 fire fighters and 40 appliances which included support from an outside county.

The intensity of the fire resulted in a large thermal updraught which tended to convey the plume of black smoke over nearby buildings, over the local towns and out to sea, carried by a southerly wind. The site toxic gas alarm was sounded primarily to restrict movement around the site with the impending shift change to allow access for emergency services.

The public immediately downwind were advised by the media and police to stay indoors and to keep doors and windows closed.

The fire was eventually brought under control and the site emergency was ended.

Nobody suffered any injury as a result of the fire. There were no reported medical treatments from any member of the public. Damage was restricted to the warehouse, an adjacent pipebridge, an office and adjacent workshop and polypropylene bin compound.

A detailed examination of the warehouse, tests and other information concluded that the probable cause of the fire was related to a failure in a fluorescent light fitting which resulted in overheating and flaming acrylic sheeting dropping on to the polypropylene product stored beneath. A combination of the continuous operation of the lighting system and the age and design of the light fittings contributed to the probable source of the ignition. This developed into a fire during a period when the warehouse was unmanned.

[fire - consequence, warehousing]

Lessons

The following recommendations were made:

1. Lighting systems in warehouses should be checked as some of the older designs are potentially more hazardous in the event of an electrical fault.
 2. The design, location, alarms and annunciation of smoke and fire detection systems should provide effective and accurate early warning of a fire.
 3. The provision of sprinkler systems should be considered for large warehouses when stock losses could be high particularly if early fire detection cannot be guaranteed or if rapid fire fighting response is not possible.
 4. Management systems and controls should be regularly audited to ensure that procedures and standards do not deviate from their original intent and to ensure that the potential risks associated with any changes or developments are recognised and addressed.
 5. Risk assessments and hazard reviews should be prepared which consider the potential hazards and consequences of a major fire particularly where there could be an off site impact.
 6. Existing warehouses and their materials of construction should be checked for potential hazards which could result from the impact of a fire or features which could encourage the spread of a fire.
 7. The location of warehouses should be reviewed with respect to potential hazards they may pose to adjacent plants and services and vice versa.
 8. The presence of other facilities and activities within warehouses should be reviewed from an operational and potential hazard aspect.
 9. Design and maintenance of the lighting system were considered to be at fault.
 10. Subsequently the light design and the previous 'breakdown' approach to light fitting maintenance were replaced by formal inspection and maintenance approach.
-

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Grozny, Chechen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

An oil storage was damaged by an explosion.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Nizhniy Tagil, RUSSIA

Injured : 2 **Dead** : 0

Abstract

Four storage depots completely destroyed when 28 tonnes of salts of 2-ethylhexoic acid exploded. Windows 3 km away broken.
[damage to equipment]

Lessons

[None Reported]

8179 01 September 1995

Source : LLOYDS LIST, 1995, SEP, 4.

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

22 of 35 personnel on board oil and gas production platform evacuated due to gas release from leak. Offshore.
[evacuation]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Oxfordshire, UK

Injured : 0 **Dead** : 0

Abstract

A fire occurred on a battery manufacturing plant. The factory produced lithium battery cells and the room on fire was used as a storage area. An investigation carried out found that the cause could have been either an electrical fault in cabling, fault in equipment or a fault in one of the lithium batteries. Estimated loss was \$950,000 (1995).

[fire - consequence, electrical equipment failure]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Atlantic Ocean, SOUTH AFRICA

Injured : 5 **Dead** : 2

Abstract

An explosion occurred in the kitchen area of an offshore drilling rig.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Kucove, ALBANIA

Injured : 0 **Dead** : 0

Abstract

A fire broke out when a bolt of lightning struck an oil tank, igniting 400 tonnes of crude in a depot. The fire seemed to be under control when a second tank exploded. The fire was extinguished 33 hours after the blaze broke out, after engulfing 1,600 tonnes of crude oil.

[explosion, fire - consequence, storage]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Oil spill at a refinery. During the transfer of base oil from one storage tank to another, a flexible hose failed, resulting in a spill of 250 tonnes. The cause of this incident was continuous utilisation of the hose at a pressure very close to its maximum working pressure.
[material transfer, storage tanks, hose failure, overpressurisation]

Lessons

Hose selection requires careful consideration as regards maximum operating pressures to be used, frequency of use and testing, handling methods, and curvature in use.

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Port Arthur, Texas, USA

Injured : 0 **Dead** : 0

Abstract

A fire that occurred at a refinery was confined to a vent on a tank filled with hot coker feed in the refinery's tank farm. The fire, which lasted about one hour, had no impact on refinery operations. The refinery sells the coker feed to other refineries.
[fire - consequence, refining, storage tanks]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 4, 1995.

Location : Buffalo, New York, USA

Injured : 7 **Dead :** 1

Abstract

A fire occurred in a warehouse. Preliminary cause attributed to the decomposition of sodium persulphate. 800 tonnes of sodium persulphate, ammonium persulphate and potassium persulphate were destroyed. Fatality.

[warehousing, storage, product loss, fire - consequence]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 4, 1995.

Location : Cabinda, ANGOLA

Injured : 0 **Dead** : 0

Abstract

Sinking of offshore drilling semi submersible platform caused 24 people to be evacuated. Cause attributed to someone "pushing the wrong button".
[evacuation, operator error]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 3, 1995.

Location : Tyumen, Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A storage tank holding 20,000 crude oil caused a spillage of 2,000 tonnes covering several thousand square metres.

[storage tanks]

Lessons

[None Reported]

1862 31 July 1995

Source : LLOYDS LIST, 1995, 1 AUG.

Location : Tokyo, JAPAN

Injured : 17 **Dead** : 0

Abstract

Explosion in warehouse at a metal factory sending debris hundreds of metres. The blast may have been caused by butane.
[storage, warehousing]

Lessons

[None Reported]

1751 22 July 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1995.

Location : Smethwick, UK

Injured : 0 **Dead** : 0

Abstract

A fire caused up to £1 million (1995) damage at a plastics factory when stocks of polystyrene and pallets were destroyed in a storage area but left the main factory unaffected.

[warehouse, damage to equipment, fire - consequence]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 4, 1995.

Location : Hailsham, East Sussex, UK

Injured : 0 **Dead** : 0

Abstract

Leakage of 250 tonnes of hydrochloric acid from cone roof tank. Half of spill was contained by protective wall, bund wall, the rest escaped to a river and required neutralisation.

[storage tanks, environmental]

Lessons

[None Reported]

3256 16 July 1995

Source : LLOYDS LIST, 1995, JUL, 18, JUL, 25.; EUROPEAN CHEMICAL NEWS, 1995, JUL.; CHEMICAL HAZARDS IN INDUSTRY, 1995, DEC.

Location : Ludwigshaven, GERMANY

Injured : 4 **Dead** : 0

Abstract

Explosion in laboratory caused considerable damage when solvent leaked from a 250 litre vessel. Sulphuric acid accidentally entered a distillation vessel being used to purify an intermediate for making an animal feed additive. The acid caused a runaway reaction that shattered the glass column and escaping vapours caught fire.

[fire - consequence, laboratory work, damage to equipment]

Lessons

[None Reported]

1765 14 July 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1995.

Location : Ponca City, Oklahoma, USA

Injured : 0 **Dead** : 0

Abstract

Fire broke out near pump house which transported crude oil and refined products between storage and crude units.

[fire - consequence]

Lessons

[None Reported]

3950 12 July 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1995.

Location : Tampa; Florida, USA

Injured : 0 **Dead** : 0

Abstract

Lightning struck a tank of methanol causing a fire. One nearby tank filled with solvent reached its boiling point and blew its lid but the blaze was contained. The methanol tank had a 250,000 gallon capacity but was only holding 40,000 gallons when struck.
[fire - consequence, storage]

Lessons

[None Reported]

3185 11 July 1995

Source : LLOYDS LIST, 1995, JUL, 12.

Location : Statjford A, North Sea, NORWAY

Injured : 0 **Dead** : 0

Abstract

Gas leak reported. Offshore.

Lessons

[None Reported]

2967 24 June 1995

Source : THE CHEMICAL ENGINEER, 1995, JUN, 29.

Location : Houston, Texas, USA

Injured : 0 **Dead** : 0

Abstract

Warehouse fire containing pesticides forced the evacuation of 500 homes.

[fire - consequence, warehousing, storage]

Lessons

[None Reported]

1803 16 June 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1995.

Location : Rodeo, California, USA

Injured : 0 **Dead** : 0

Abstract

Fire in a naphtha storage tank released fumes into the community. 100 evacuated.

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

Lessons

[None Reported]

2986 14 June 1995

Source : THE CHEMICAL ENGINEER, 1995, JUN, 29.

Location : Whyall, AUSTRALIA

Injured : 0 Dead : 0

Abstract

A disused tank caught fire during demolition when about 1 metre of sludge at the bottom of the 48 m x 15 m tank ignited.
[storage tanks, fire - consequence]

Lessons

[None Reported]

1502 01 June 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3 RD QUARTER, 1995.

Location : Java Sea, INDONESIA

Injured : 1 **Dead :** 2

Abstract

Fire balls spread from gas pipes on platform Uniform F/S. Offshore.

[fire - consequence, fatality]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1995.

Location : Beryl Alpha, North Sea, UK

Injured : 1 **Dead** : 0

Abstract

A fire occurred on a piece of gas cooling equipment. 250 people called to muster stations and helicopter scrambled.

[fire - consequence, offshore]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

The bottom of a zinc sulphate storage tank failed catastrophically causing the release of its contents (approximately 8000 US gallons of 10% H₂SO₄ (sulphuric acid) and 15% ZnSO₄ (zinc sulphate) solution) into the secondary containment. Due to the failure approximately 3800 gallons of the solution washed out of the containment onto the surrounding area.

The site emergency response team neutralised the spilled material with sodium bicarbonate.

There were no injuries or external environmental consequences.

[storage tanks, spill, mechanical equipment failure]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0 Dead : 0

Abstract

An explosion blew the top off a 1000 gallon tank, is believed to have been caused by a volatile mix of hydroxylamine nitrates and nitric acid. The solution had been diluted with water in 1993 and put into storage. Over a period of time, the water evaporated, leading to a greater concentration of the chemicals which heated up causing them to react.

[storage tanks, unwanted chemical reaction]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Tagu, SOUTH KOREA

Injured : 0 **Dead** : 0

Abstract

An explosion occurred involving gas at subway construction site during morning rush hour.

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A gasoline spill. A threaded fitting on a storage tank of premium grade gasoline failed, resulting in the release of approximately 432 bbls. into the diked containment area.

It was found that the product receipt line between the tank valve and the tank sidewall had failed due to stress on the line from tank and/or pipeline settlement. The type of line in use had a history of failure; newer engineering standards call for use of a different pipe. Also the tank receipt line was not designed to allow for settlement.

[mechanical equipment failure, storage tanks]

Lessons

It is important for front-line staff to visually inspect facilities, particularly at facilities with low staff levels.

Practice and simulated drills help to ensure that company personnel, local fire/emergency personnel and support contractors work closely together in emergencies.

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Contractors were carrying out excavation tasks associated with improvements to a road pipe track. Foundations were being laid for retaining walls and to improve the drainage system.

A mechanical excavator damaged the external sheath on three of the four 11kV power cables feeding a plant at the chemical facility. The damage occurred close to where the cables entered a sub-station.

Following the incident it was identified that the damage was superficial and that a simple sheath repair was required.

[damage to equipment, excavation damage, drilling/digging/ploughing vehicles]

Lessons

1. One excavation certificate had been raised for the job, which was to be undertaken in two distinct phases. The first, covering trial digs to locate cables was to be carried out using hand-digging methods only. The second, for subsequent tasks, allowed for mechanical digging, subject to appropriate permission and only in areas free of cables. Two permits to work were raised and it was incorrectly assumed that these were applicable to any part of the job.

2. The Contractor had not prepared a method statement for the workscope.

3. Hand-over between Contractor personnel had failed to identify the location of the cables.

Source : ICHEME

Location : , USA

Injured : 0 Dead : 0

Abstract

A release of about 2000 lbs of 50% caustic soda occurred on a rayon plant. The material was lost from a broken high level equalisation/overflow line on the 50% caustic storage area when a pump stopped and ran backwards following a breaker failure. The spill was largely contained within the containment that was in the process of being constructed for the tanks in question. A contractor was called in to pump the free liquid to the waste water treatment plant and to excavate the contaminated earth. Despite a full review and additional precautions (unspecified) a second spill of about 10,000 lbs occurred two days later before permanent measures could be taken. This was largely contained within the hole excavated after the first incident and was similarly dealt with. There were no injuries or external environmental consequences but because of the size of the spills they were reported to the appropriate local, State and national bodies.

[pump failure, material transfer]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN,; ICHEME S&LP SG NEWSLETTER, ISSUE 15, SUMMER 2000.

Location : Savannah, Georgia, USA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred on a low pressure storage tank containing approximately 800 m³ of crude sulphate turpentine. The other two tanks were also involved in the explosion.

Crude sulphate turpentine has a flash point as low as 24 degrees C.

The incident occurred due to the oxygen content during the day being low but rose later in the day when the tank became cold and air was sucked in.

Three other tanks were damaged in the explosion, one containing acidic liquid and the other an alkaline liquid. The two liquids mixed and reacted to form hydrogen sulphide.

Several thousand residents evacuated and school closed.

[fire - consequence, evacuation]

Lessons

[None Reported]

8109 08 April 1995

Source : LLOYDS LIST, 1995, APR, 8.

Location : Port Au Prince, HAITI

Injured : 0 **Dead** : 0

Abstract

A fire destroyed 40 laboratories and caused a lot of damage.

[fire - consequence, damage to equipment, laboratory work]

Lessons

[None Reported]

8105 04 April 1995

Source : LLOYDS LIST, 1995, APR.

Location : Novorossisk, Black Sea, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A tank caught fire in oil storage area and was extinguished within 15 minutes and caused little damage.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

8107 03 April 1995

Source : LLOYDS LIST, 1995, APR, 7.

Location : Off Cirebon, Jawa, INDONESIA

Injured : 0 **Dead** : 0

Abstract

A fire on platform caused appreciable damage on various floors. 100% damage on third floor, 75% on second floor and 20% on first floor.
[fire - consequence, damage to equipment, offshore]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1995.

Location : Wuxi, Jiangsu Province, CHINA

Injured : 0 **Dead** : 0

Abstract

Storage drum containing sodium hydrosulphite exploded in workshop.

[drums, explosion]

Lessons

[None Reported]

8128 25 March 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1995.

Location : Brae B, North Sea, UK

Injured : 1 **Dead** : 0

Abstract

An electrician carrying out work on switchgear was injured in an electrical fire. The platform production of 25,000 bbl/day was shut down from about 0830 to nearly midnight when main power was restored and the 185 personnel could resume work.

[fire - consequence, electrical switchgear, maintenance, injury, offshore]

Lessons

[None Reported]

8103 23 March 1995

Source : LLOYDS LIST, 1995, APR, 8,; HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Dikson, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Pipeline ruptured at storage tank under weight of snow at airport. 1,800 tonnes of jet fuel poured over snow and ice, and then in the sea.
[storage tanks, weather effects, spill]

Lessons

[None Reported]

8518 22 March 1995

Source : LLOYDS LIST, 1995, MAR, 25.

Location : , Trinidad

Injured : 0 Dead : 0

Abstract

Transportation. A rupture in the main 30 inch gas pipeline caused by a tractor clearing land resulted in the evacuation of people.
[excavation damage]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Grand Bahama Island, BAHAMAS

Injured : 0 **Dead** : 0

Abstract

A 400,000 barrel diesel storage tank caught fire following a lightning strike and was being allowed to burn itself out. Local inhabitants evacuated as a precaution.

[fire - consequence, evacuation]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A 'near miss' potentially major environmental incident occurred when contractors excavated a trench (3 metres deep) 20 metres north of a major underground ethylene pipeline running between England and Scotland.

It was estimated that, if the pipeline had been ruptured, serious property damage within a radius of 5 km, and a flash fire of approximately 500 metre span, would have occurred.

[excavation, human causes]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Carteret, New Jersey, USA

Injured : 0 **Dead** : 0

Abstract

A 2 hour fire raged at this gasoline storage terminal after a pipe connected to a 2 million gallon gasoline tank failed. Some nearby toll operators were taken to hospital after inhaling toxic fumes.

[fire - consequence, tank failure]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Brixlegg, AUSTRIA

Injured : 0 **Dead** : 1

Abstract

An explosion occurred which destroyed a depot's offices and store buildings. Fatality.

[storage]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Minneapolis, Minnesota, USA

Injured : 0 **Dead** : 0

Abstract

Ceiling fire ignited 4 truck loads of 'granular' chlorine (sic) in warehouse. Blaze allowed to burn out rather than use water. Black cloud over city. 200 residents evacuated.

[fire - consequence, warehousing, evacuation]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, APR.

Location : Ontario, CANADA

Injured : 0 Dead : 0

Abstract

A fire occurred after a transformer blew up in NRC laboratory. Mildly radioactive material in building.
[fire - consequence, laboratory work]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Puente Hierro, Sucre, VENEZUELA

Injured : 0 **Dead** : 0

Abstract

A fire occurred at 700,000 litre diesel oil storage tank within naval port area.

[fire - consequence]

Lessons

[None Reported]

8508 08 February 1995

Source : LLOYDS LIST, 1995, FEB, 16.

Location : South China Sea, INDONESIA

Injured : 0 **Dead** : 0

Abstract

Oil field shut-in due to marine storage tanker drifted away from mooring buoy. Offshore.

[storage tanks, inadequate mooring]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, APR.

Location : , INDIA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred in a gas cylinder store. Worker's cigarette is thought to have caused fire.

[fire - consequence, storage]

Lessons

[None Reported]

8513 04 February 1995

Source : OBSERVER, 1995, FEB, 5.

Location : North Sea, UK

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. 100 oil workers were evacuated from a platform as a factory vessel was drifting towards the platform in heavy seas. Oil workers allowed back when tow connected to vessel. Near miss.

[offshore, evacuation, weather effects]

Lessons

[None Reported]

8500 01 February 1995

Source : GUARDIAN, 1995, FEB, 2.

Location : Lancashire, UK

Injured : 40 Dead : 0

Abstract

Nearly 40 people received hospital treatment for the effects of fumes after a propane gas leak at a warehouse.
[warehousing, gas / vapour release]

Lessons

[None Reported]

1797 31 January 1995

Source : LLOYDS LIST, 1996, FEB, 2.

Location : North Sea, NORWAY

Injured : 0 Dead : 0

Abstract

Oil production halted after fire which was extinguished in half hour. Concern that electrical cables damaged. Offshore.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

Source : HSE NEWS RELEASE.

Location : , UK

Injured : 0 Dead : 0

Abstract

During routine operations associated with a storage tank for highly active liquor, a small quantity of contaminated water, cooling water, leaked to a sump outside the tank. During subsequent recovery operations some of this contamination was flushed into a connecting trench and then to a drain which led to the outside of the building. As a result it was necessary to remove some contaminated asphalt and to decontaminate an external wall.

The incident was classified as an anomaly at level 1. Prompt recovery action was taken by the plant management to restore conditions to normal. The source of the leak is known and a programme of work has been established to prevent a recurrence.

[radioactive, storage tanks]

Lessons

[None Reported]

8501 19 January 1995

Source : CIVIL PROTECTION, 1995, FEB.

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

16 oil rig workers and 2 air crew were rescued when their helicopter had to make a controlled ditch into the sea after being hit by lightning. The men spent 90 minutes in the water in two inflated rafts before being rescued. Offshore.

Lessons

[None Reported]

6798 19 January 1995

Source : BBC NEWS

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

Helicopter struck by lightning and put down in sea. All rescued in one hour.

[offshore]

Lessons

[None Reported]

8541 18 January 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Atlantic Ocean, NIGERIA

Injured : 10 Dead : 10

Abstract

A fire resulted from a suspected gas leak during maintenance welding activity resulting in loss of 85,000 bpd of production. Minor damage to the production platform includes electrical cables and process control & instrumentation equipment. Fatality.

[offshore, fire - consequence, damage to equipment]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.

Location : , JAPAN

Injured : - Dead : -

Abstract

Liquefied petroleum gas (LPG) leaked from a storage tank following an earthquake forcing the evacuation of nearby residents.

The leak rate increased with subsequent aftershocks. An investigation into earthquake prevention measures found that the leak came from the piping system connected to the tank.

[spill, storage tanks]

Lessons

The following recommendations were made for earthquake-resisting measures include:

Flexibility of high-pressure gas piping systems.

Improve planning layout.

Protection of auxiliary facilities and improvements in disaster prevention management and emergency response.

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 2, 1995.

Location : Off New Orleans, Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

Valve failure led to spillage of 38 cum (cubic metres) of crude oil to sea.
[offshore]

Lessons

[None Reported]

1966 12 January 1995

Source : CHEMICAL HAZARDS IN INDUSTRY, 1995, OCT.

Location : Wurtland, Kentucky, USA

Injured : 0 **Dead** : 0

Abstract

23,000 gallons of sulphuric acid spilled from a storage tank. 1000 people evacuated.

[storage tanks, evacuation]

Lessons

[None Reported]

8492 12 January 1995

Source : LLOYDS LIST, 1995, JAN, 17.

Location : , GULF OF MEXICO

Injured : 0 Dead : 0

Abstract

Valve rupture led to spillage of 255 barrels of a mixture of gas, oil, water and sand. Spill contained.

[valve failure, offshore]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : Andhra Pradesh, INDIA

Injured : 0 **Dead :** 0

Abstract

A fire and subsequent explosion following a blowout destroyed a drilling rig valued at US\$ 3,000,000 (1995). Explosion was heard 10 km away, with flames 100 m in the air. Gas flow rates are estimated at 50,000,000 scfd.
[fire - consequence, excavation]

Lessons

[None Reported]

8491 08 January 1995

Source : LLOYDS LIST, 1995, JAN, 10, JAN,11, JAN, 12, JAN, 14, JAN, 17, JAN, 31.

Location : Pradesh, INDIA

Injured : 0 Dead : 0

Abstract

Blowout and fire at gas well when drilling at 2,777 metres. 10,000 people evacuated.

[fire - consequence, evacuation, exploration]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Jet fuel tank spill at a refinery. During a period of low ambient temperatures, the sight glass on a storage tank water drainage piping failed, and 8,200 bbls. of Jet A fuel was released. The sight glass failed due to expansive forces as water in piping froze. There was also deviation from procedure when water was not being drained. The basic cause was poor design of electric heat tracing which did not prevent water inside draw piping from freezing and there was inadequate procedure for isolating water draw-off.

[weather effects, storage tanks, isolation inadequate, aviation fuel, gauge glass failure, jet fuel]

Lessons

Job task observation is required to ensure that intended operational procedures are, in fact, followed.

124261995

Source : ICHEME

Location : ,

Injured : 0 Dead : 1

Abstract

An incident occurred when a specialist piling sub-contractor was carrying out operations at a construction site. As a pile was being hoisted prior to driving, the hoisting sling slipped from the pile. The pile fell onto the driver's cabin, crushing it and killing the driver.

An investigation into the incident revealed that the pile had slipped as a result of tension being lost in the hoisting wire and sling during the dragging and lifting operations. In addition the inspection of the rig revealed signs of wear and tear that indicated that work methods had been in use that were not compatible with the design of the rig.

[lifting equipment, fatality, incorrect equipment installed, additional incorrect operation, transport]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1995.

Location : North Sea, UK

Injured : 0 **Dead :** 0

Abstract

Production was halted from this 75000 bpd production platform following storm damage to safety, pipeline and fire detection equipment. Repairs to electrical equipment on the Floating Storage Unit were disrupted, due to bad weather.
[offshore, damage to equipment, weather effects, product loss]

Lessons

[None Reported]

6792 20 December 1994

Source : LLOYDS LIST, 1994, 23 DEC.

Location : Palatka; Florida, USA

Injured : 0 Dead : 2

Abstract

Two men were spray painting inside the hull of a barge under construction and moved a light when there was an explosion followed shortly afterwards by another. Fatality.

[marine transport]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, FEB.

Location :

Injured : 0 Dead : 0

Abstract

A gas leak from a storage tank near a subway construction site, caused a massive blaze followed damaging cars, homes over an area of an acre.
[storage tanks, fire - consequence, damage to equipment]

Lessons

[None Reported]

6781 02 December 1994

Source : LLOYDS LIST, 1994, 3 NOV., & 12 NOV.

Location : Off New Orleans, USA

Injured : 7 Dead : 1

Abstract

Self propelling offshore drilling platform while spudding down (jacking up) hit 16 inch natural gas pipeline causing an explosion and fire. Fatality.
[fire - consequence]

Lessons

[None Reported]

6776 25 November 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1995, JAN.

Location : Sivaskasi; Tamil Nadu, INDIA

Injured : 0 **Dead** : 15

Abstract

Explosion and fire in house storing phosphorus next to fireworks factory. House and factory destroyed. Fatality.
[storage]

Lessons

[None Reported]

6772 22 November 1994

Source : LLOYDS LIST, 1994, 6 DEC.

Location : Nakhodka, RUSSIA

Injured : 0 Dead : 0

Abstract

Powerful explosion and fire at fuel reservoir. The underground storage tank reservoir had its concrete roof blown off. 2000 tonnes of fuel oil involved.
[fire - consequence]

Lessons

[None Reported]

6771 21 November 1994

Source : LLOYDS LIST, 1994, 22 NOV.

Location : Off Galveston, USA

Injured : 0 **Dead** : 0

Abstract

An offshore platform was towed to 18 miles south south east of galveston and put down legs onto a pipeline causing its rupture. Other report said that anchor was dragged.

[damage to equipment]

Lessons

[None Reported]

6769 18 November 1994

Source : LLOYDS LIST, 1994, 19 NOV.

Location : Ghent, BELGIUM

Injured : 2 Dead : 0

Abstract

Dust explosion occurred in cells underneath weighing installation of grain silos.
[silo/hopper, storage]

Lessons

[None Reported]

6763 14 November 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1994.

Location : Grozny, RUSSIA

Injured : 0 **Dead** : 0

Abstract

2000 cum oil storage tank destroyed by plastic explosive.

[terrorism]

Lessons

[None Reported]

6761 10 November 1994

Source : LLOYDS LIST, 1994, 12 NOV.

Location : Lake St. Catherine; Louisiana, USA

Injured : 3 **Dead** : 1

Abstract

Explosion on offshore platform blew a salvage worker into the water. Men cutting a motor out of a housing with welding torch ignited waste oil in storage tank causing the explosion. Fire being allowed to burn itself out. Fatality.
[fire - consequence]

Lessons

[None Reported]

6752 03 November 1994

Source : LLOYDS LIST, 1994, 5 NOV., & 7 NOV.

Location : Claymore Platform; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Small fire on a gas turbine on an offshore platform forced closure of six platforms and the evacuation of 145 persons.

[fire - consequence]

Lessons

[None Reported]

6750 02 November 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1995, JAN.; LLOYDS LIST, 1994, 3 NOV.; THE GUARDIAN, 1994, 4 NOV.4

Location : Dronka; Assuit, EGYPT

Injured : 0 **Dead** : 390

Abstract

Lightning struck a complex of 8 fuel storage tanks causing explosion of tank during a thunderstorm. Burning gasoline flowed on flood waters into village causing many deaths. Rail track subsided and 2 rail tankers overturned and spilt fuel. Fatality.

Lessons

[None Reported]

6749 01 November 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1994.

Location : Maersk Guardian; Eckofisk, NORWAY

Injured : 0 **Dead** : 0

Abstract

Dust from tumble drier in the laundrette on an offshore rig caught fire and was drawn into ventilation system.

[fire - consequence, heating]

Lessons

[None Reported]

6738 21 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 22 OCT.

Location : Montreal, CANADA

Injured : 1 Dead : 1

Abstract

Bunker oil storage tank at an asphalt plant exploded and led to fire. 2 employees were preparing to clean or were cleaning the tank. Fatality.
[explosion, fire - consequence]

Lessons

[None Reported]

6731 17 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 19 OCT.

Location : Landhi, PAKISTAN

Injured : 0 Dead : 0

Abstract

Explosion of chemical drum caused a major fire and shed to collapse.

[fire - consequence, storage]

Lessons

[None Reported]

6723 11 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 13 OCT.

Location : Ueda; Nagano, JAPAN

Injured : 3 Dead : 1

Abstract

Fire at oil storage terminal when a gasoline floating roof tank exploded and caught fire and 3 other tanks were involved. Led to the evacuation of 70 residents.

Fatality.

[fire - consequence]

Lessons

[None Reported]

6720 10 October 1994

Source : BBC NEWS

Location : Hucknell; Nottingham, UK

Injured : 0 **Dead :** 0

Abstract

Material leaking from storage drums reacted from water to give hydrochloric acid fumes.

[gas / vapour release, contamination]

Lessons

[None Reported]

6718 04 October 1994

Source : THE GUARDIAN, 1994, 5 OCT.; THE CHEMICAL ENGINEER, 1994, 13 OCT.

Location : Balby; Doncaster, UK

Injured : 26 Dead : 0

Abstract

Water came into contact with sodium dithionite in a storage drum and released fumes of sulphur dioxide.

[gas / vapour release, contamination]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; EUROPEAN CHEMICAL NEWS, 1994, 19 SEP.

Location : Kempton Park; Modderfontein, SOUTH AFRICA

Injured : 0 **Dead** : 8

Abstract

A section of a plant used for storing nitroglycerine explosives for mining exploded. Fatality.
[storage, explosion, explosive]

Lessons

[None Reported]

6697 13 September 1994

Source : LLOYDS LIST, 1994, 16 SEP.

Location : Montevideo, URUGUAY

Injured : 0 Dead : 0

Abstract

Leaking dry cargo container containing 400 drums including metamidophos poison.

[spill, storage]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Aguazul Casanare, COLUMBIA

Injured : 0 **Dead** : 0

Abstract

2 production stations blown up by terrorists. The blast set ablaze some large crude oil storage tanks.

[terrorism, fire - consequence]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1994.

Location : Wilson; North Carolina, USA

Injured : 0 **Dead** : 2

Abstract

Explosion and fire at plant. Equipment involved, oil storage tank, Substance involved, fuel oil. Fatality.
[fire - consequence]

Lessons

[None Reported]

6691 08 September 1994

Source : LLOYDS LIST, 1994, 22 SEP.

Location : Windy Craggy; British Columbia, CANADA

Injured : 0 Dead : 0

Abstract

Diesel fuel oil spill from storage tank.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Port Sulphur; Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

400 m strip of sulphur burnt for 4 hours on the edge of a solid sulphur vat.

[fire - consequence, storage]

Lessons

[None Reported]

6683 31 August 1994

Source : LLOYDS LIST, 1994, 5 SEP.

Location : Serprong; Jawa, INDONESIA

Injured : 1 Dead : 1

Abstract

Explosion at nuclear testing laboratory. Blast may have been triggered by the ignition of methane based gas that seeped from laboratory packages. Fatality [laboratory work]

Lessons

[None Reported]

Source : PROCESS SAFETY PROGRESS, VOLUME 16, NO.1, GLENN E MAHNKEN, MICHEAL T ROOK.

Location : , USA

Injured : 0 Dead : 0

Abstract

A fire consumed the titanium tube bundle of a steam turbine condenser during demolition work in a decommissioned power plant. The titanium fire is believed to have initiated by contact with hot steel slag from torch cutting which was being conducted to remove sections of the steel condenser casing above the tube bundle. The approximately 25 ft long bundle was essentially consumed end-to-end, including the tube sheets.

A fire watch had stationed as part of the plant's Hot Work Permit System, but the initial phase of the fire was obscured from view. Workers reported a bright yellow low flame coming from inside the south end of the tube bundle. Water application on the fire by workers and the local fire department was followed by explosions within the tube bundle and discharge pipes. Fortunately, no injuries or property damages occurred from this incident.

[fire - consequence, hot work, hot surface]

Lessons

Conclusions and Recommendations:

1. Titanium is a known "combustible" metal, but fire experience is mainly with chips, fines and powders. Ignition of a self-propagating tube bundle fire during torch or arc cutting is a less frequent type of fire, but such fires can have severe consequences. Ignition appears to occur by development of a "hot spot", either directly by contact with the torch, or indirectly via heat transfer from accumulating hot steel slag particles. The hot spot develops into a self-sustaining fire due to the close spacing of the tubes in the bundle.
2. There is a risk of subsequent explosions if water is applied to extinguish heat exchanger fire.
3. Prevent, prevent, prevent. Before performing any hot work on a heat exchanger, the materials of construction must be verified, in addition to other standard hot work precautions. If titanium tubes are present, hot work must not be allowed unless the tubes are first removed mechanically.
4. Heat exchangers containing titanium tubing must be labelled to that effect, with a hot work fire hazard notice posted on the unit.
5. Hot work permits in use in plants where titanium could be present is to contain a specific check box to confirm that no "combustible metals" are present in the work area.
6. Persons involved in hot work and emergency organisation personnel to be trained to recognise metal fires and to use proper metal fire extinguishers (if safe to do so).
7. A co-operative, aggressive and co-ordinated effort by all parties involved in the incident and the loss investigation helped to expedite the determination of the cause and the necessary measures to prevent a recurrence.

8437 19 August 1994

Source : ENDS REPORT 241, 1995, FEB.

Location : , UK

Injured : 0 Dead : 0

Abstract

A storage tank containing a peroxide for the polyethylene process was allowed to warm up to 17 degrees C from -10 degrees C. The temperature further rose to 33 degrees C and then to 138 in the violent decomposition reaction which led to the release of material over 700 sq. m. of the site. The refrigeration system had been down for maintenance the previous year and a new system was being used.

The company was fined £10,000 (1994) for the spillage.

[storage tanks, cooling equipment]

Lessons

[None Reported]

6658 08 August 1994

Source : LLOYDS LIST, 1994, 12 AUG., & 25 AUG.

Location : Balmoral Platform; North Sea, UK

Injured : 0 Dead : 0

Abstract

Spillage of 1.8 tonnes of crude oil seen on surface around offshore platform. Leakage identified as from rubber hose on seabed.
[hose failure]

Lessons

[None Reported]

6649 05 August 1994

Source : CIVIL PROTECTION, 1994, AUTUMN.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994 OCT.

Location : Avonmouth, UK

Injured : 1 Dead : 1

Abstract

A port worker was killed in a fire at a fuel pipeline at dock. Fire spread to Kerosene in tanks at the storage depot and burned for 18 hours. Fatality.
[fire - consequence]

Lessons

[None Reported]

6648 31 July 1994

Source : LLOYDS LIST, 1994, 9 SEP.

Location : North Sea, NORWAY

Injured : 0 **Dead** : 0

Abstract

Gas leak on offshore platform.

Lessons

[None Reported]

6644 26 July 1994

Source : ICHEME

Location : , USA

Injured : 1 Dead : 2

Abstract

Explosion at a field laboratory in an unwalled, open structure used to test propellant materials. The explosion occurred as approximately 10 pounds of glycidal azide polymer and nitrocellulose were being prepared. Fatality.
[laboratory work]

Lessons

[None Reported]

6639 22 July 1994

Source : OIL AND GAS JOURNAL, 1994, 1 AUG.

Location : Delaware City, USA

Injured : 6 Dead : 0

Abstract

Lightning struck an oil storage tank which caught fire destroying that tank and an adjacent tank.

[fire - consequence]

Lessons

[None Reported]

6637 17 July 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Kaucuk, CZECH REPUBLIC

Injured : 0 **Dead** : 0

Abstract

Fire in 30 000 tonne oil storage floating roof tank was extinguished in 2 hours. Fire caused by lightning striking tank.

[fire - consequence]

Lessons

[None Reported]

6629 12 July 1994

Source : ICHEME

Location : , FRANCE

Injured : 0 Dead : 0

Abstract

Roof of polyisobutylene storage tank opened.

Lessons

[None Reported]

6616 01 July 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Laguna Bay, PHILIPPINES

Injured : 0 **Dead** : 0

Abstract

Hose broke at a fuel storage tank at a power plant. 950 tonnes of fuel oil were spilled into catchment area.

Lessons

[None Reported]

6612 30 June 1994

Source : LLOYDS LIST, 1994, 2 JUL.

Location : Bandar Khomeini, IRAN

Injured : 26 **Dead** : 30

Abstract

20000 tonnes of wheat destroyed in silo explosion due to an electrical short circuit. Fatality.

[silo/hopper, storage]

Lessons

[None Reported]

6611 29 June 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Briqah; Aden, YEMEN

Injured : 0 **Dead** : 0

Abstract

Aircraft bombed this storage tank depot during a Civil War.

[deliberate acts]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A loss of containment of sodium hydroxide occurred during the transfer of material from a bulk storage to a day tank. 900 litres were emptied into a 100 litres day tank used for a water softening system. The tank overflowed into a containment bund. The incident was only discovered the next day. A failure of the distributed control system was considered. An incorrect reprogramming of the system was found to be at fault.

A software change had been requested to modify the refilling of the day tank from a manual to an automated operation because operators had forgotten to carry out this operation on a number of occasions. The software change was implemented but was not subject to any testing. Subsequent investigation also found that the high level check built into the software was also defeated because the day tank level device was incorrectly calibrated.

[material transfer, operation inadequate, spill]

Lessons

1. Software changes to be incorporated into the general engineering change control system. This would have ensured that a risk assessment of potential hazards would have been carried out. This was not required as part of the software change.
 2. Software changes on hazardous systems to be 'walked through' or simulated to ensure all eventualities have been considered.
 3. Software to be tested under real working conditions, to confirm it operates correctly.
 4. Important instruments (such as level devices) to be placed on a preventative maintenance schedule.
 5. Independent hardwired level switches are preferred for shutting off flow when overfilling is a possibility.
 6. A time delay should ideally be incorporated into charging sequences to guard against valves remaining open for too long.
-

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1998, AUG.

Location : Barcelona, SPAIN

Injured : 0 **Dead** : 0

Abstract

Fire at storage terminal.

[fire - consequence]

Lessons

[None Reported]

6604 26 June 1994

Source : LLOYDS LIST, 1994, 29 JUN., &, 1 JUL.

Location : El Tablazo, VENEZUELA

Injured : 7 **Dead** : 0

Abstract

During testing an explosion followed by fire occurred in a 5 year old storage tank containing propylene. Alternatively fire occurred following a fuel oil leak during material transfer to a road transport vehicle.

Lessons

[None Reported]

6603 26 June 1994

Source : LLOYDS LIST, 1994, 25 JUN.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, AUG.

Location : A'amshite; Byblos Area, LEBANON

Injured : 28 **Dead** : 8

Abstract

Explosion and fire at fuel storage and gas depot after LPG from overfilled cylinder, at a filling machine, was ignited by a road truck engine. Gas cylinders exploded. Fatality.

[overflow, fire - consequence]

Lessons

[None Reported]

6590 12 June 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Port Said, EGYPT

Injured : 20 **Dead** : 0

Abstract

Large fire broke out in blending warehouse facility of a paints and chemicals company, led to the evacuation of 10 000.

[fire - consequence, warehousing]

Lessons

[None Reported]

6586 07 June 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : North Sea, UK

Injured : 0 **Dead** : 0

Abstract

An offshore platform was shutdown following discovery of an oil leak on the oily drain system.

[spill]

Lessons

[None Reported]

6571 28 May 1994

Source : LLOYDS LIST, 1994, 31 MAY.

Location : Draugen; North Sea, NORWAY

Injured : 0 **Dead** : 0

Abstract

Crude oil leak in a cell of storage tank on offshore platform.

Lessons

[None Reported]

6564 24 May 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Vancouver, CANADA

Injured : 0 **Dead** : 0

Abstract

Explosion caused severe damage to a 10 metre diameter cone roof storage tank and 3 smaller tanks. Substance involved solvents.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Curabinny; Cork, IRELAND

Injured : 0 **Dead** : 0

Abstract

Small fire at health care product plant laboratory caused the evacuation of 200.

[laboratory work, fire - consequence]

Lessons

[None Reported]

6556 17 May 1994

Source : THE CHEMICAL ENGINEER, 1994, 26 MAY.; THE GUARDIAN, 18 MAY.

Location : Aspatria; Cumbria, UK

Injured : 0 **Dead** : 0

Abstract

Overfilling of a 34% caustic soda storage tank caused a fish kill when the caustic soda spilled into a river.

[overflow, sodium hydroxide]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1994.

Location : Karwar; Karnataka, INDIA

Injured : 0 **Dead** : 0

Abstract

Incident at a nuclear power station. Concrete inner containment dome collapsed due to deviation from design drawings, work on 4 other reactors stopped.
[power plant, construction]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUL.

Location : Solapur, INDIA

Injured : 76 **Dead** : 22

Abstract

Sparks from fireworks display during festival triggered explosion and fire in fireworks warehouse. Fatality.
[fire - consequence, warehousing]

Lessons

[None Reported]

6531 02 May 1994

Source : THE GUARDIAN, 1994, 3 MAY.; THE CHEMICAL ENGINEER, 1994, MAY.

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

Production from an offshore platform and neighbouring field were shutdown and non-essential staff evacuated platform by helicopter when an incident triggered small explosions in the flare stack.

[evacuation]

Lessons

[None Reported]

Source : LLOYDS LIST, 1994, 1 JUL.

Location : Eugene Island, GULF OF MEXICO

Injured : 0 **Dead** : 0

Abstract

An exploration drilling rig sustained leg damage when attempting to go on location.
[damage to equipment]

Lessons

[None Reported]

6526 30 April 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUL.

Location : Krasnokamsk, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Fire in chemicals warehouse spread to several sections of paper plant. Most of plant destroyed.

[fire - consequence, warehousing]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUN.

Location : Apapa,

Injured : 0 Dead : 0

Abstract

Explosion ignited a fire in container loaded with unknown chemicals at a storage terminal. 15 containers severely damaged.

[fire - consequence]

Lessons

[None Reported]

6521 23 April 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Nagaland, INDIA

Injured : 0 **Dead** : 0

Abstract

Operations were temporarily stopped when exploration drilling crew were kidnapped by a militant group.

[terrorism]

Lessons

[None Reported]

6518 20 April 1994

Source : LLOYDS LIST, 1994, 2 APR.

Location : Gulf Of Suez, EGYPT

Injured : 4 **Dead** : 0

Abstract

An offshore oil platform caught fire and was destroyed after cargo vessel collided with it.

[collision, fire - consequence]

Lessons

[None Reported]

6506 14 April 1994

Source : LLOYDS LIST, 1994, 16 APR.

Location : Brent A; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Mechanical problem on offshore platform well when wireline operations and ball valve became blocked, caused partial evacuation of non-essential staff. Near miss.

Lessons

[None Reported]

6505 12 April 1994

Source : LLOYDS LIST, 1994, 14 APR.

Location : Karachi, PAKISTAN

Injured : 0 **Dead** : 0

Abstract

Fire destroyed 50 - 60 tonnes of pesticides and unknown chemicals in warehouse.

[warehousing, fire - consequence]

Lessons

[None Reported]

Source : FIRE PREVENTION, 275, 1994, DEC.

Location : Essex, UK

Injured : 0 **Dead** : 0

Abstract

A company was fined £17000 (1994) for exposing its employees to fire risks during an incident when 7000 litres of highly flammable ethanol was spilled into a yard area from an open pipeline when work was being carried out to remove an area of plant at the site. The ethanol, flash point 14 degrees C, did not ignite. [near miss, safety procedures inadequate, demolition]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Mina Al-ahmadi, KUWAIT

Injured : 1 **Dead** : 0

Abstract

Fire in atmospheric storage tank extinguished in 15 minutes.

[fire - consequence, atmospheric tank]

Lessons

[None Reported]

6479 24 March 1994

Source : THE CHEMICAL ENGINEER, 1994, 31 MAR.; EVENING MAIL, 1994, 25 MAR.

Location : Durham Woods; Edison; New Jersey, USA

Injured : 50 Dead : 1

Abstract

Explosion of an underground natural gas pipeline caused massive flames which were seen 50 miles away. Pipeline installed at a depth of 2.5 metres and now found to have 5-7 metres of earth covering it. 50 m crater left. An investigation revealed that the pipeline had been gouged by excavation damage. The mechanically induced gouge probably produced a crack that grew to critical size most likely as a result of metal fatigue.

Fatality.

[fire - consequence]

Lessons

Install retrospectively automatic or remotely operated isolation valves where high pressure pipelines enter and leave urban areas.

Aerial surveillance procedure inadequate as it did not require the identification of excavation activities within industrial locations.

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1994.

Location : Rio De Janiero, BRAZIL

Injured : 0 **Dead** : 0

Abstract

14000 cum storage tank of ethyl alcohol ignited after being struck by lightning.

[fire - consequence]

Lessons

[None Reported]

6471 18 March 1994

Source : LLOYDS LIST, 1994, 23 MAR.

Location : Piper B; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Small fire on offshore platform caused shutdown of Piper, Saltire and Chanter fields feeding the Flotta terminal. Piper shutdown lasted 4 days.
[fire - consequence]

Lessons

[None Reported]

6467 17 March 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Lalang, INDONESIA

Injured : 0 **Dead** : 0

Abstract

Fire in a boiler at a marine storage terminal led to suspension of crude oil export.

[fire - consequence]

Lessons

[None Reported]

6454 07 March 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : La Plata; Buenos Aires, ARGENTINA

Injured : 0 **Dead** : 0

Abstract

Fire broke out in atmospheric storage tank facilities feeding this catalytic cracking unit. Maintenance contractors men injured. No effect on refinery operation. Substance gas oil.

[atmospheric tank, fire - consequence]

Lessons

[None Reported]

6448 04 March 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Smoke alarm due to smouldering lagging on a fuel gas heater on an offshore platform.

[lagging fire]

Lessons

[None Reported]

Source : OCCUPATIONAL SAFETY OBSERVER, JUNE 1994.

Location : ,

Injured : 0 Dead : 0

Abstract

Laboratory work. Dry ice was used to remove a floor tile. The use of dry ice causes the bond between the tile and adhesive to become brittle, which allows for easy removal. The Safety Work Permit did not take into account the effects on personnel in the adjacent work areas and the need to ventilate the area properly and to monitor these areas for oxygen and carbon dioxide levels.

A cross draft was caused by a doorway in the work area that had been opened for fresh air. A high concentration of carbon dioxide migrated to an adjacent room, creating an oxygen-deficient atmosphere. This atmosphere caused three workers in the adjacent room to report shortness of breath. There were evacuated and ventilation procedures were implemented.

The direct cause of the incident was the migration of a high concentration of carbon dioxide produced by the dry ice removal process.

The two safety issues identified were:

1. The use of dry ice
2. That the Safety Work Permit did not cover monitoring oxygen and carbon dioxide levels of the adjacent areas.

[permit to work system inadequate, evacuation]

Lessons

This incident could have been prevented by performing a pre-job hazards analysis and identifying and evaluating hazards associated with chemicals to be used:

1. Monitoring the chemical properties for the materials involved and reviewing procedures for removal methods before they are implemented.
 2. Considering the impact to the general and/or immediate surrounding environment, as well as the risk of potential exposure to personnel in adjacent locations, by providing adequate ventilation and air monitoring .
-

6442 28 February 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : North Sea, UK

Injured : 0 Dead : 0

Abstract

A small spill of crude oil occurred from an unmanned offshore platform. Alarm was raised by gas detection hardware installed on platform.

Lessons

[None Reported]

Source : LLOYDS LIST, 1994, 4 MAR.

Location : , ALASKA

Injured : 0 Dead : 0

Abstract

2000 to 2500 gallons of residual oil spilled at pump station. Crude oil overflowed holding storage tank when alarm switch failed.
[overflow, instrumentation failure]

Lessons

[None Reported]

6435 24 February 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Bombay, INDIA

Injured : 0 Dead : 0

Abstract

Fire in product storage area in port.

[fire - consequence]

Lessons

[None Reported]

6434 24 February 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, APR.; EVENING STANDARD, 1994, 24 FEB.

Location : Harlow; Essex, UK

Injured : 0 **Dead** : 0

Abstract

About 1200 tonnes of polyethylene sheeting and plastic pellets caught fire in warehouse and damaged railway lines.

[fire - consequence, warehousing]

Lessons

[None Reported]

Source : CHEMICALS IN BRITAIN, 1995, AUG.

Location : London, UK

Injured : 1 Dead : 0

Abstract

A third year undergraduate was attempting to make a heterocyclic compound from sodium azide and cyanogen bromide under supervision. The reaction was carried out and the product filtered off the inorganic by-products. They were then dried and scraped off onto a balance pan when there was an explosion. The thumb of the student was blown off. The supervisor was prosecuted under the Management of Health and Safety Regulations 1992 by failing to make 'a suitable and sufficient assessment of the risks health and safety'. He was found not guilty due to his assessment of the hazards being accepted as reasonable.

[laboratory work, safety procedures inadequate, unwanted chemical reaction, bromine cyanide]

Lessons

Carry out risk assessment on laboratory experimentation.

6432 22 February 1994

Source : LLOYDS LIST, 1994, 23 FEB.

Location : Nanjing, CHINA

Injured : 0 Dead : 0

Abstract

1200 tonnes of waste oils and chemicals including sulphuric acid in corroding storage drums may be washed into river in rainy season.

[pollution, corrosion]

Lessons

[None Reported]

6429 20 February 1994

Source : LLOYDS LIST, 1994, 22 FEB.

Location : Karachi, PAKISTAN

Injured : 0 Dead : 0

Abstract

Fire at chemical plant destroyed plastics and unknown chemicals in storage drums.

[fire - consequence]

Lessons

[None Reported]

6421 14 February 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUN.

Location : Ndola, ZAMBIA

Injured : 0 Dead : 0

Abstract

20,000 cum floating roof tank containing crude oil caught fire.

[fire - consequence, storage]

Lessons

[None Reported]

6416 10 February 1994

Source : LLOYDS LIST, 1994, 11 FEB.

Location : Ulyanovsk, RUSSIA

Injured : 1 **Dead** : 0

Abstract

A bulldozer excavating along a pipeline caused an explosion and fire.

[bulldozer/JCB/digger, fire - consequence, excavation damage]

Lessons

[None Reported]

6413 08 February 1994

Source : LLOYDS LIST, 1994, 10 FEB.

Location : Nottingham, UK

Injured : 0 Dead : 0

Abstract

Fire at plastics warehouse.

[fire - consequence, warehousing]

Lessons

[None Reported]

6395 27 January 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, APR.

Location : , NORTH SEA

Injured : 0 Dead : 0

Abstract

An offshore production platform and storage vessel lost 4 of 8 anchors in storm, system shutdown and wells closed in. Production resumed on 2/2/94.
[weather effects, near miss]

Lessons

[None Reported]

6393 26 January 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Corpus Christi, USA

Injured : 1 **Dead** : 1

Abstract

Explosion in out of service storage tank. Fatality.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Valdez, USA

Injured : 0 **Dead** : 0

Abstract

Small fire due to ignition of lubricating oil at a marine storage terminal.

[lube oil, fire - consequence]

Lessons

[None Reported]

6373 09 January 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Pittsburgh, USA

Injured : 0 Dead : 0

Abstract

Fire within the polyurethane applications development laboratory.

[fire - consequence, laboratory work]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1ST QUARTER, 1994.

Location : Penang, MALAYSIA

Injured : 0 **Dead** : 0

Abstract

Major warehouse fire.

[fire - consequence, warehousing]

Lessons

[None Reported]

1172701 January 1994

Source : ICHEME

Location : , UK

Injured : 11 Dead : 0

Abstract

A mixture of dirty acetic anhydride and acetic acid (containing carbon particles) was being pumped via a 100mm pipeline from a still base to dirty acid storage tanks, some 200 metres away. The line blocked.

It was decided to isolate the line, remove the blockage and then flush through with water. This was undertaken successfully. The line was left to drain any remaining water, before returning it to service.

Shortly after pumping of the mixture had re-started, there was a violent hydrolysis reaction in the dirty tanks. The pressure relief lids on the tanks were blown off and a cloud of acetic anhydride / acid vapour was released into the atmosphere. This drifted across the site and affected personnel and contractors. None required medical treatment. Relatively few people were on-site, as it was New Year's Day. No off-site effects were reported. Up to 100kg of material was lost. It is believed that water had accumulated in a 'dead leg' in the pipework and when normal operation re-started, the water was pumped forward to the tanks.

[flow restriction, gas / vapour release, material transfer,

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1995, MAY.

Location : , France

Injured : 0 **Dead :** 1

Abstract

A warehouse employee was asked to clean out an empty a wine vat which had just been emptied. He was later found dead near the manhole at the bottom of the vat. The autopsy found death was due to asphyxiation. Carbon dioxide, sulphur dioxide and hydrogen sulphide had accumulated at the bottom of the vat. Fatality.

[cleaning, warehousing, entry into confined space, testing inadequate]

Lessons

[None Reported]

124211994

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Two incidents occurred with single deck pontoon roofs (with radial stiffeners) on 76 degree m dia. crude tanks and one with a single-deck pontoon roof on 36 m dia. platformate tank.

The latter single deck had sunk to the bottom and the full surface of the tank was covered with a foam blanket. However, during a severe storm with an electric discharge in the area the tank content caught fire. The fire was extinguished within an hour.

[storage tanks, floating roof failure, lightning, fire - consequence]

Lessons

[None Reported]

124101994

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A potentially serious incident occurred recently on an offshore installation when 12 stud bolts on a production choke valve failed a short time after the well had been brought into production.

An investigation into the failures found that the most likely cause of the bolt failures is due to sulphide stress corrosion cracking. The combination of a high-applied stress and the presence of hydrogen sulphide generated by the hydrolysis of the molybdenum disulphide that was present in one of the greases used during valve assembly.

[bolt failure, near miss]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 1 Dead : 0

Abstract

An explosion occurred on an effluent water treatment tank resulting in a contractor suffering severe burns.

The incident occurred whilst contractors were constructing a tank and following heavy rain the tank had filled with water and a submergible electric pump was installed to pump the tank dry. While checking the water level through the tank's manhole, an explosion occurred injuring the contractor.

An investigation into the incident revealed the presence of flammable vapours inside the tank which are believed to have been ignited by the pumps connection to the electrical socket (located outside the tank). This could have resulted in a flash back due to the vapours coming through the tank manhole.

Vapour/Gas had been noted from the onset of the job and contractor personnel had been equipped with respirators. There was no thought at the time that these vapours might be flammable.

Work throughout the job was in the open until the lid of the tank was built.

The confined the space, concentrated the gasses and together with the source of ignition produced an explosive situation.

Tank construction was suspended until the accident was investigated.

Samples of the water remaining in the tank were taken for analysis. Ketones, aromatics and possible degradation compounds of agrochemical products were identified.

The source of flammable liquids/gases was determined and mechanical aeration and gas freeing of the tank was performed. Gas analysis showed presence of propane, butane, benzene, toluene and xylene.

1. Subsoil analysis was used to establish the source of the flammable gases or liquids and avoid their entry into tanks.

2. The procedures regarding the issue and renewal of work permits are to be reinforced with direct on-the-job training.

3. Soil contaminants will be contained until such time as the appropriate measures can be taken for clean up.

4. Direct supervision of the jobs at the site was reinforced.

[construction, leak, entry into confined space, injury]

Lessons

The report stated the following recommendations:

Contaminated soil can produce gases which can build up to explosive mixtures in (semi)confined spaces such as cellars, tanks during construction, etc.

Source : THE CHEMICAL ENGINEER, 1994, 24 NOV.

Location : Purfleet; Essex, UK

Injured : 0 **Dead** : 0

Abstract

7000 litres of ethanol leaked into yard from an open pipe. The incident occurred when demolition workers opened the wrong valve. The leak could have caused a fire.

Company fined £17 000 (1994) plus costs.

[human causes, spill, near miss]

Lessons

[None Reported]

117051994

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A drum of waste solvent and paint residues exploded on a manufacturing site. The drum failed due to build up of pressure within it. The exact cause is unclear, but the drum is known to have contained zinc residue and water and the ambient temperatures were high for the week leading up to the incident. The combination of zinc, water and heat is believed to have lead to a release of gas. Damage was limited and there were no injuries, possibly because it was a bank holiday.

[zinc, storage, drums, explosion, unwanted chemical reaction, high pressure, weather effects, gas / vapour release]

Lessons

1. Waste streams to be segregated to keep incompatible materials separated.
 2. Zinc and aluminium residues are known to be potentially reactive with water and to not be mixed with aqueous residues. They should also be clearly labelled.
 3. Waste drum stocks to be regularly checked for signs of pressure build up.
-

6352 24 December 1993

Source : LLOYDS LIST, 1993, 28 DEC.

Location : Caspian Sea, RUSSIA

Injured : 5 **Dead** : 1

Abstract

Helicopter crashed on offshore oil well as it was landing. Fatality.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Forties D; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Gas production of 20000 bbl per day stopped pending investigation due to internal ignition in flare system. Non-essential personnel evacuated. All offshore platform emergency shutdown valves actuated. No evidence of fire or explosion reported.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Granger; Wyoming, USA

Injured : 5 **Dead** : 0

Abstract

Fire broke out at natural gas liquids (NGL) loading and storage terminal halting production at the 210 million scfd capacity gas plant.

[fire - consequence]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Buchan A; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Floating production offshore platform shut down operations when a windward anchor cable failed in 50 knot storm winds. One day interuption resulted.
[strong winds, plant shutdown]

Lessons

[None Reported]

6306 18 November 1993

Source : LLOYDS LIST, 1993, 19 NOV.

Location : North Sea, NORWAY

Injured : 0 Dead : 0

Abstract

1 tonne of oil leaked from two holes in a crude oil storage tank on a offshore concrete production platform.

[spill]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, FEB.

Location : Jacksonville, USA

Injured : 10 **Dead** : 0

Abstract

Fire destroyed a tank and warehouse after burning oil and xylene spread to nearby drum and tank storage area through open dykes.

[fire - consequence]

Lessons

[None Reported]

6302 17 November 1993

Source : EXECUTIVE NEWS, 1993, 18 NOV.

Location : Aurora; Minnisota, USA

Injured : 0 **Dead** : 3

Abstract

Explosion at a closed explosives plant killed 3 demolition workers and left a crater 20 ft wide and a foot deep. Fatality.
[explosive]

Lessons

[None Reported]

6301 16 November 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Beatrice; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

A pollution slick one mile in length by four to five feet wide was reported in vicinity of an offshore platform. All production on platform closed down. Origin of crude oil leak suspected to be sub-sea pipeline linking two sister platforms.

Lessons

[None Reported]

6297 14 November 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Taujack; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

Offshore drilling rig reported adrift in force 8 gales and rough seas. Rig drifted and struck a pier destroying end section from 25 m out from shore. Small fuel tank leak and ten gas oil drums swept off this unmanned platform. Platform apparently a total loss.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, FEB.

Location : Draugen; Haltenbanken, NORWAY

Injured : 0 **Dead** : 0

Abstract

An offshore platform developed a leak in one of 7 concrete storage silos. Spill of 1 tonne of crude oil attributed to two holes in silo from construction defect.
[silo/hopper, material of construction failure]

Lessons

[None Reported]

6290 09 November 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, FEB.; LLOYDS LIST, 1993, 10 NOV.

Location : Houston; Texas, USA

Injured : 0 Dead : 0

Abstract

Fire gutted recycled paper and plastics warehouse. Propane cylinders exploded during fire. Blaze allowed to burn itself out. Sprinkler system destroyed as roof collapsed.

[fire - consequence, warehousing]

Lessons

[None Reported]

6287 05 November 1993

Source : EXECUTIVE NEWS, 1993, 5 NOV.

Location : Manchester, USA

Injured : 0 **Dead** : 0

Abstract

Fire at chemical distribution site burnt for 3 hours. Substances involved included acids, alkali, salt and oxidizers. Led to the evacuation of hundreds of people.
[fire - consequence, storage]

Lessons

[None Reported]

6283 03 November 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, FEB.; LLOYDS LIST, 1993, 8 NOV.

Location : Seattle, USA

Injured : 0 Dead : 0

Abstract

Fire in dust control building at 15 metre level above grain silo. Use of water stopped as expanding grain threatened structure. Blaze controlled with foam.
[fire - consequence, silo/hopper, storage]

Lessons

[None Reported]

6281 02 November 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Malongo Terminal; Cabinda, ANGOLA

Injured : 0 **Dead** : 0

Abstract

Offshore platform temporarily abandoned after a blowout and was subsequently towed away. Capping of well in progress. No disruption to tanker loading operations.

Lessons

[None Reported]

6275 28 October 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, DEC.; LLOYDS LIST, 1993, 30 OCT., & 13 NOV.

Location : Tel-Aviv, ISRAEL

Injured : 22 Dead : 1

Abstract

Cause attributed to the leak of acidifier in a storage tank and the chemical reaction of another material. Acid fumes did not spread outside plant. Fire fighter died when he fell into hydrochloric acid vat as they tried to neutralise acid with caustic soda. Fatality.
[unwanted chemical reaction, gas / vapour release]

Lessons

[None Reported]

6267 21 October 1993

Source : OIL AND GAS JOURNAL, 1993, 15 NOV.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, FEB.; EXECUTIVE NEWS, 1993, 1 NOV.

Location : Nanjing, CHINA

Injured : 0 Dead : 2

Abstract

Workers neglected level alarms during mistaken filling of a 10000 cum (cubic metre) storage tank resulting in overfill with gasoline and spillage into an adjacent drain channel. Spillage ignited by tractor giving fireball. 100 tonnes of gasoline caught fire. Fire attended by 10 fire brigades and took 17 hours to extinguish. Fatality.

[overflow, fire - consequence, operator error, loading]

Lessons

[None Reported]

6268 21 October 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 4TH QUARTER, 1993.

Location : Dun Laoghaire, IRELAND

Injured : 1 **Dead** : 0

Abstract

Major fire at chemical plant attended by 7 fire brigades. Explosion of chemical storage drums.

[fire - consequence]

Lessons

[None Reported]

6254 08 October 1993

Source : OIL AND GAS JOURNAL, 1993, 18 OCT.

Location : Martinez; California, USA

Injured : 0 Dead : 0

Abstract

Explosion and fire in a spent acid storage tank holding sulphuric acid from crude oil treatment at this oil refinery.

[fire - consequence]

Lessons

[None Reported]

6252 02 October 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, DEC.

Location : Felling; Tyne And Wear, UK

Injured : 0 Dead : 0

Abstract

Forklift truck punctured 2 drums of ethylamine causing a spill. Fumes spread through storage depot.

[collision]

Lessons

[None Reported]

6250 01 October 1993

Source : OIL AND GAS JOURNAL, 1993, 11 OCT.

Location : Mcdonald Island; Stockton; California, USA

Injured : 0 Dead : 0

Abstract

An explosion at an underground storage tank holding natural gas caused site damage of US\$ 2 million and third party damage of \$50000 (1993).

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 117, 17.

Location : Georgia, USA

Injured : 1 Dead : 0

Abstract

Workers were transferring a 93% solution of sulphuric acid from a 3785 litre storage tank to 378 litre "day tank" when a 2.5 cm carbon steel transfer pipe line failed. The failure caused sulphuric acid to be sprayed about 18 metres from the origin of the leak. A worker walking through the area was sprayed by the acid mist and received second degree burns on his back. After being washed down in a safety shower by fellow workers, he was taken to a medical facility for treatment. The procedure for transferring acid from the bulk tank to the day tank required that the valve at the dilute tank be closed and that a transfer pump be used to facilitate the transfer of acid from the bulk tank to the day tank. When the accident occurred, the valve at the dilute tank was closed and the transfer pump had been started. The pump built up pressure in the pipe, causing the mist of acid.

An inspection indicated that the failed line was constructed of carbon steel and appeared to be a "Schedule 40 pipe", although the engineering drawings specified use of "Schedule 160 pipe", which has walls approximately twice as thick. In addition, it was known that the flow of acid through the line normally reduces the thickness of the pipe wall by about 5 microns per year. The section of the line that failed had been replaced approximately 10 years ago. On this occasion, as soon as the leak was discovered and the transfer pump shut down, the area was barricaded and thoroughly washed. All piping was subsequently inspected using non-destructive evaluation (NDE) techniques, and pipes of insufficient thickness were replaced.

[pipeline failure, incorrect equipment installed, spill, material transfer]

Lessons

This incident provided several lessons relating to configuration control and the handling of corrosive materials:

1. Whenever system components are replaced or repaired, engineering documents must be checked to ensure that the correct materials are used. Engineering documents (especially drawings) must be carefully managed to ensure that they are kept up-to date. However, specifying the correct materials and components for maintenance and repairs is not enough. Follow up must be conducted to ensure that the entire process is performed correctly, appropriate replacement items must be ordered, inspected on receipt, adequately documented in work orders, installed, and functionally tested.
2. Management must ensure that all hazardous materials and processes are identified and that procedures are developed and implemented to ensure safety. A preventative maintenance programme, including a replacement schedule or through NDE testing, should be established to replace components where failure would result in serious safety or environmental consequences.
3. Implementation of relevant standards related to mechanical integrity, procedures, and training should have prevented the use of incorrect schedule piping. Although many standards apply to facilities with quantities of hazardous material above a certain thresholds, these recommended practices will prevent accidents even when applied to facilities that are not covered by the standard.

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, DEC.

Location : Off North Island, NEW ZEALAND

Injured : 0 **Dead** : 0

Abstract

Rupture to wellhead flowline on offshore platform. Natural gas rocketted into air. Platform evacuated and shutdown.
[evacuation]

Lessons

[None Reported]

Source : OIL AND GAS JOURNAL, 1993, 4 OCT.

Location : Red Bluff; Pasadena; Texas, USA

Injured : 0 **Dead** : 0

Abstract

Fire in loading rack at a storage tank farm. Substance involved: gasoline.

[loading bay, fire - consequence]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1993.

Location : Yountville; California, USA

Injured : 1 **Dead** : 0

Abstract

An explosion of a 11000 litre propane storage tank occurred forcing evacuation of 1800 local people.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, NOV.

Location : Elswick; Tyne And Wear, UK

Injured : 0 **Dead** : 0

Abstract

Blaze in fume extraction cupboard at analytical chemists. Thick toxic smoke, led to the evacuation of 300 people from a business park.
[laboratory work, fire - consequence]

Lessons

[None Reported]

Source : LLOYDS LIST, 1993, 17 SEP.

Location : Lake Alfred; Florida, USA

Injured : 2 **Dead** : 0

Abstract

Explosions in distillery forced evacuation of 700 people and halted rail traffic. 12 tanks burnt out. Construction crew were using cutting torch at the time of the incident.

[hot work, alcohol]

Lessons

[None Reported]

6202 25 August 1993

Source : LLOYDS LIST, 1993, 26 AUG.

Location : Nurdagi, TURKEY

Injured : 23 **Dead** : 6

Abstract

Earth moving vehicle struck crude oil pipeline while constructing road and ruptured pipeline. Fatality.
[excavation damage]

Lessons

[None Reported]

6201 23 August 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, NOV.

Location : Cook Inlet; Alaska, USA

Injured : 0 **Dead** : 0

Abstract

An oil spill response vessel struck an offshore drilling platform leg causing a spill of 23000 litres of diesel.

[marine transport]

Lessons

[None Reported]

6198 23 August 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, OCT.

Location : Alexandria, EGYPT

Injured : 70 Dead : 1

Abstract

Powerful explosion in oil storage tank at refinery. Suspected incorrect leak test procedure. Fatality.
[testing inadequate]

Lessons

[None Reported]

6197 22 August 1993

Source : LLOYDS LIST, 1993, 25 AUG.; EXECUTIVE NEWS, 1993, 22 AUG.

Location : Schwelm; Ruhr, GERMANY

Injured : 0 Dead : 0

Abstract

A fire occurred in a paints and packaging warehouse. Nearby residents were advised to stay in doors due to a release of toxic gases. The blaze was controlled in 6 hours.

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

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A cone roofed tank in residue service violently ruptured at the roof to shell seam. A black plume rose in the air and was carried into the neighboring area. Steam was injected into the tank to snuff out the internal fire. About 3,400 bbls. of residue of left the tank, with approximately 95 percent of this captured in the tank dike area. The airborne portion (less than 150 bbls.) travelled outside the tank dike area. Damage inside the refinery was limited to the tank roof and its upper shell. There were no injuries.

The project incident cost to date is \$212,000 (1993), including 652 car and 239 house insurance claims resolved to date. The total cost may increase to \$364,000 (1993) due pending claims and the tank repair.

The incident occurred when the combination of hot residue vapours, oxygen and pyrophoric deposits in the vapour space completed the fire triangle with autoignition. The resulting combustion increased the tank vapour space pressure, overpressured the tank and ruptured the roof to wall seam. Combustion vapours and liquid oil was released from the tank.

The incident occurred after the tank had been isolated the previous night at a temperature of 405 degrees F. Just hours before the tank isolation, the vacuum distillation unit cooler box in atmospheric residue service was bypassed due to plugging, raising the rundown from its normal temperature of 400 degrees F to about 670 degrees F.

The combination of excessive temperature and available oxygen in the tank vapour space provided the scenario for autoginition. Lack of communication and a previous tank roof seam split were contributory causes to the incident.

[storage tanks, material of construction failure, gas / vapour release, damage to equipment, design or procedure error, high temperature]

Lessons

The following recommendations were made:

1. Rundown temperatures of residue to storage must not exceed safe levels.
 2. Damaged tanks retained in service may exacerbate problems at a later date.
 3. For residue, bitumens, heavy oils, subject to deposition on tank walls and under roofs, autoignition is a potential hazard.
 4. Tank heating coils must not be in operation without an adequate liquid level coverage.
 5. Temperature indications for storage tanks are usually poorly provided giving operators.
 6. limited reliable information, this needs to be considered when working close to safe temperature limits.
-

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Packing Gland Fire. Due to the extensive damage on the heater, the valve normally used for up-stream isolation of the fuel gas control valve was inaccessible, so a valve located some 15ft away in an overhead piperack was used for the isolation.

Work to repair the heater required use of burning torches. Area gas tests were carried out before the issue of a hot work permit and a fire watch was required at the work site. However, because of its location in the piperack, with its difficult accessibility, gas tests were not done around the isolating valve.

During the overhead demolition, sparks fell to the ground around the base of the heater and onto the isolation valve igniting gas leaking from its packing gland.

Fire water was applied to the packing gland, but the fire would not go out.

Two operators climbed out into the piperack from the heater deck while other personnel applied fire water to the area. However, they could not close the valve any tighter and were told to leave the piperack by Safety Department personnel. A maintenance supervisor climbed out to the valve and pulled up the bolts on the packing gland, and this finally extinguished the fire. He also tightened up the bolts on the blind flange, which were presumably loose from the fire.

There were no injuries sustained in this incident.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

6188 14 August 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, NOV.; LLOYDS LIST, 1993, 16 AUG.; EXECUTIVE NEWS, 1993, 15 AUG.

Location : Kanash; Chuvashia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Explosion in pumping unit spread to 3 fuel oil storage tanks each of 1000 tonnes capacity.

Lessons

[None Reported]

6181 06 August 1993

Source : LLOYDS LIST, 1993, 6 AUG., & 8 DEC.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, OCT.; THE GUARDIAN, 1993, 6 AUG.

Location : Shenzhen, CHINA

Injured : 160 **Dead** : 15

Abstract

Explosion caused fires in 8 warehouses storing flammable materials. Massive explosion 10/15 minutes after fire spread to gas and chemical warehouse.

Substances involved: gas, ammonium nitrate and nitric acid.

[warehousing, fatality]

Lessons

[None Reported]

6176 02 August 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, SEP.

Location : St Louis; Missouri, USA

Injured : 0 Dead : 0

Abstract

Floods loosened 50 propane storage tank foundations at tank farm, causing vapours to leak from the pipe connections. Flash fire led to the evacuation of 11 500 people.

[gas / vapour release]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Vacuum residue tank roof to shell seam failure at a refinery.

An atmospheric tank containing vacuum bottoms overpressured, releasing material into the immediate area and the community. There were no injuries. Previous damage to the tank roof went unfixed and was viewed as "normal" by operators.

Total dollar losses were in excess of \$200,000 (1993).

The temperature of the product elevated due to pluggage of vacuum unit box cooler and the tank roof was damaged, possibly admitting higher oxygen content.

It was found that there was insufficient knowledge as to the safe operation of heavy oil tankage, and the tank used in a way other than that for which it was designed, it was used

beyond its design capabilities, and there was insufficient monitoring/observation of cooler while changes were being introduced.

[overpressurisation, refining, storage, damage to equipment, design inadequate, human causes]

Lessons

1. Rundown temperatures of residue to storage must not exceed safe levels.
 2. Damaged tanks retained in service may exacerbate problems at a later date.
 3. Temperature indications for storage tanks are usually poorly provided, giving operators limited reliable information. This needs to be considered when working close to safe temperature limits.
-

Source : ENDS REPORT NO. 232, 1994, MAY.

Location : Seal Sands; Cleveland, UK

Injured : 0 **Dead** : 0

Abstract

An explosion of a 50 tonne effluent waste storage tank occurred when hydrogen peroxide was passed to the tank. An oxygen rich atmosphere and the solvent vapours were possibly ignited by static generated by splash filling of the tank.

Lessons

[None Reported]

6165 29 July 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, OCT.

Location : El Secundo; California, USA

Injured : 0 **Dead** : 0

Abstract

Rupture of storage tank caused a spill of 830 tonnes of fuel oil but most contained. 17 tonnes retained in storm water drain.

Lessons

[None Reported]

6156 17 July 1993

Source : EXECUTIVE NEWS, 1993, 18 JUL.

Location : Ninian South Platform, NORTH SEA

Injured : 0 **Dead** : 0

Abstract

Fire in turbine exhaust following routine maintenance on an offshore platform.

[fire - consequence]

Lessons

[None Reported]

6150 13 July 1993

Source : CHEMICAL HAZARDS IN INDUSTRY, 1993, SEP.

Location : Miaoli, TAIWAN

Injured : 3 **Dead** : 4

Abstract

Sparks during maintenance ignited vapours in a polyvinyl chloride (PVC) storage tank undergoing repairs. Fatality.

Lessons

[None Reported]

6145 06 July 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1993.

Location : Baar, SWITZERLAND

Injured : 6 **Dead** : 0

Abstract

Warehouse used for storage of petroleum products caught fire during the material transfer of liquid into containers.

[warehousing, fire - consequence]

Lessons

[None Reported]

Source : CHEMISTRY IN BRITAIN, 1993, NOV.

Location : Much Wenlock; Shropshire, UK

Injured : 0 **Dead :** 1

Abstract

Explosion in storage tank containing acid and volatile organic material at a fertiliser plant. Fatality.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 3RD QUARTER, 1993.

Location : Barzan Oilfield, TURKEY

Injured : 0 **Dead** : 0

Abstract

Fire after an explosion in floating roof tank of crude oil destroyed 2 tanks.

[terrorism, storage]

Lessons

[None Reported]

6121 14 June 1993

Source : LLOYDS LIST, 1993, 23 JUN., & 30 JUN.

Location : Buras; Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

Lightning struck floating roof tank of crude oil causing a hole in the top of the tank. A small fire occurred which was extinguished after 3 hours.
[fire - consequence, storage]

Lessons

[None Reported]

6120 14 June 1993

Source : LLOYDS LIST, 1993, 15 JUN.

Location : Thonburi, THAILAND

Injured : 10 **Dead** : 4

Abstract

Explosion and fire in whisky distillery. Ethyl alcohol and chemicals flowed into river. Explosion in storage tank with 20000 litres of alcohol. Fatality.
[fire - consequence, processing]

Lessons

[None Reported]

6117 11 June 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, SEP.

Location : Tuticorin, INDIA

Injured : 0 **Dead** : 0

Abstract

Fire in sulphur store.

[fire - consequence, storage]

Lessons

[None Reported]

6111 09 June 1993

Source : LLOYDS LIST, 1993, 10 JUN.

Location : Gateshead; Tyne And Wear, UK

Injured : 0 **Dead** : 0

Abstract

Terrorist attack caused an explosion of a natural gas storage tank.

[terrorism]

Lessons

[None Reported]

6101 04 June 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, JUL.

Location : Swardeston; Norwich; Norfolk, UK

Injured : 5 **Dead** : 0

Abstract

Explosion of storage drums of nitric acid during dilution work. Orange cloud over village.

[gas / vapour release]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, AUG.

Location : Vidreras, SPAIN

Injured : 4 **Dead** : 0

Abstract

Fire after several tonnes of fireworks exploded at warehouse.

[explosion, warehousing]

Lessons

[None Reported]

6089 June 1993

Source : CHEMICAL WEEK, 1993, 30 JUN.

Location : Irvington, USA

Injured : 43 Dead : 0

Abstract

A spill of 3500 gallons of hydrochloric acid occurred from a storage tank due to earth movement.

Lessons

[None Reported]

6079 24 May 1993

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1993.

Location : Houston; Texas, USA

Injured : 0 **Dead** : 0

Abstract

Lightning caused a small fire in a crude oil storage tank.

[fire - consequence]

Lessons

[None Reported]

6073 17 May 1993

Source : LLOYDS LIST, 1993, 2 JUN.; EXECUTIVE NEWS, 1993, 17 MAY.

Location : Offshore, INDIA

Injured : 0 Dead : 0

Abstract

A leak in an offshore platform 30 inch riser pipe caused 1.5 to 1.8 million gallons of crude oil to spill and form slick 1.8 miles long.

Lessons

[None Reported]

6074 17 May 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, JUL.

Location : , ARABIAN SEA

Injured : 0 **Dead :** 0

Abstract

Ruptured 30 inch riser pipe on offshore platform caused a spill of 7000 tonnes of crude oil

Lessons

[None Reported]

6070 11 May 1993

Source : LLOYDS LIST, 1993, 28 MAY.

Location : Kaohsiung, TAIWAN

Injured : 0 **Dead** : 0

Abstract

Pipeline ruptured by construction work causing spillage of 1500 gallons of oil.
[excavation damage]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A fire occurred in a bitumen storage tank. When an inlet valve to a bitumen tank was opened to release pressure build up in the header fill line, a rapid fire and minor explosion immediately occurred in the tank. Failure of the inlet line heating control system resulted in material heating up above temperature; and a non-standard part had been fitted to the system, rendering the trace heating control inoperable. A contributing factor was excessive air entering the line as a result of railcar off-loading.

The cause was operators not fully understanding the need to control temperatures of lines manually, and a non-standard part being used in the maintenance of the trace heating, without authority. Also the monitoring of procedures was inadequate.

[control failure, high temperature, high pressure, operator error, design or procedure error]

Lessons

There is a long history within the bitumen industry of the hazards of overheating bitumen storage tanks. The margin between necessary operating temperatures and those at which "cracking" of the product, combustion of tank deposits, etc. occurs can be very small with certain grades. A good understanding of this and adequate facilities for heating control and temperature indication are essential.

6046 25 April 1993

Source : LLOYDS LIST, 1993, 28 APR.

Location : Gloucester; Ontario, CANADA

Injured : 1 **Dead** : 0

Abstract

Fire in storage area.

[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A Carbon Black Feedstock (CBFS) storage tank was found to be leaking oil through a hole (created by a muskrat-like rodent) in its dike. At the time the 185-foot diameter tank contained 109,000 barrels of product (approximately 2/3 full). On inspection the tank appeared to be leaking from its floor to the ditches within the surrounding diked (bunded) area.

Air monitoring set-up to test for vapour concentrations. Spill response was swift and cost effective with 95 percent of the oil content of the tank pumped out for sale and most of the spilled oil recovered and sent to slops storage.

Despite losing the containment perimeter through a leaking dike drain valve and sending CBFS to the segregated stormwater sewer, no violations of the water discharge permit limits occurred.

Clean-up costs were \$140,000 (1993) and the lost oil (5,000 barrels) had a value of \$65,000 (1993) although no credit has been made for the oily/water mixture sent to slops. Tank repair and soil removal costs are additional. No injuries were sustained in the incident and clean-up operations.

[storage tanks]

Lessons

1. Account to be taken of local soil conditions and characteristics in determining the best approach for tank floor repairs.
 2. Regular inspection of tank dike (bund) walls and associated drain valves to ensure integrity to be done.
 3. Atmospheric monitoring to be done at spillages before allowing the approach and use of vacuum tankers, to ensure that there is no risk of ignition of spillage.
-

6040 20 April 1993

Source : LLOYDS LIST, 1993, 24 APR.

Location : Veddel; Hamburg, GERMANY

Injured : 3 **Dead** : 0

Abstract

Dust explosion in grain silo. 3 workers were inside at the time. Subsequent collapse of concrete silo.

[silo/hopper, storage]

Lessons

[None Reported]

6041 20 April 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, JUN.; LLOYDS LIST, 1993, 29 APR.

Location : Port Neches; Beaumont; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A spill of 280 tonnes of crude oil occurred into a waterway from a pipeline between storage tanks. Discovered after discrepancy noted by receivers.

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1993.

Location : Breton Sound, USA

Injured : 0 **Dead** : 0

Abstract

Fire on an offshore platform. Substance involved crude oil.

[fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1993, JUN.

Location : Heerhugowaard, NETHERLANDS

Injured : 0 **Dead :** 0

Abstract

A fire that destroyed a production laboratory is thought to have originated when reagent was added to a mixture with isopropyl alcohol, causing a violent reaction and the release of foam. The foam ignited for a reason not yet known, and a 200-litre vessel containing acetone subsequently shattered, causing the fire to burn more strongly. This was the first time that the reaction had been carried out on an expanded scale, and foam production had not occurred when the process was performed on a laboratory scale.

[unwanted chemical reaction, fire - consequence, laboratory work]

Lessons

[None Reported]

6027 11 April 1993

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1993, JUN.

Location : Hyderabad, PAKISTAN

Injured : 0 **Dead** : 10

Abstract

Fire in warehouse storage of fireworks. Blaze spread through densely populated area. Fatality.

[fire - consequence, warehousing]

Lessons

[None Reported]

6023 08 April 1993

Source : LLOYDS LIST, 1993, 8/9 APR.; THE GUARDIAN, 1993, 9 APR.

Location : Floriffoux; Namur, BELGIUM

Injured : 5 **Dead** : 4

Abstract

Dust explosion in grain silo damaged houses and factory. Fatality.

[silo/hopper, storage]

Lessons

[None Reported]

6016 06 April 1993

Source : LLOYDS LIST, 1993, 9 APR.

Location : Tomsk-7; Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A storage canister of radioactive material exploded in an unoccupied building of a chemical factory. Elevated levels of radio-activity found 12 miles away. 2470 acres contaminated. Incident rated 3 on international 7 point scale.

[radioactive release, container, uranium solution]

Lessons

[None Reported]

6018 06 April 1993

Source : LLOYDS LIST, 1993, 8 APR.

Location : Brussels, BELGIUM

Injured : 0 **Dead** : 0

Abstract

4 storage tanks ignited and fire spread to 10 nearby houses. Led to the evacuation of 1500. Barrels nearby exploded.
[paint thinner]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1993, MAY.

Location : New Jersey, USA

Injured : 0 **Dead** : 0

Abstract

Chlorine and smoke cloud 1500 ft wide and five miles long came from a warehouse fire.

[fire - consequence, warehousing]

Lessons

[None Reported]

6006 31 March 1993

Source : THE CHEMICAL ENGINEER, 1993, 8 APR.

Location : Martinez; California, USA

Injured : 0 **Dead** : 0

Abstract

Steel lid blew off sludge storage tank and cut power lines before landing on railway lines.

[explosion]

Lessons

[None Reported]

6004 28 March 1993

Source : OIL AND GAS JOURNAL, 1993, MAR.; LLOYDS LIST, 1993, 9 APR.

Location : Virginia, USA

Injured : 0 Dead : 0

Abstract

9708 barrels of fuel oil spill from pipeline threatened water supply to town. Rupture caused by fatigue crack initiated by mechanical damage from heavy construction equipment. The rupture was 52 inch long and 5 inch wide.

[damage by backhoe]

Lessons

[None Reported]
