

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 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 : Jal, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a gas pipeline at a gas plant setting fire to two chemical tanks containing methanol and glycol. The fire was contained within two hours and fortunately no one was injured in the incident. Fire fighters used water to cool the tanks and foam on the flaming liquid. An investigation into the incident is underway.

Lessons

[None Reported]

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 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 : , USA

Injured : 11 **Dead :** 0

Abstract

A worker accidentally spilled liquid phenol at a pharmacy. Eleven people were injured in the incident. The building was evacuated as a consequence. Breathing phenol can irritate lungs. Longer exposure can cause muscle tremors and loss of coordination (Agency for Toxic Substances and Disease Registry).
[injury]

Lessons

[None Reported]

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

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Location : Gloucestershire, UK

Injured : 0 **Dead** : 0

Abstract

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

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

Lessons

[None Reported]

1317322 October 2000

Source : CNN INTERACTIVE, OCTOBER 23, 2000, (<http://www.cnn.com>).

Location : Texas, USA

Injured : - Dead : 1

Abstract

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

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 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 : Downey, USA

Injured : 6 **Dead :** 0

Abstract

An explosion occurred at a bottling plant injuring six workers. The incident occurred due to leak on a 1,100-gallon tank containing propane, which is thought to have been ignited by a water heater. The fire was extinguished in forty-five minutes. Nearby buildings within half a mile were damaged by the blast.
[hot surface, damage to equipment, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 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 : Manchester Township, New Jersey, USA

Injured : 0 **Dead :** 0

Abstract

Traces of nitrate-based metal were found during an investigation into an explosion that occurred September 29, 2000 at a manufacturing plant. A nearby school was closed due to the find.

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 WEEK, OCTOBER 11, 2000.

Location : Conda, USA

Injured : 0 Dead : 0

Abstract

A phosphates plant was shutdown due to a spillage of acid and slurry. The incident occurred due to the failure of a wall of the phosphoric acid digester tank. Fortunately no one was injured and no environmental damage occurred as a result. An investigation into the incident is underway.
[material of construction failure]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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Location : Manchester, USA

Injured : 0 **Dead :** 1

Abstract

An explosion occurred at a manufacturing plant killing a worker. The worker was working alone on a machine grinding magnesium when the explosion occurred.

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

[fatality, grinder]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (<http://www.chemsafety.gov>).

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Location : Stratford, USA

Injured : 16 **Dead :** 0

Abstract

Noxious fumes were released from a factory when gas escaped from a chemical compound, organic peroxide, that was apparently left in a hot oven over the weekend. Sixteen people were affected by the fumes.

[gas / vapour release, human causes]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 12, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to 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 : Bamble, NORWAY

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a pile of magnesium at an industrial site. Residents in a one kilometre radius were warned to stay in doors and nearby roads were closed as a precaution due to the danger of an explosion and fallout of hot magnesium.

Fire fighters struggled to control the fire as magnesium reacts with water. Fire fighters attempts to contain the fire with salt failed, as the salt melted in the extreme heat.

[fire - consequence]

Lessons

Source : CNN.COM, SEPTEMBER 25, 2000, (<http://www.cnn.com>).

Location : Florida, USA

Injured : 2 Dead : 0

Abstract

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

Lessons

[None Reported]

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

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Location : Indianapolis, USA

Injured : 40 **Dead :** 0

Abstract

Approximately forty people were being treated after a mercury spill that occurred at an airport. At least two people are known to have come into physical contact with the spill.

The spill was contained and the area decontaminated.

Mercury can cause skin rashes and eye problems, long-term exposure may cause serious damage to lungs and nerves.

[people]

Lessons

[None Reported]

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

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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 : YAHOO UK & IRELAND NEWS, SEPTEMBER 10, 2000, (<http://www.yahoo.co.uk>).

Location : , NIGERIA

Injured : 0 Dead : 0

Abstract

Approximately 130,000 barrels of oil spilled into a creek and delter from an oil refinery. Containment measures have been put in force. The cause of the spill is not yet known an investigation is underway. It is thought that sabotage is to blame.
[pollution]

Lessons

[None Reported]

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

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Location : West Deptford, USA

Injured : 3 **Dead :** 0

Abstract

A fire occurred at a refinery. It is reported that the fire occurred in a dewaxing unit used in the process of crude oil.

An investigation revealed that diesel fuel leaked from tubes that run through the heater into another heater, the fumes caught fire and released nitrogen oxides as a by-product of the fire.

Two workers and one fire fighter were injured in the incident.

[fire - consequence, gas / vapour release, refining, burns, injury]

Lessons

[None Reported]

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

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Location : Rogers City, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a warehouse containing unknown amounts of fertilisers, herbicides, insecticides and pesticides. The fire totally destroyed the building. The cause of the fire is not known.

A half-mile area surrounding the fire was evacuated as a precaution.

[fire - consequence, warehousing, evacuation, unidentified cause]

Lessons

[None Reported]

1301821 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 19, 21, 2000, (<http://www.cnn.com>).

Location : New Mexico, USA

Injured : 5 Dead : 11

Abstract

An explosion and subsequent fire occurred on a 30-inch underground natural gas pipeline reportedly killing eleven people and injuring at least five others.

An investigation into the rupture has revealed that a corroded section of the pipe was ejected in the explosion.

[fire - consequence, fatality, injury]

Lessons

[None Reported]

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

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Location : Vancouver, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical facility holding stocks of propane, chlorine and other chemicals. Fire fighters were called to the scene and extinguished the fire within fifteen minutes.

An investigation into the incident is being carries out.

[fire - consequence]

Lessons

[None Reported]

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

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Location : Venice, USA

Injured : 1 **Dead :** 0

Abstract

A fire and explosion occurred at a power plant causing power cuts to surrounding areas.

The incident occurred when oil leaked on the floor of the turbine room and ignited. Fire fighters using hydrogen tackled the fire. Several people from nearby homes were evacuated as a precaution.

[fire - consequence, evacuation]

Lessons

[None Reported]

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

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Location : Richmond, USA

Injured : 0 **Dead :** 0

Abstract

An oil leak occurred on a flare stack causing a gas cloud to develop over a nearby city.

The incident occurred on the hydrotreater, which uses hydrogen gas to strip gas oil of sulphur-containing impurities.

The company fire department doused the oil with foam to stop it from catching fire, but the leak forced workers to shut down the hydrotreater. This in turn requires excess hydrogen gas containing impurities to be vented to the flare stack and burn, producing sulphur dioxide and nitrogen oxides.

[gas / vapour release]

Lessons

[None Reported]

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

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Location : Honolulu, USA

Injured : 1 **Dead :** 0

Abstract

A plant was shut down due to an accidental mixing of two incompatible chemicals causing a release of approximately 20 pounds of chlorine gas. The incident occurred when an operator accidentally pumped sodium hypochlorite, bleach, into a 200-gallon storage tank containing phosphoric acid. The operator was injured in the incident.

[plant shutdown, people, gas / vapour release, storage tanks, normal operations, injury]

Lessons

[None Reported]

1296008 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 8, 2000, (<http://www.cnn.com>).

Location : Florida, USA

Injured : 0 Dead : 0

Abstract

Globules of oil have been found being washed ashore along a 25-mile stretch of Florida coastline forcing the closure of many public beaches.

The cause of the oil spill is not known but an investigation is being carried out to find the source.

Environmentalists are concerned as the spill may affect sea turtle hatchlings in the area.

[environmental, ecological damage, leak]

Lessons

[None Reported]

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

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Location : Pheonix, USA

Injured : 5 **Dead :** 0

Abstract

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

[fire - consequence, warehousing, damage to equipment, injury, gas / vapour release]

Lessons

[None Reported]

Source : BBC NEWS, 1 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : River Tagus, SPAIN

Injured : 0 **Dead** : 0

Abstract

Approximately two hundred and fifty thousand litres of highly toxic oil spilled from a power station into a nearby river creating an eight kilometre long oil slick. Water to a nearby city was cut off and farmers in the area were warned not to use the river to irrigate their land. Operations are underway to try and stop the spill from spreading. The incident was caused by a leak in the fuel depot at the power station. An investigation is underway into the cause of the leak.

[environmental]

Lessons

[None Reported]

1293231 July 2000

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

Location : Okwabude, AFRICA

Injured : - **Dead** : -

Abstract

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

[fire - consequence, deliberate acts]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : Sydney, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. A collision occurred between two freight trains during routine shunting. Approximately 20,000 litres of naphthalene was spilled. Nearby residents were evacuated. Fortunately no one was injured in the incident.
[evacuation]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 25, 2000. (<http://www.chemsafety.gov>).

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Location : Chicago, USA

Injured : 0 **Dead :** 0

Abstract

Nitric acid was found to be leaking from a tank at factory. The acid formed an orange cloud that hung over the area form more than an hour. An area of half a mile was evacuated in all directions. Trains nearby were also stopped.

Firefighters were able to quickly contain the leak.

Inhaling nitric acid fumes can cause shortness of breath, abdominal pain and dizziness, prolonged exposure can cause damage to the mouth, throat and stomach.

[gas / vapour release, evacuation]

Lessons

[None Reported]

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

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Location : Oklahoma City, USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a propane warehouse completely destroying the building and threatened a storage tank containing 4,000 gallons of fuel. One worker was injured in the incident.

[fire - consequence, warehousing, damage to equipment, storage tanks, cylinder, burns, injury]

Lessons

[None Reported]

1284216 July 2000

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

Location : Montreal, CANADA

Injured : 0 Dead : 0

Abstract

An explosion and fire occurred at a chemical plant sending a cloud of toxic smoke into the atmosphere and forcing the evacuation of thousands of nearby residents.

The explosion occurred in an acid-transformation plant thought to contain approximately 13,000 gallons of toxic materials, including sulphuric, nitric and hydrochloric acid.

Fortunately no injuries occurred in the incident.

Earth and sand was trucked to the site to prepare for any spill of acid-contaminated water and truck loads of lime were put on standby to neutralise any spilled acid.

The cause of the explosion is not known but it is thought that an electrical or mechanical failure may have contributed to the incident.

[fire - consequence, gas / vapour release, processing, sulphuric acid, nitric acid]

Lessons

[None Reported]

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

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Location : Bayport, Texas, USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at a chemical plant when a leak of glycidol occurred causing a runaway reaction and for a 2,000-gallon reactor to explode. Glycidol and methanol were released as a result.

Two people were injured in the incident.

Glycidol is an intermediate chemical used in sealants for windows and film processing. Exposure can cause burns to the skin.

[reactors and reaction equipment, gas / vapour release, fire - consequence, injury]

Lessons

[None Reported]

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

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Location : Hadtings, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a agricultural chemical warehouse that stored farm products, pesticide and herbicide chemicals. A dike was dug round the building to stop any chemicals spilling.

The warehouse was completely destroyed in the fire. There are no reports of injuries.

[fire - consequence, storage, damage to equipment]

Lessons

[None Reported]

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

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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, JULY 5, 2000, (<http://www.chemsafety.gov>).
(<http://www.chemsafety.gov>).

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Location : Gilette, USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred in a coal bed methane gas well injuring two workers. Both received severe burns. The explosion occurred as the two workers were inside the well house attempting to start the well.

Fire fighters at the scene allowed the well to burn until they could shut the flow from another point.

An investigation into the incident is being carried out.

[start-up, injury]

Lessons

The following recommendations were stated in the fire fighting efforts:

It is safer on any gas fire to let it burn until ready to shut off the gas. Doing so prevents gas from lingering near the ground where hot spots from the explosion could re-ignite it.

Methane is one of the most explosive fuels fire fighters deal with.

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (<http://www.chemsafety.gov>).

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Location : Columbus, Ohio, USA

Injured : 0 **Dead :** 0

Abstract

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

[fire - consequence, leak]

Lessons

[None Reported]

Source : BBC NEWS, 26 JUNE, 2000, (<http://www.bbc.co.uk>).

Location : , SOUTH AFRICA - OFFSHORE

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A bulk carrier developed a hole in her hull as she was being towed and eventually sank as a result. A large quantity of oil leaked from the sinking vessel causing an oil slick which threatening a colony of penguins.

[sinking, spill, ecological damage, material of construction failure]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (<http://www.chemsafety.gov>).

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Location : New Waverly, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A freight train derailed causing at least twenty cars to derail. One car containing propylene glycol was damaged in the incident resulting in a slight spillage of the chemical.

Nearby residents were evacuated as a precaution.

An investigation into the incident is being carried out.

[derailment, evacuation]

Lessons

[None Reported]

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

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Location : South Elgin, USA

Injured : 2 **Dead :** 0

Abstract

Approximately 15 to 20 gallons of nitric and sulphuric acid spilled at a metal finishing company when a valve between a tanker truck and a building malfunctioned. Two workers including the driver were affected by the release.

The spill affected approximately 400 square feet.

Heavy rain at the time of the spill diluted the chemicals.

Nearby buildings were evacuated as a precaution.

[nitric acid, evacuation, valve failure, material transfer, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : New York, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Twenty-nine of eighty-two cars of a freight train derailed. One containing methyl chloride was reported to have leaked. The other cars contained sulphuric acid and propane. Nearby residents were evacuated. Fortunately no one was injured in the incident.

[derailment, evacuation]

Lessons

[None Reported]

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

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Location : Choropampa, PERU

Injured : 8 **Dead :** 0

Abstract

A road transportation incident. A spillage of mercury occurred from a road tanker making a delivery. Forty-six people were tested for mercury poisoning, eight of them were sent to hospital.

Mercury poisoning can damage the kidneys and nervous system and cause birth defects.

The cause of the spill is being investigated.

Lessons

[None Reported]

Source : CHEMICAL WEEK, JUNE 7, 2000

Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A rail car derailed and crashed into pipelines carrying crude oil, gasoline, methanol and natural gas. Damage to the pipelines occurred but no release was reported.

Repairs could take up to three weeks to complete.

[damage to equipment, derailment]

Lessons

[None Reported]

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

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Location : Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

A 42-inch pipeline ruptured releasing natural gas. The incident occurred during pressure testing. The gas was quickly turned off and there was no danger to the environment.

[pipeline failure, near miss]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 30, 2000, (<http://www.chemsafety.gov>)

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Location : Taizihe, Liaoning Province, CHINA

Injured : 17+ **Dead :** 1

Abstract

An explosion occurred at a chemical plant killing one and injuring seventeen others. The incident occurred when a chemical filled barrel exploded. A leak of nitric acid and sulphuric acid resulted from the explosion.

It is thought the incident was caused by workers who were adding chemicals to a barrel with a broken temperature gauge.

The explosion caused electric outages at nearby factories and a chemical leak which was contained in a nearby field.

[container, spill, material transfer, fatality, mechanical equipment failure, injury]

Lessons

[None Reported]

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

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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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Jersey City, New Jersey, USA

Injured : 1 **Dead :** 0

Abstract

A worker suffered frostbite to his lungs and asphyxia after breathing in nitrogen. The incident occurred when he connected a nitrogen line instead of oxygen, to his protective hood.

The worker was immediately rushed to hospital after workers realised he had mistakenly hooked the wrong lines.

[asphyxiation, operator error, breathing apparatus, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 30 APRIL, 2000, (<http://www.chemsafety.gov>)

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Location : Bossier City, USA

Injured : 0 **Dead :** 2

Abstract

A worker collapsed after entering a chemical tanker trailer with out breathing equipment to rescue an unconscious co-worker. Both workers died presumably from the effects of naphtha fumes.

Naphtha is often used for dry cleaning. Acute exposure can damage the central nervous system, according to OSHA guidelines.

[entry into confined space, safety procedures inadequate, road tanker, asphyxiation, fatality]

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, 18 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Fayette County, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A road tanker carrying liquid propane overturned on a highway when it was involved in a collision with another vehicle. An unknown amount of propane leaked from the tanker as a result.

Nearby residents were evacuated as a precaution.

[spill, evacuation, near miss]

Lessons

[None Reported]

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

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Location : San Jose, USA

Injured : 17 **Dead :** 0

Abstract

More than two hundred people were evacuated from a works facility when nitric acid spilled from a barrel. Seventeen people were affected by an acid cloud, which developed from the spillage. They were taken to hospital for treatment.

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

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, JULY 2000,; REUTERS.

Location : Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

Approximately 2,200 litres of oil leaked from a pipeline into the Gulf of Mexico causing a 4 km oil slick. The pipeline was immediately shutdown and an investigation into the leak is being carried out.

[spill, environmental]

Lessons

[None Reported]

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

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Location : Prince George's County, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 125,000 gallons of oil leaked from a power company's pipeline causing a massive oil spill. The spill occurred in a marshland and was contained in a nearby creek but did not enter the nearby river.

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

[ecological damage, environmental]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 6 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Port Royal, USA

Injured : 7 **Dead :** 0

Abstract

A release of organophosphates occurred due to a spill, which occurred in the back of a lorry. The fumes affected seven people.

Organophosphate is used as a soil fumigant used to kill bugs in soil before planting.

An investigation into the release found that the vapour came from a pressure relief valve.

[gas / vapour release, chemical, injury]

Lessons

[None Reported]

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

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Location : Lillestroem, NORWAY

Injured : 0 **Dead :** 0

Abstract

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

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

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

Lessons

[None Reported]

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

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Location : Point Comfort, Texas, USA**Injured** : 2 **Dead** : 0**Abstract**

A fire occurred on a high-density polyethylene unit at a plastics plant. Two people were injured in the incident.

The cause of the fire is not known. An investigation is being carried out.

[fire - consequence, injury]

Lessons

[None Reported]

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

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Location : Hempfield Township, USA

Injured : 3 **Dead :** 0

Abstract

An explosion occurred caused by excavation work. The incident occurred as workers were installing underground cable when they pierced a sewer line and a 12-inch natural gas main.

Forty five minutes later an explosion ripped through two.

[human causes, rupture, fire - consequence, injury]

Lessons

[None Reported]

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

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Location : Kenedy, Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a pipeline causing severe damage. Valves were shut off to stop the flow of natural gas and a nearby road was closed as precaution. The subsequent fire was extinguished in about an hour.

An investigation into the explosion is underway.

[fire - consequence, damage to equipment]

Lessons

[None Reported]

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

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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>).

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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, 20 MARCH, 2000, (<http://www.chemsafety.gov>).

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Location : Corunna, Ontario, CANADA

Injured : 21 **Dead :** 0

Abstract

A refinery stack flare went out causing low levels of hydrogen sulphide and mercaptans to be released into the atmosphere.

At low levels these substances have a very unpleasant odour and may cause headaches, nausea and coughing.

[gas / vapour release, flameout, injury]

Lessons

[None Reported]

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

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Location : Allentown, USA

Injured : 1 **Dead :** 0

Abstract

An incident occurred at a recycling company when the door of an oven used to burn hazardous waste blew off and struck a worker knocking him unconscious.

The company reclaims mercury from a variety of materials, including fluorescent tubes, electronic switches and other hazardous material.

The incident occurred due to pressure build-up, which caused the oven's doors to blow off. It is not known what caused the pressure build-up.

An investigation is being carried out as to whether contamination of mercury occurred.

[high pressure, explosion / pressure release, injury]

Lessons

[None Reported]

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

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Location : Lat Krabang, THAILAND

Injured : 1+ **Dead :** 1

Abstract

An explosion occurred at a petrol station when an oil tanker was offloading its cargo caught fire. Severe damage occurred to the surrounding area.

It is thought that a spark from an oil pump may have caused the fire and explosion.

[road transport, unloading, fire - consequence, fatality, burns]

Lessons

[None Reported]

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>).

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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]

1228911 March 2000

Source : CNI NEWS, 13 MARCH, 2000, (<http://www.cnionline.com>).

Location : , OFF SHORE - SWEDEN

Injured : 0 Dead : 0

Abstract

A marine transportation incident. An investigation is being carried out into an alleged oil spill from a chemical tanker. The slick 19 to 25 miles in length and 50 metres wide was observed coming from the chemical tanker.

Lessons

[None Reported]

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

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Location : Tampico, MEXICO

Injured : 31 **Dead** : 0

Abstract

A propane tank exploded injuring 31 people and causing damage to equipment. The injured suffered burns.

The cause of the explosion was due to an electrical short near to the tank, which was leaking at the time.

[explosion, short circuit, fire - consequence, injury]

Lessons

[None Reported]

1225308 March 2000

Source : CNI NEWS, 8 MARCH, 2000, (<http://www.cnionline.com>).

Location : Rayong, SINGAPORE

Injured : 200+ **Dead :** 1

Abstract

A 50,000-tonne/year polycarbonate plant was shutdown after a leak of carbonyl chloride gas or phosgene occurred.

One person was killed and approximately 200 workers and residents needed hospital treatment for breathing problems, one worker was critical.

The incident occurred after the leak was detected issuing from a fractured pipe, the gas then travelled through the plant's ventilator system and was released into the atmosphere surrounding the building and nearby residential areas.

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

[plant shutdown, processing, fatality, injury]

Lessons

[None Reported]

1224307 March 2000

Source : BBC NEWS, 8 MARCH, 2000, (<http://www.bbc.co.uk>)

Location : Basingstoke, M3, UK

Injured : 1 Dead : 1

Abstract

A road transportation incident. A lorry carrying gas canisters was hit by another vehicle while on the hard shoulder after breaking down. Approximately three other vehicles were involved in the incident.

The collision caused 20 to 30 exploding gas canisters to be thrown up to 400 metres.

The blaze was so intense it damaged the road surface.

The driver of the propane lorry was taken to hospital.

[container, explosion, fire - consequence, fatality, injury]

Lessons

[None Reported]

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

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Location : Rayong Province, THAILAND

Injured : 92 **Dead :** 1

Abstract

Toxic carbonyl chloride (phosgene fumes leaked from a fractured pipe affecting 200 factory workers and nearby residents. One worker died and two were critically injured in the incident.

More than 80 people were taken to hospital for treatment for breathing difficulties, nausea and eye irritations.

[gas / vapour release, fatality, injury]

Lessons

[None Reported]

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

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Location : Radford, USA

Injured : 7 **Dead :** 3

Abstract

An explosion occurred at an auto parts factory killing three people and injuring seven.

Damage is estimated at \$30-50 million (2000).

Approximately one hundred workers were in the plant at the time of the explosion.

The cause of the explosion is under investigation but it is thought that a build up of natural gas may have been the cause.

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

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 29, 2000, (<http://www.chemsafety.gov>).

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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>).

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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 16, 2000. (<http://www.chemsafety.gov>).

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Location : , USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. The driver of a truck discovered a leak of organic peroxide. As the driver went to open the doors to investigate he became contaminated with organic peroxide.

The driver was decontaminated in a special shower. Fortunately he was not injured.

[contamination, people]

Lessons

[None Reported]

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

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Location : Baxter, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A train consisting of propane tank cars derailed in the middle of a town. Residents within a three quarter mile radius were evacuated.

Fortunately there were no reports of injuries or leaks.

[derailment - consequence, evacuation]

Lessons

[None Reported]

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

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Location : Santee, USA

Injured : 3 **Dead :** 0

Abstract

An explosion and fire occurred in an extruder at a plastics manufacturing plant.

The explosion occurred when three workers were mixing polyethylene granules, raw sulphur powder and potassium nitrate granules to produce a semisolid.

The explosion occurred after the materials were heated, before any material had emerged from the extruder barrel. The building was evacuated.

The workers suffered third-degree burns and shrapnel injuries.

The cause of the explosion is under investigation.

[fire - consequence, injury]

Lessons

[None Reported]

1219811 February 2000

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

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Location : Zhangshu City, CHINA

Injured : 2 **Dead :** 6

Abstract

A tanker truck exploded whilst unloading oil at a gas station. The explosion killed six and injured two and totally destroyed a nearby three-storey building. The gas station included five large oil tanks and unknown amount of oil barrels. The cause of the explosion is still under investigation.

[fire - consequence, road transport, explosion, fatality, injury]

Lessons

[None Reported]

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

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Location : British Columbia, CANADA

Injured : 0 **Dead :** 0

Abstract

A leak occurred on a pipeline carrying canola oil from a pumping station to a marine tanker.

It is thought that an estimated 50 tonnes has been spilt.

This is the third time in two years that birds in the area have been threatened by large canola oil spills.

Although cooking oil is not poisonous to the birds, it soaks their feathers, making them very heavy and no longer waterproof. Within hours birds can die from hypothermia.

[environmental, material transfer]

Lessons

[None Reported]

1219511 February 2000

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

Location : Cheshire, UK

Injured : - Dead : 3

Abstract

A road transportation incident. An eight wheel mobile crane collided with an articulated lorry then ploughed through the central reservation and landed on top of an on coming car, which was then struck from behind by a lorry carrying oil drums.

The driver of the crane, the car and the lorry were killed.

Oil drums were scattered over the motorway.

The motorway was closed to allow rescue and recover vehicles to the scene.

[collision, fatality]

Lessons

[None Reported]

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

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Location : , USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred when two acids were mixed, injuring two graduate students.

The incident occurred when the two students were mixing nitric acid and hydrochloric acid in a glass container when the chemicals exploded.

An investigation is underway into the possibility that another chemical may have been in the container.

The students were treated for minor injuries.

[mixing, contamination, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 2000. (<http://www.chemsafety.gov>).

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Location : Hanau-Wolfgang, GERMANY

Injured : 4 **Dead :** 0

Abstract

A glass vessel exploded whilst under vacuum, releasing 100 litres of propionic acid and injuring four workers. Damage was estimated at DM10,000 (US \$5,100) (2000).

One worker was taken to hospital suffering from acid burns.

[explosion, normal operations, container, damage to equipment, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 7, 2000. (<http://www.chemsafety.gov>).

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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, FEBRUARY 6, 2000. (<http://www.chemsafety.gov>).

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Location : , USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A road tanker carrying approximately 2,500 gallons of oil spilt an uncertain amount of the oil on a highway.

A hazardous material team arrived on the scene to carry out the cleanup. The extent of environmental damage is not known.

[spill]

Lessons

[None Reported]

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

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Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A tanker truck carrying furfural overturned causing the substance to spill into a drainage hole that empties into a nearby ditch, which drains into a ship channel. Approximately 9,000-gallons was spilt.

People were advised that fish in and around the area might be contaminated.

Clean-up efforts are underway.

Furfural is a colourless, oil, all-natural ethanol derivative used mainly in the manufacture of plastics. The substance is highly flammable, explosive and toxic.

Furfural is lethal if ingested or inhaled. If a person comes in contact with the chemical it can also irritate the skin, eyes and throat.

[contamination]

Lessons

[None Reported]

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

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Location : , USA

Injured : 5 **Dead :** 0

Abstract

An explosion occurred during a chemistry experiment at a school injuring five people. All five people were treated for burns.

The incident occurred when methanol was poured into a petri dish with some chemical salts, a procedure that results in flames, when methanol vapours in the air caught fire, a flash fire spread in the room.

[fire - consequence, laboratory work, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 27, 2000, (<http://www.chemsafety.gov>).

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Location : Winchester, USA**Injured :** 0 **Dead :** 0**Abstract**

Approximately 11,500 and 21,000 barrels of oil spilt from a ruptured pipeline into a creek. Nearby residents were evacuated. A precautionary boom was placed by the mouth of the creek to contain any oil from spilling into the river. It was not immediately known what caused the rupture.

[spill, evacuation]

Lessons

[None Reported]

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

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Location : Flint, USA**Injured :** 0 **Dead :** 0**Abstract**

A rail transportation incident. One of 55 33,000-gallon propane rail cars caught fire causing the evacuation of a 1 mile radius in fear of an explosion.

Fire crews managed to separate all the freight cars attached to the burning car.

Flames reaching about 4 to five feet high emanated from a valve on the burning car.

Fire officials explained that the fumes would create a greater explosive danger if they put the fire out.

[fire - consequence]

Lessons

[None Reported]

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

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Location : , USA**Injured :** 0 **Dead :** 0**Abstract**

A rail transportation incident. One of 55 33,000-gallon propane cars caught on fire early this morning, causing the local police to evacuate a 1-mile radius and close several schools near the rail yard for fear of an explosion.

It is not known what sparked the fire.

The fire department officials feared that the fire could spread to 54 other cars, each carrying up to 33,000 gallons of propane. Fortunately, crews managed to separate all of the freight cars attached to the burning car by 9:30 a.m.

Officials said they would not try to extinguish the fire until the experts arrive. Flames reaching about 4- to 5-feet high emanated from a valve on the burning car.

Fire officials said the fumes would create a greater explosive danger if they put the fire out.

[fire - consequence, evacuation]

Lessons

[None Reported]

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

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Location : , USA**Injured :** 0 **Dead :** 0

Abstract

A road transportation incident. A tractor-trailer swerved on ice when attempting to avoid a pickup truck that lost control, spilling hazardous chemicals including phosphoric acid and liquid chlorine. The road was closed and no evacuations were reported.

[weather effects]

Lessons

[None Reported]

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

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Location : Guanabara Bay, BRAZIL

Injured : 0 **Dead :** 0

Abstract

Approximately 1,300 tonnes of oil leaked from a pipeline into the sea. 26km of floating barriers were deployed to prevent the oil from reaching nearby beaches.

[spill]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 19, JULY 21, 2000, (<http://www.chemsafety.gov>),

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Location : Shreveport, USA

Injured : 2 **Dead :** 0

Abstract

A fire and explosion occurred at a refinery. Injuring two workers one of which is in a critical condition. The chemical involved in the incident was naphtha, the product that boils off in between gasoline and kerosene during distillation.

Naphtha has many uses, it can be used as; an ingredient of gasoline and dry cleaning fuels, a source of synthetic natural gas and a paint and varnish thinner.

The company was later fined \$160K (Jul. 2000).

[fire - consequence, separation equipment, injury]

Lessons

[None Reported]

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

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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]

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

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Location : , USA**Injured :** 7 **Dead :** 0**Abstract**

An explosion and fire occurred at a metal recycling company, four workers were critically burned and three others were injured.

The incident occurred on a newly installed machine used to strip copper off the tops of military shell casings. A spark from the machine is thought to have somehow caused the explosion.

It is possible some residual powder in the shells, such as magnesium, may have detonated if it came in contact with sparks from the machine.

A full investigation is being carried out into the cause of the explosion.

[fire - consequence, burns, injury]

Lessons

[None Reported]

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

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Location : Texas, USA**Injured** : 0 **Dead** : 0**Abstract**

A potentially toxic chemical reaction at a tire and rubber company caused the evacuation of plant personnel and a nearby highway. The incident occurred when workers noticed an elevated temperature in a tank holding two chemicals used in the production of antioxidants used in plastics. The tank was hosed down to keep it cool and disaster specialists were put on alert and the road closed. It was reported that no leakage occurred when a stabilising agent was added to the tank to stop any possible reaction. An investigation found the tank used to mix the two chemicals, mercaptan and methylacrylate, was not the one normally used. A full investigation into the incident is being carried out.

[unwanted chemical reaction, mixing]

Lessons

[None Reported]

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

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Location : , USA

Injured : 4+ **Dead :** 0

Abstract

An explosion and fire occurred at a nut company when a forklift truck was being refuelled from a propane tank. The fire damaged the company's roof and gutted it's interior, the fire also spread to an adjacent two storey apartment block.

Three people were hospitalised and one declined medial attention.

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

Lessons

[None Reported]

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

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Location : , USA**Injured :** 0 **Dead :** 0**Abstract**

An explosion and fire occurred on a building under construction. The incident occurred when a propane tank rusted through and leaked propane into a heating unit used to dry drywall. Nearby, approximately 20 propane tanks were in danger of exploding.

Damage was estimated at \$35,000 to \$40,000 (2000).

[fire - consequence, damage to equipment, spill, corrosion, heating equipment]

Lessons

[None Reported]

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

Location : , NIGERIA

Injured : 0 Dead : 7

Abstract

A marine transportation incident. A fire occurred on an oil slick killing seven people and burning about twenty five vessels and other property.

Barges carrying stolen oil were intercepted by police and then towed away to their station. One of the vessels was found to be leaking. The fire occurred when a local resident lit a match.

[fire - consequence, fatality]

Lessons

[None Reported]

121662000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 25, 2000, (<http://www.chemsafety.gov>).

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Location : Masury, USA

Injured : 1 **Dead :** 0

Abstract

Six propane tanks exploded at an industrial park causing approximately \$500,000 (2000) in damage. The cause was due to a leak of propane from a space heater, which ignited and caused the 50-pound cylindrical tanks to explode.

At the time of the incident workers were using the heaters for warmth as they carried out sand blasting work on a large tank inside a gas turbine.

A worker suffered second degrees burns and third degree burns in the incident.

An investigation into the explosions is being carried out.

[damage to equipment, explosion, maintenance, injury]

Lessons

[None Reported]

9373 22 December 1999

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

Location : Hatfield Forest, UK

Injured : 0 Dead : 4

Abstract

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

[explosion, fire - consequence, fatality]

Lessons

[None Reported]

7995 03 December 1999

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

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Location : , THAILAND

Injured : 15 **Dead** : 7

Abstract

A fire occurred after an explosion at an oil refinery which killed two people and injured fifteen.

The explosion and fire caused between US\$23m-27m (1999) damage.

Four out of the nine oil tanks exploded. The force of the explosion was felt in nearby towns and several kilometres away.

Thirty million litres of petrol stored in the four burned-out tanks was destroyed in the blaze.

It is thought that the explosion occurred after the storage tanks were overfilled and that a spark may have ignited the vapour.

[burns, fire - consequence, refining, damage to equipment, fatality, injury]

Lessons

[None Reported]

1270311 November 1999

Source : CNN.COM, U.S. NEWS, NOVEMBER 12, 1999, (<http://www.cnn.com>).

Location : North Carolina, USA

Injured : 0 Dead : 0

Abstract

A road transportation incident. A road tanker carrying 49,000 pounds of nitric acid overturned when the driver swerved to miss a deer. 3,000 gallons of nitric acid spilled.

Nitric acid fumes can cause severe burns or death if inhaled. Nitric acid is used in chemical synthesis and in making dyes and explosives. Nearby residents were evacuated.

[loss of control, driver error]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, NOVEMBER 15, 1999, (<http://www.cnn.com>)

Location : California, USA

Injured : 29 Dead : 0

Abstract

One hundred and fifty people were forced to evacuate their homes when a cloud of weed-killing pesticide blew into their town. Fumes affected twenty-nine people.

An investigation into the incident is being carried out.

The pesticide is a highly toxic fumigant and is used to spray fruit, vegetables and orchard crops.

[gas / vapour release, evacuation, poisoning]

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]

1209501 October 1999

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

Location :

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, SEPTEMBER 21, 1999, (<http://www.cnn.com>).

Location : New Jersey, North Carolina, USA

Injured : - Dead : -

Abstract

People were told to boil their tap water after fears of contamination caused by Hurricane Floyd.

Drinking water was found to have been contaminated by overflow from sewage plants and animal waste lagoons.

Floodwaters were contaminated by fuel, farm chemicals and manure. Flooding also swept at least 1,000 containers of explosive and toxic materials into waterways. Officials warned people not to come into contact with any drums, cylinders or other unfamiliar objects. The biggest danger comes from flammable materials like gasoline, cleaning solvents and propane gas.

More than a million gallons of waste water thought to contain chromium, spilled at a chemical plant during the hurricane.

[toxic chemical]

Lessons

Water contaminated by sewage and animal waste could cause a host of gastrointestinal illnesses.

Source : YAHOO NEWS, SEPTEMBER 21, 1999, (<http://www.yahoo.co.uk>).

Location : , UK

Injured : 4+ Dead : 1

Abstract

A 25 tonne furnace containing aluminium exploded killing a worker and showering other workers with molten metal. Four people suffered facial burns. Near-by residents were evacuated while fire crews carried out tests for radiation, the area was later declared safe.

[evacuation, fatality, explosion, metal - molten]

Lessons

[None Reported]

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

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Location : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A road transport incident. An explosion and fire occurred at a distribution centre whilst propane was being transferred from a truck to a larger tank. No injuries were reported.

[fire - consequence, material transfer]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, SEPTEMBER 8, 1999, (<http://www.cnn.com>).

Location : , USA

Injured : 0 Dead : 0

Abstract

A marine transportation incident. 2,000 gallons of oil leaked into a Bay from a dredging vessel. The oil leaked from a ruptured fuel tank after rough seas apparently threw part of the dredging apparatus against the vessel. Part of the equipment punctured through the hull, opening a 6 inch to 8 inch wide hole in the tank.

A small amount of oil washed ashore were work crews collected a bag full of oil coated rocks and plants, and 14 birds were also recovered, thick with oil.

[heavy seas, spill, ecological damage]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSRTY, FEBRUARY 2000,; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : Humboldt Bay, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Approximately 9000 litres of oil spilled into a bay when a fuel tank onboard a dredger ruptured. The spillage occurred during heavy seas, which apparently caused part of the dredging equipment to smash into the hull of the vessel.

Lessons

[None Reported]

12093September 1999

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

Location : , USA

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

12094September 1999

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

Location : Moscow, RUSSIA

Injured : 4 **Dead** : 9

Abstract

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

[fire - consequence, fatality, injury]

Lessons

[None Reported]

1164819 August 1999

Source : YAHOO NEWS, 19 AUGUST, 1999, (<http://www.yahoo.co.uk>); HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : , UK

Injured : 2 Dead : 2

Abstract

Two factory workers were found dead on the ground floor of a paint-stripping factory after being overcome by fumes in a suspected chemical leak. It is thought that they had mixed some chemicals, different to the normal process, causing a gas to be released, possibly methylene chloride which is a fast acting asphyxiant.

Fire crews were at the scene wearing protective clothing, but the first two ambulance attendants who had rushed in were unprotected. They attended hospital for a check up.

[fatality, asphyxiation, mixing, accidental mixing, gas / vapour release]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : Evansville, Indiana, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Eleven cars of a freight train derailed causing one car containing phosphoric acid to overturn. No leak occurred. The tank car was later lifted onto the flat.

[derailment, near miss]

Lessons

[None Reported]

1164717 August 1999

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

Location : , TURKEY

Injured : - Dead : -

Abstract

A fire occurred at an oil refinery complex when a fatal earthquake struck the country.

The earthquake struck Turkey's populous north west, an area that accounts for a third of the country's economic output. Many large companies were badly hit.

[fire - consequence, refining, oil, tank, fatality, damage to equipment]

Lessons

[None Reported]

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]

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

Location : , INDONESIA

Injured : 0 Dead : 10

Abstract

A marine transportation incident. An oil tanker collided with a tug boat in a thick haze.

The incident occurred in low visibility. Oil leaked from the tanker and caught fire engulfing a nearby cargo ship. Ten of the tanker's crew died.

It is thought that the thick haze is caused by farmers, plantations and timber firms clearing forest areas at the start of the dry season.

[collision, weather effects, human causes, fire - consequence, fatality]

Lessons

[None Reported]

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]

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

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Location : Gramercy, Los Angeles, USA**Injured :** 29+ **Dead :** 0**Abstract**

Three explosions occurred at a chemical plant, which caused a natural gas leak and blew out a cloud of sodium hydroxide and bauxite ore, a caustic chemical from which aluminium is obtained, into the air.

The explosion occurred in a part of the plant where electricity is generated and where the bauxite ore and liquid sodium hydroxide are mixed.

Twenty-one workers were injured in the blast, two critically. Injuries ranged from severe burns, breathing difficulties and eye irritation. Nearby residents were also treated for nausea and respiratory problems.

An investigation into the incident found that the cause was due to power failure at the plant. The power to a vat holding chemicals failed. The material was supposed to move from the vat to another part of the plant, but the pressure built up after pumps failed, causing the explosion that destroyed approximately 25 percent of the plant.

The company was fined \$533,000 (2000).

[gas / vapour release, power supply failure, processing, injury]

Lessons

[None Reported]

12079 July 1999

Source : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999.

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

A leak of methyl diethanolamine occurred from a sulphur recovery unit at a refinery. A vapour cloud formed which lasted for about twelve hours. No injuries were reported.

[gas / vapour release, refining]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : , PAKISTAN

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. Eight tank cars containing oil derailed. At least two cars spilled oil. The cause is not known.
[derailment - consequence]

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

Location : Devon, UK

Injured : 0 **Dead** : 0

Abstract

Oil leaked from a fuel system into a water drainage system, which flowed straight into a nearby river.

The oil in some places covered the entire width of the river and a pungent smell hung in the air.

The company was fined £2,500 and costs of £260.

[drains & sewers, pollution, spill]

Lessons

Fuel systems must be checked regularly and maintained to detect problems promptly.

1142623 June 1999

Source : C & EN, JUNE 28, 1999.

Location : , USA

Injured : 3 Dead : 2

Abstract

An explosion and fire occurred on a chemical complex killing two contract workers and forced the shutdown of the K-Resin section of the plant. Two other of the contract workers and an employee were also injured in the incident.

The workers were performing scheduled maintenance on a K-Resin unit, which produces styrene-butadiene polymers. A 100 million lb per-year expansion of the unit was started up earlier this month, increasing the company's K-Resin production to 370 million lb per year.

The cause of the explosion and fire is being investigated.

The company were fined \$204,000 (2000).

[fire - consequence, fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : , UNITED ARAB EMIRATES

Injured : 0 **Dead :** 0

Abstract

A marine incident. Marine tankers discharging tank washings into the ocean caused an oil slick.

[human causes, spill, pollution, cleaning]

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]

11247 June 1999

Source : BBC NEWS, 28 JUNE, 1999,
(<http://www.bbc.co.uk>).

Location : , NIGERIA

Injured : 0 **Dead** : 15

Abstract

Fifteen people were burned to death by a blazing fuel from a ruptured oil pipeline. The fire broke out after the pipeline was deliberately punctured to enable people to drain off fuel.

More than one hundred thousand litres of oil spilled out.

[fatality, burns, deliberate acts]

Lessons

[None Reported]

11248June 1999

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

Location : Texas, USA

Injured : 4 **Dead** : 2

Abstract

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

Lessons

[None Reported]

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]

1148224 May 1999

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

Location : Yeman, MIDDLE EAST

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.

Location : , USA

Injured : 0 Dead : 2

Abstract

An explosion occurred at a chemical plant, killing two workers. The plant produces nitroglycerine for pharmaceutical products and explosive substances for propellants.

[fatality, processing]

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]

1147606 April 1999

Source : CHEMICAL WEEK, APRIL 14, 1999.

Location : , YUGOSLAVIA

Injured : 0 Dead : 0

Abstract

Eleven missiles were fired into a petrochemical complex which produces polyvinyl chloride, polypropylene and nitrocellulose.
[deliberate acts, refining, processing, polyvinyl chloride (PVC)]

Lessons

[None Reported]

1052324 March 1999

Source : YAHOO NEWS, MAR 24, 1999, (<http://www.yahoo.com>).

Location : Central Iowa, USA

Injured : 1 Dead : 1

Abstract

A road transportation incident. A fatal collision between two semi-trucks disrupted traffic on the westbound lanes of an interstate in Central Iowa for nearly 12 -hours.

The driver of one semi was killed when his truck slammed into the rear of another semi. The second truck began to burn when oil in the chocolate it was carrying caught fire. The accident closed down a ten-mile stretch of the interstate until the road was re-opened the next day.

[fire - consequence, fatality]

Lessons

[None Reported]

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

Location : , UK

Injured : 3 Dead : 0

Abstract

Concentrated nitric acid was accidentally released from a solvent treatment plant during work on a valve. Approximately seven cubic metres of concentrated nitric acid was released in the incident.

The building was evacuated as a result.

Three people were injured, two employees suffered acid burns and a fire fighter inhaled fumes.

The company were fined £40,000 and ordered to pay £34,000 (2000) costs.

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

Lessons

[None Reported]

12448March 1999

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

Location : , UK

Injured : 3 Dead : 0

Abstract

Three workers were injured in an acid leak on a nuclear fuel plant. The incident occurred when seven cubic metres of highly corrosive concentrated nitric acid escaped from a valve causing severe burns to the three workers.

[injury]

Lessons

[None Reported]

1052423 February 1999

Source : CHEMICAL ENGINEERING, MAR, 1999,; LOSS PREVENTION BULLETIN, 146, 24.

Location : Martinez, California, USA

Injured : 1 Dead : 4

Abstract

A fire occurred in a distillation unit at a refinery. The unit was shutdown.

Four workers were killed and the other was critically injured when a fireball engulfed them while they attempted to repair a leak in a pipe containing highly flammable naphtha.

[fire - consequence, refining, fatality, burns, injury]

Lessons

[None Reported]

1052019 February 1999

Source : CNN.COM, U.S. NEWS, FEB 20, 1999, (<http://www.cnn.com>);; LOSS PREVENTION BULLETIN, 146, 24.

Location : Pennsylvania, USA

Injured : 13 Dead : 5

Abstract

An explosion on a chemical plant occurred while workers were making hydroxylamine, a chemical used in etching computer semiconductors.

The blast created a 4 foot crater inside the two-storey building and blew out its concrete walls. The explosion shook buildings and homes for miles and sent metal studs, concrete and insulation flying for several hundred yards.

The explosion was probably caused by improper mixing of chemicals inside the building.

The chemicals involved in making hydroxylamine include potassium hydroxide and hydroxylamine sulphate.

The explosion caused an estimated \$4 to \$5 million (1999).

[chemical causes, processing, fatality, damage to equipment]

Lessons

Hydroxylamine can become volatile if it gets too hot or dry.

Source : CHEMICAL HAZARDS IN INDUSTRY, MAY 1999, ISSN 0265-5271.; CHEM.MARK. REP., 1 MAR 1999, (WEBSITE: HTTP://WWW.CHEMEXPO.COM/CMRON-LINE)

Location : Pennsylvania, USA

Injured : 13 **Dead** : 5

Abstract

Five people were killed and thirteen injured in an explosion at a plant. The premises were flattened and several neighbouring units were seriously damaged. The plant was processing hydroxylamine.

It is thought that the explosion may have been caused by the improper mixing of hydroxylamine and potassium hydroxide.

An investigation is underway.

[fatality, damage to equipment, injury, operation inadequate]

Lessons

[None Reported]

1053501 February 1999

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

Location : Michigan, USA

Injured : 14 **Dead :** 6

Abstract

An explosion and fire occurred in a motor manufacturing plant. Six people were killed and fourteen others were critically injured when an explosion ripped through the generating station at the plant. Hours after the fire began, thick toxic smoke bellowed from the station and spread to other parts of the plant, which at the time of the incident had 4,000 workers on site. The blast cut off all power.

A seven month investigation into the incident found that a build up of natural gas in the furnace chamber after shutdown was the cause of the explosion.

The company was fined \$7 million (2000).

[fire - consequence, fatality, power plant, boiler explosion, process causes, injury, toxic fumes]

Lessons

[None Reported]

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]

1138109 January 1999

Source : EUROPEAN CHEMICAL NEWS, 18-24 JANUARY, 1999.

Location : , NETHERLAND

Injured : 0 Dead : 0

Abstract

Polypropylene plant shut down after an explosion in the extrusion unit.

[plant shutdown, solids processing equipment]

Lessons

[None Reported]

128751999

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Three nozzles on top of a reactor suffered cracks in the welds during decommissioning of a high-pressure lube oil hydrogenation unit when it inadvertently discharged liquid nitrogen into three reactors. Excessive shrinking occurred, caused by thermal shock.

Damage that occurred to equipment is estimated to be approximately US\$55,000 (1999).

[operation inadequate, reactors and reaction equipment, damage to equipment]

Lessons

[None Reported]

128871999

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A fire occurred in a vacuum bottoms tank when the roof weld joint failed spilling hot oil in the surrounding dike/bund.

The most probably cause of the weld failure was due to a minor internal explosion or overpressure due to the ignition of flammable vapour by pyrophoric deposits. The tank contents were at an unusually high temperature at the time.

[fire - consequence, overpressurisation, oil - hot]

Lessons

[None Reported]

Source : ICHEME

Location : , MALAYSIA

Injured : 12 Dead : 0

Abstract

An explosion occurred on an air separation unit on a middle distillate synthesis plant.

The plant is designed to convert natural gas to naphtha, kerosene, gas oil, paraffins and wax. The synthesis gas for the gasification process is produced by partial oxidation of methane using pure oxygen.

Pure oxygen at 2,500 tonnes/day is produced by an air separation plant. It is understood that the explosion/detonation took place inside the N₂/O₂ separation column due to contamination (CO, NO or hydrocarbons).

Although the incident is still under investigation, the source of the contamination may have been due to the heavy haze in the region from forest fires. The air feed to the separation unit is water-washed and passes through a molecular sieve. Preliminary calculations, however, show that concentrations of contaminants as low as ppm in the inlet air feed could build up to kilogram quantities in the bottom of the fractionator.

Windows were broken 1.5 km away. Missiles landed in an adjacent liquefied natural gas (LNG) plant (500m away). One piece of metal (1.5 tonne) landed 800 m away.

Heavy damage occurred to the plant.

Fortunately, there were no fatalities and fortunately, the control room was designed for blast resistance.

Twelve injuries were reported on adjacent properties.

[separation equipment, damage to equipment, injury]

Lessons

The report stated the following recommendations:

Sites operating air separation units are to be made aware that contaminants can build up in these units to cause substantial explosions.

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.
-

Source : EUROPEAN CHEMICAL NEWS, 23-29 NOVEMBER, 1998.

Location : Augusta, Georgia, USA

Injured : 46+ **Dead :** 0

Abstract

Approximately 46 people were injured when a chemical release sent a toxic vapour cloud of sulphur dioxide and oleum into the atmosphere.

The incident occurred when an instrumentation failure caused chemical vapours to vent from a smokestack instead of collecting in a storage tank.

[gas / vapour release, venting, storage tanks, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A failure of an emergency release coupling occurred at a refinery. The incident occurred during the unloading a ship when residual pressure occurred in the hydraulic line of the coupling due to a missing critical shear pin. Approximately 8.5 tonnes of propylene was released to atmosphere. The incident cost an estimated \$48,287 (1999).

[coupling failure, gas / vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Botany Bay, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence, start-up, polyethylene]

Lessons

[None Reported]

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

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

[fire - consequence, evacuation, methane, ethane, propane, butane, oil, reboiler, low temperature, management system inadequate, separation, separation equipment]

Lessons

The report stated the following conclusions and lessons:

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

Source : BBC NEWS, 7 SEP, 1998, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 0 Dead : 0

Abstract

Up to half a million litres of diesel was spilt into a harbour when fuel escaped after vandals tampered with a tank. Around 600,000 litres were released. Much of the diesel was contained within a protective concrete barrier but some spilled into the harbour and a large quantity has soaked into the soil and drainage pipes.

About 24 fire fighters with four tenders and the fire brigade dinghy were on the scene to prevent anymore fuel from leaking into the water.

Two 100m booms were being used to contain the diesel in the harbour while absorbent mats were used to mop up on land.

No wildlife was thought to have been harmed as yet, but efforts were being concentrated on stopping any oil reaching a nearby beach and river.

[spill, ecological damage, vandalism]

Lessons

[None Reported]

10243September 1998

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

Location : , SPAIN

Injured : 50 Dead : 0

Abstract

Fifty people were injured when gas explosion occurred wrecking a café. Nearly 200 people were crowded into the café, when a propane gas tank exploded bringing down the roof and walls. Shards of glass and pieces of concrete were blown across the room, fortunately there were no fatalities. It is not clear what caused the gas tank to explode.

[near miss, injury]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

Location : , UK

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at a plant when nitric acid leaked from a valve as it was being transferred from one container to another, and mixed with cleaning fluid to create an explosion which blew workers of their feet. Workers from a nearby petroleum plant were evacuated due to the formation of a gas cloud.

The company were fined more than £25,000 (1999).

[accidental mixing, contamination, evacuation, gas / vapour release, material transfer]

Lessons

[None Reported]

11030September 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; CHEM. BR, APR 1999, 35(4), 9.

Location : , UK

Injured : 2 Dead : 0

Abstract

A company was fined more than £25,000 (1998) following an explosion that injured two workers and released cloud of toxic gas.

Nitric acid had escaped from a leaky valve as it was being transferred from one container to another. The leaked nitric acid then mixed with cleaning fluid to create an explosion which blew the workers of their feet. The injured were taken to hospital but were later released. Workers from a nearby plant were evacuated due to the formation of a gas cloud.

[gas / vapour release, material transfer, evacuation, injury]

Lessons

[None Reported]

11377September 1998

Source : THE CHEMICAL ENGINEER, APRIL 1999.

Location : , UK

Injured : 2 Dead : 0

Abstract

An explosion injured two workers and released a cloud of toxic gas. Nitric acid escaped from a leaking valve as it was being transferred. The leaking acid mixed with a cleaning fluid to create an explosion. The company was fined £24,000 (1998).

[accidental mixing, gas / vapour release, maintenance, injury]

Lessons

[None Reported]

Source : FIRE PREVENTION 331, APRIL 2000.

Location : Gilberdyke, Humberside, UK

Injured : 0 **Dead** : 0

Abstract

A fire occurred in a factory warehouse where waste rubber was processed and remoulded into tyres.

At the time of the incident a worker was welding a bracket in a metal container and had burned through the container's metal wall, which resulted in sparks and molten metal falling onto the floor. The sparks and molten metal ignited diesel residue under an adjacent tank. The building was destroyed in the fire.

Estimated loss is thought to be £810,000.

[fire - consequence, damage to equipment, metal - molten]

Lessons

[None Reported]

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]

10274 August 1998

Source : CNN.COM, U.S. NEWS, 10 AUG, 1998, (<http://www.cnn.com>).

Location : Ludwigshafen, GERMANY

Injured : 1 Dead : 2

Abstract

Two workers were killed and one injured when an explosion occurred at a plant. The accident occurred during repair work in the basement of a building in the plant's polystyrene production unit. The cause is not yet known.

The affected unit had been shutdown and there was no danger to nearby homes or adjoining site.

[fatality, injury]

Lessons

[None Reported]

10399 July 1998

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

Location : Lake Issyk-kul, KYRGYZSTAN

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. Several litres of nitric acid leaked from a tanker when travelling towards a nearby lake. Nitric acid is easily soluble in water and the amount is fairly small, so environmental damage is unlikely.

[near miss, spill]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a chemical plant. The incident occurred during production of toltrazuril, an ingredient used in production of a parasiticide.

It was originally thought that the explosion occurred during production of a fungicide.

Apparently a worker used potassium hydroxide instead of potassium carbonate in a reaction with 2-chloro-5-toluene and dimethyl sulphoxide.

The plant was completely destroyed.

[operator error, accidental mixing, processing, damage to equipment]

Lessons

[None Reported]

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]

Source : LOSS PREVENTION BULLETIN 154, 9-14.; U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (<http://www.chemsafety.gov>).

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Location : Louisiana, USA

Injured : 1 **Dead :** 1

Abstract

A worker was killed and a contractor was seriously injured due to nitrogen asphyxiation.

On March 27, 1998, at approximately 12:15 pm, two workers at a manufacturing plant, were overcome by nitrogen gas while performing a black light inspection at an open end of a 48-inch-wide horizontal pipe. The 48-inch pipe was open because chemical-processing equipment had been shut down and opened for major maintenance. Nitrogen was being injected into the process equipment primarily to protect new catalyst in reactors from exposure to moisture. The nitrogen was also flowing through some of the piping systems connected to the reactors. The nitrogen was venting from one side of the open pipe where it had formerly been connected to an oxygen feed mixer. No warning sign was posted on the pipe opening identifying it as a confined space or warning that the pipe contained potentially hazardous nitrogen.

The two workers had placed a sheet of black plastic over the end of the pipe to provide shade to make it easier to conduct the black light test during daylight.

While working just outside the pipe opening and inside of the black plastic sheet, the two workers were overcome by nitrogen. One worker died from asphyxiation. The other worker survived but was severely injured.

[fatality, entry into confined space, safety procedures inadequate, injury]

Lessons

Nitrogen is an odourless, tasteless, and invisible gas that can cause asphyxiation at high concentrations. When used in confined spaces, nitrogen is especially hazardous because it cannot be detected by human senses but can cause injury or death within minutes by displacing the oxygen that is required to sustain life.

The following recommendations were made:

1. Post signs containing the warning "Danger, Confined Space: Do Not Enter Without Authorization" or similar wording at potential entryways when tanks, vessels, pipes, or other similar chemical industry equipment are opened.
 2. When nitrogen is added to a confined space, post an additional sign that warns personnel of the potential nitrogen hazard.
 3. Ensure that the plant safety program addresses the control of hazards created by erecting temporary enclosures around equipment that may trap a dangerous atmosphere in the enclosure if the equipment leaks or vents hazardous material.
-

10397February 1998

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

Location : Esmeraldas, ECUADOR

Injured : 70 **Dead** : 11

Abstract

An oil pipeline explosion. The explosion followed an oil leak and sent a ball of flames through a nearby community, destroying many houses and spilling oil into a nearby river.

Many people threw themselves into the river as a huge fireball made its way down the pipeline. Around 70 people were injured, some with severe burns.

It took more than five hours to bring the blaze under control. Rescue efforts were hampered by water shortages.

About 500 people were evacuated to a military base nearby and were not allowed to return to their homes until the pipeline was declared safe.

[evacuation, transportation, damage to equipment, fatality, injury]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; ENDS REPORT, FEB 1999, (289), 53.

Location : ,

Injured : 0 Dead : 0

Abstract

A company was fined £70,000 (1998) for an oil leak from a pipeline at its nuclear power station. Polluting matter was spilt into controlled waters. Oil had seeped into a shingle aquifer used to provide drinking water. Four boreholes were closed as a precaution. Over 80,000 litres of the total spillage of 190,000 has been recovered.

[spill, 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]

1039507 January 1998

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

Location : Off Coast, UNITED ARAB EMIRATES

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Approximately 4,000 tonnes of fuel oil is thought to have leaked from a marine barge which sank off the north coast in high winds.

Mangrove swamps in the area were threatened by the oil spill. The trees were grown by a marine research centre to provide a habitat for shrimps and small fish.

[marine transport, environmental]

Lessons

[None Reported]

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

Location : ,

Injured : 1 Dead : 0

Abstract

One fire fighter was injured and 3000 people evacuated following a fire at a fertiliser plant. The fire burned for over sixteen hours before being brought under control. The cause is still unknown, however the two explosions which rocked the plant are thought to have involved propane gas tanks.

Fire fighters chose not to douse the flames due to the fear that runoff water would pollute the nearby river. The site contained chemicals including, methyl bromide, ammonium nitrate, paraquat, endosulphan and carbofuran and 400 tonnes of ammonia nitrate bagged on-site. A decision was made to let the fire burn out most of the pollutants before finally being extinguished.

[injury, unidentified cause]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : Wales, UK

Injured : 12 Dead : 0

Abstract

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

[fire - consequence, operation inadequate, processing, injury]

Lessons

[[None Reported]]

10396 January 1998

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

Location : Off coast, NIGERIA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Boats and helicopters were mobilised to help clean-up a 40,000 oil spill of the south-eastern coast of Nigeria. The 40,000 barrel spill is thought to have been the largest spill in Nigeria for several years. Helicopters, fixed-wing aircraft and boats were mobilised to help monitor and clean-up the oil.

Fish suffocate when oil gets into their gills, and some protected birds may suffer because they rely on the fish for their food.

[environmental]

Lessons

[None Reported]

9057 January 1998

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

Location : Shaanxi Province, CHINA

Injured : 50+ **Dead** : 100+

Abstract

A liquefied nitrogen pipeline exploded in a fertiliser plant. About 60 workers were on night shift during the incident.

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]

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]

106021998

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

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

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

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

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

Lessons

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

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 : LLOYDS LIST, 31 DEC, 1997.

Location : , USA

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

1040725 December 1997

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

Location : Bintulu, Sarawak, MALAYSIA

Injured : 12 Dead : 0

Abstract

An explosion occurred in an air separation unit on a distillate plant. Several major pieces of plant equipment were found approximately 1.3 kilometres from the site of the explosion.

This explosion was consistent with airburst energy of approximately 36GJ, one of the largest ever land-based industrial explosions.

The explosion occurred in a cryogenic distillation column, which generates gaseous oxygen and was not related to the distillate synthesis process technology.

The explosive rupture of the column was caused by the massive runaway combustion of sections of the aluminium plate fin type main vaporiser, which is located in the bottom of the low-pressure column above a large inventory of liquid oxygen.

The aluminium is presumed to have been ignited by combustible material, probably formed from hydrocarbons originating from the inlet air, which are assumed to have accumulated undetected on the aluminium surface from the liquid oxygen circulation through the closed sections of the main vaporiser.

The exact mechanism by which the combustion was triggered is at present unknown, and is under detailed investigation.

The fire occurred in two of fourteen product tanks, which contained naphtha and kerosene.

[distillation, fire - consequence, cryogenic equipment]

Lessons

[None Reported]

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 : ICHEME

Location : , POLAND

Injured : 0 Dead : 0

Abstract

A small fire occurred on the joint/gasket of a heat transfer oil line.

The fire was extinguished, the damage was estimated at \$7,000 (1998). There were no injuries, product spillage or escalation of the fire.

It was later found that the joints/gaskets on the system were of the incorrect material for the hot oil duty.

Investigations into the cause of the incident confirmed that the fire started from a leaking joint/gasket on the ring side flange of a 20mm (three quarter inch) branch valve. This caused hot oil at 260 degrees C and 1.5 bar pressure to soak the insulation on the main heat transfer line.

Spontaneous ignition had most likely occurred as a result of oxidation of the heat transfer oil that had dispersed into the process insulating material.

[fire - consequence, heat transfer, damage to equipment, incorrect equipment installed, joint failure, gasket failure]

Lessons

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

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , CANADA

Injured : 0 Dead : 0

Abstract

A fire occurred when natural gas leaked from a 36 inch pipeline. Shutoff valves isolated the affected section and the gas fire burnt itself out.

The fire also ignited a small secondary stubble fire in a nearby field.

The cause of the line break is thought to have occurred due to corrosion.

[fire - consequence, transportation]

Lessons

[None Reported]

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 : ICHEME

Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

During the filling out of paint an explosion occurred in a mixing vessel. No one was injured and no environmental damage occurred. The mixing vessel was damaged though.

[mixer, damage to equipment, near miss]

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 : , USA

Injured : 0 **Dead :** 0

Abstract

A 24 inch natural gas pipeline was punctured by a maintenance work crew. The damaged section was closed down and repairs initiated. Flow was curtailed for a day.

[damage to equipment, human causes, transportation, gas / vapour 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 : 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]

8837 01 October 1997

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

Location : , ENGLISH CHANNEL

Injured : 0 Dead : 0

Abstract

A marine transportation incident. 800-900 tonnes of palm oil leaked from a tank following a collision with a cargo ship in fog.
[spill]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 21 **Dead :** 0

Abstract

Natural gas compression station was completely destroyed by an explosion during start-up operations despite warnings that the pipeline was in poor condition.
[transportation]

Lessons

[None Reported]

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

Location : , USA

Injured : 0 Dead : 0

Abstract

A leak of 33 tonnes of occurred during cargo lightering.

Lessons

[None Reported]

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 : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV,; CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.

Location : Hindustan, ASIA

Injured : 20+ Dead : 45+

Abstract

A fire and explosion occurred at a refinery killing forty-five people and injuring at least twenty others.

The incident occurred when leaking petroleum gas ignited. The explosion ignited a further six storage tanks as fire spread through out the refinery.

Approximately 100,000 were evacuated from their homes.

[fire - consequence, evacuation, fatality, refining, injury]

Lessons

[None Reported]

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

Similar incidents occurred within four weeks of each other on related flare stacks on a petrochemical plant. The second occurred after the actions recommended after the first event, a small explosion, had been implemented.

In the first incident an explosion occurred as spectacle pieces were being removed on the flare header by contractors. The investigation blamed inadequately trained personnel, inadequate mechanical supervision, inadequate process expertise in flare operation and failure to observe correct authorisation procedures. Some modifications were made to written procedures to detail required safety precautions. The accessibility of the working area was also criticised. This was attributed to piecemeal development over many years.

In the second incident, an estimated 0.1 tonnes of vapour, believed to be mostly nitrogen, was released. This occurred after a 24 inch spool had been removed to fit a blank. After removing the spool, it was discovered that the blank would not fit. It was 40 minutes before a suitable blank was located and fitted. During this period the flare header was isolated from each of three live process headers by single valves. All three valves were passing.

The enquiry found that the level of manufacturing team supervision was not as required by written procedures. The temporary operating instruction issued to cover the job was not being followed, and the blank had not been checked to confirm that it would fit.

Following the second incident, it was recommended that complex flare work of this nature should be directly supervised by a Works Shift Manager or Works Shift Controller. A thorough review of procedures was also instituted.

[maintenance, design or procedure error, operation inadequate, training inadequate, gas / vapour release, management system inadequate]

Lessons

Both incidents had the following features in common:

1. Non-compliance with procedures.
2. Inadequate supervision.
3. Inadequate engineering pre-planning.
4. Insufficient access / egress.

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

Location : Ohio, USA

Injured : 7 Dead : 1

Abstract

A fire and explosion occurred at a resin plant killing a worker and injuring seven others.

The incident occurred in a vessel in which phenol, formaldehyde and sulphuric acid were being mixed to make binding agent, which is used in sandings coatings for automotive metal moulding.

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

[fatality, fire - consequence, injury]

Lessons

[None Reported]

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

Location : Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A leak on a pipeline caused over 700 tonnes of oil to leak into two rivers, three rows of booms were used. Polluted area covering 11 hectares.
[pollution, transportation]

Lessons

[None Reported]

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

Location : Ohio, USA

Injured : 0 Dead : 0

Abstract

An explosion occurred heavily damaging a chemical plant which caused a cloud of irritating fumes that forced the evacuation of nearby areas, the explosion was felt up to seven miles away.

The cause of the explosion was a kettle in which chemicals were being heated to form a resin, overheated and exploded. Two toxic chemicals, phenol and formaldehyde were being mixed along with sulphuric acid to produce a non toxic resin used as a binder in the manufacture of wood products such as plywood and particle board.

[high temperature, processing]

Lessons

[None Reported]

1261909 August 1997

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

Location : Portsmouth, UK

Injured : 0 Dead : 0

Abstract

A 16-inch subterranean pipeline was being cleared ready for decommissioning when a large quantity of oil was noticed to be floating on the surface of a creek.

The incident occurred when using a method, which would force any residual oil out at low pressure, allowing the pipe to then be flushed with seawater.

No booms or pollution prevention measures had been deployed.

The company was fined £7,500 and costs of £5,438.

[pollution, design or procedure error]

Lessons

[None Reported]

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

Location : , JAPAN

Injured : 0 Dead : 0

Abstract

An air transportation incident. An aircraft carrier spilled 35,000 litres of oil due to fuel being discharged instead of ballast water, oil booms were set up to contain spill.

Lessons

[None Reported]

8940 29 July 1997

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

Location : Izmit, TURKEY

Injured : 29 Dead : 0

Abstract

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

Lessons

[None Reported]

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]

8927 24 July 1997

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

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

Oil leaked from a marine tanker during lightering, apparently due to hull crack suffered in collision a month earlier but no damage was found at the time.

Lessons

[None Reported]

8924 18 July 1997

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

Location : , VENEZUELA

Injured : 0 Dead : 0

Abstract

A marine transportation. A supply vessel towing an oil barge struck and fractured piles, 40 bbls of oil spilt. Cleanup crews contained the spill.
[collision]

Lessons

[None Reported]

8923 16 July 1997

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

Location : , IRAN

Injured : 0 Dead : 4

Abstract

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

Lessons

[None Reported]

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 : HAZARDOUS CARGO BULLETIN, 1997, SEP. UPI.

Location : Ontario, CANADA

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence, evacuation]

Lessons

[None Reported]

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]

8910 22 June 1997

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. LLOYDS LIST.

Location : Lagos, NIGERIA

Injured : 0 **Dead** : 4

Abstract

A marine transportation incident. Two explosions occurred in the ballast of a chemical tanker at anchorage during welding caused by naphtha vapours. Considerable damage to the tanker occurred.
[damage to equipment, fatality]

Lessons

[None Reported]

8904 05 June 1997

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

Location : Teeside, UK

Injured : 0 Dead : 0

Abstract

An oil spill occurred into a river followed by a leak of gas (titanium tetrachloride).

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]

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

Location : , BELARUS

Injured : 0 **Dead :** 0

Abstract

500 tonnes of oil spilt from a pipeline, all of the oil was recovered and 8 meter length of line replaced. Agricultural land to be recultivated.
[spill, transportation]

Lessons

[None Reported]

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

Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

386 tonnes of oil was spilt when a pipeline burst over adjacent land and a main road, 13 tonnes escaped into the sea. 318 tonnes was collected in clean-up operations.

[spill, transportation]

Lessons

[None Reported]

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

Location : California, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. A freight train carrying LPG residue and phosphoric acid derailed. Nineteen cars left the tracks, no spill occurred. Resident were evacuated and gas and electricity supplies were cut off.

[derailment, evacuation]

Lessons

[None Reported]

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

Location : Lousiana, USA

Injured : 0 **Dead** : 0

Abstract

A pipeline carrying oil from wells ruptured causing a spillage of 700 tones.

Lessons

[None Reported]

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

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

Approximately 715 tonnes of oil spilt over 10 acres from a ruptured pipeline, earthen trenches were built and vacuum trucks were used in the clean-up.
[transportation, spill]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

An explosion and fire occurred in an alkylation unit releasing a mixture of propane, isobutane and HF (hydrofluoric acid/hydrogen fluoride) from a ruptured feed line. The HF was dispersed into the atmosphere by the fire's updraft. An estimated 20 barrels of HF was diluted by fire fighters.

Tests did not indicate an HF release in the surrounding neighbourhood.

[fire - consequence, leak, spill]

Lessons

[None Reported]

9021 08 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG,; LLOYDS LIST, 10 MAY, 1997,; REUTERS, THE CHEMICAL ENGINEER, 22 MAY 1997.

Location : Arkansas, USA

Injured : 16 **Dead** : 3

Abstract

An explosion and fire occurred at a fungicide plant. The explosion released a vapour cloud which caused the evacuation of local residents.

It is thought that azinophosmethyl, methomyl and triophante were involved in the fire.

The fire was thought to have started from smouldering pesticides.

Levees were built to contain fire run-off water to prevent pollution spreading to a nearby river.

[fire/explosion, gas / vapour release, fatality]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , CHINA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred when unauthorised welding set fire to a vat of paint. A large tank of chemically polluted water also exploded.
[fire - consequence, human causes]

Lessons

[None Reported]

8956 04 May 1997

Source : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.

Location : , UK

Injured : 0 Dead : 0

Abstract

Several hundred tonnes of naphtha was spilt generating a large gas plume over the area.

[spill]

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]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Chongqing, CHINA

Injured : 0 **Dead :** 12

Abstract

An explosion and fire occurred in a waste water treatment area of a neoprene unit of a chemical factory.

[fire - consequence, processing, fatality]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 0 Dead : 0

Abstract

Three propane gas cylinders exploded on a rooftop scattering debris into the street below. No one was injured.
[explosion]

Lessons

[None Reported]

8984 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : , ITALY

Injured : 0 Dead : 0

Abstract

A fire occurred in a galvanic electroplating workshop. The fire was caused by an electrical fault but was exacerbated by polypropylene storage tanks which ignited. The tanks had not been treated with flame retardants. Other tanks made from PVC and iron coated did not burn or leak. An additional source of ignition was the transparent tunnel (in glass reinforced polyester) installed to provide better environmental protection for the operators.
[fire - consequence, electrical equipment failure]

Lessons

[None Reported]

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

Location : Arkansas, USA

Injured : 16 Dead : 3

Abstract

A fire and explosion occurred in a chemical packaging plant releasing a plume of black toxic smoke, forcing hundreds of people to evacuate homes and businesses.

The cause of the fire is believed to have been a smouldering bag of pesticide which caught fire and ignited the explosion.

The chemicals involved were azinphosmethyl, methomyl and thiophante. All are considered poisonous. Azinphosmethyl is an insecticide that is more toxic to insects than it is to humans and thiophante is a fungicide used to control parasitic worms in animals.

Population totalling about 18,000 were told to stay indoors.

[fire - consequence, fatality, fume, toxic fumes]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Buckinghamshire, UK

Injured : 1 **Dead :** 1

Abstract

A fire broke out at a chemical works killing one person and injuring an other. The incident occurred in a plastic manufacturing plant which produces dispersions, gutter seals and antistatic sealants and coatings.

A violent deflagration inside a nearly closed mixing pot ejected burning material out of the feed opening and spread the fire to other parts of the factory. The chemicals being mixed were calcium peroxide and chlorinated paraffin. The fire, which it is thought may have been preceded by an explosion, spread rapidly across the workroom, killing one employee who was some distance from where the initial fire broke out. A second man was injured and was detained in hospital. The accident investigation will focus on determining the cause of the fire and why it spread so quickly across the workroom.

[fire - consequence, fatality, processing, injury]

Lessons

[None Reported]

Source : THE CHEMICAL ENGINEER, 8 MAY, 1997.

Location : , UK

Injured : 9 **Dead :** 0

Abstract

An explosion occurred at a gasworks burned for 10 hours when nine men were searching for a natural gas leak thought to be escaping from an 18 inch pipeline.

[exploration, maintenance]

Lessons

[None Reported]

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

Location : , TAIWAN

Injured : 0 Dead : 0

Abstract

A rupture occurred in a pipeline resulting in the spillage of 500 bbl of oil. Serious pollution occurred to crop land, freshwater and fishing.
[ecological damage, transportation]

Lessons

[None Reported]

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]

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , USA

Injured : 0 Dead : 0

Abstract

A fire resulted from ignition of a natural gas leak from a 4 inch pipeline on the platform which was linked to a drilling rig. Two supply vessels equipped with water cannons fought the fire. All personnel were evacuated prior to the fire. No environmental damage occurred.

[fire - consequence, evacuation]

Lessons

[None Reported]

8977 01 April 1997

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , SINGAPORE

Injured : 0 Dead : 0

Abstract

A fire involved a large quantity of oil in the production area. This was the third incident at the refinery in two weeks. All maintenance work was suspended
[fire - consequence

Lessons

[None Reported]

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 : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

Six hundred litres of hydrofluoric acid, sulphuric acid and phosphoric acid was spilt from a tank. A drain to the local water supply had to be blocked off as a result of the incident.

[spill, pollution, operational activities]

Lessons

[None Reported]

2202 23 March 1997

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

A pipeline was ruptured by a mechanical digger involved in road surfacing operations. It took about 6 hours to contain the leak.

[drilling/digging/ploughing vehicles, spill, natural gas]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 134, 24.

Location : ,

Injured : 28 Dead : 0

Abstract

Twenty eight people were taken to hospital after a chemical alert at an airport. Ground staff unloading the aircraft found 68 powdered chemicals, thought to be pesticides, leaking into the hold and giving off toxic fumes.

Fire crews in chemical protection suits and breathing apparatus were called. Ambulances took casualties to two local hospitals. The victims had inhaled fumes, though none was seriously affected.

[spill, gas / vapour release]

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]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0 Dead : 0

Abstract

A break in a 26 inch natural gas pipeline sent a huge fire ball visible 30 miles away. There was also an apparently unrelated break in the pipe 220 miles away. The ruptures were caused by stress on the pipeline created by land movement.
[fire - consequence, earth movement, transportation]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 Dead : 0

Abstract

An explosion of natural gas sent flames 30 metres into the air. The fire took 5 hours to extinguish. A similar fire occurred on the same stretch of pipeline six days earlier. Investigations suggest both incidents were caused by faulty pipeline construction.

[fire - consequence, transportation, human causes]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , UK

Injured : 0 **Dead :** 0

Abstract

A spillage of 12,000 litres of methyl ethyl ketone occurred from an 100,000 litre tank. Spillage covered with foam to suppress vapours. A nearby factory had to be evacuated during the incident.

[evacuation, environmental]

Lessons

[None Reported]

9004 27 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 0 Dead : 0

Abstract

An accident occurred at a pesticides factory, releasing about 1 tonne of phenylurea herbicide isopropuron. The production area and neighbouring industrial and residential buildings were contaminated. The herbicide has been produced for 20 years and is not mutagenic, teratogenic, irritant or sensitising, but as a precaution, workplace air and production workers urine have been regularly monitored and in-house "no observable effect levels" have been established. After decontamination measures were taken, biomonitoring was carried out on 168 workers. The pesticide was determined via its metabolite by liquid chromatography. From the 454 analyses done, 299 were below the detection limit of 50 microgrammes per litter. In the production area, only one analysis exceeding the in-house limit. Levels in neighbouring plants were much lower still, with a mean value just above the detection limit.

[leak, spill, processing, contamination]

Lessons

[None Reported]

8799 27 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Buckinghamshire, UK

Injured : 1 **Dead** : 0

Abstract

A drum containing polyester resin exploded causing slight injury. The employee who was wearing suitable protective clothing suffered minor burns. He had been working removing the tops of barrels with a flame cutter and had successfully removed three lids the fourth exploded due to a build up of styrene vapours.

[explosion, hot work, container, hot surface, vapour cloud explosion, injury]

Lessons

[None Reported]

9055 25 January 1997

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

Location :

Injured : 12 Dead : 0

Abstract

An explosion occurred at a 400,000 tonne middle distillate synthesis plant causing severe damage to the plant. Two production tanks, one containing naphtha and the other kerosene were set on fire as a result of the explosion, the remaining eight product and two sludge tanks were cooled off to prevent any further possible spread.

The plant produces various products ranging from distillates to waxes, averaging 1,200 tonnes per day.

[damage to equipment, distillation]

Lessons

[None Reported]

Source : LLOYDS LIST, 3 JAN, 1997.

Location : , USA

Injured : 0 Dead : 0

Abstract

About 336,000 gallons of propylene oxide was being transferred from a barge to a 535,000 gallon tank when a fire erupted. The fire was contained to the tank and extinguished in an hour.

[material transfer, marine transport, fire - consequence]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Gateshead, UK

Injured : 0 **Dead** : 0

Abstract

An explosion destroyed an oil fired boiler. No-one was injured in the incident.

[heating]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 134, 25.

Location : , HONG KONG

Injured : 2 **Dead :** 0

Abstract

A cargo of expandable polystyrene exploded. Subsequent investigations determined that the cargo contained expandable polystyrene beads, which evolve flammable pentane vapour.

There was no declaration so none of the parties involved was aware of the dangers.

[explosion, labelling incorrect]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Cambridgeshire, UK

Injured : 0 **Dead** : 0

Abstract

Heavy rainfall caused a failure in a surface water drainage system, resulting in the overflow of oil into a roadside drain and then into a canal.
[ecological damage]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An oil storage tank was being prepared for maintenance. This involved the disconnection of electrical power supply cable to two tank-side valves and two manifold valves. A procedure was in place detailing the isolations required for the work to be done. The isolations had been listed correctly on the Isolation Confirmation Certificate (ICC) by the permit supervisor. Over the weekend, the shift supervisor had decided that isolations were not required on the two tank-side valves at this stage, and he scored them off. He asked the electrician to isolate only the manifold valves. This decision was communicated clearly to the permit supervisor. The permit supervisor saw that the ICC had been signed up as complete and assumed that the isolations had been done as he had originally requested. The electrician was given an authorisation sheet to disconnect all four valves. He disconnected the manifold valves first and then went to the tank-side valves. 110v and 415v power supplies feed the actuator. He checked the 100v supply first with his "lamp" voltage tester, but failed to see the lamp illuminated. The most likely explanation was that bright sunlight had obscured the light on the tester. He started to disconnect the 110v cables and felt a slight tingling sensation on the back of his hand. He checked the 415v supplies and found them "live." He immediately stopped work, and the work site was made safe. The electrician did not seek medical attention immediately as he considered the contact to be insignificant.

[storage tanks, near miss, design or procedure error]

Lessons

After the incident, team leaders and electrical supervisors were instructed to make their teams aware of the incident and its key lessons which are as follows:

1. Procedures are there to be followed.
 2. Equipment status should be clearly stated at hand-over and checked by the Performing Authority.
 3. Warning lights and lamps may not be visible with bright background lighting.
 4. Always seek medical attention if in contact with live electrical equipment.
-

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 3 **Dead :** 1

Abstract

A decommissioned boiler that was being removed from its supports started rolling. A lug on its side gashed a hole in a cylinder of propane gas. The gas ignited and the cylinder exploded. Four men were severely burnt and one of them died as a result of his burns.

[decommissioning, explosion, fatality]

Lessons

[None Reported]

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, JUL.

Location :

Injured : 0 **Dead :** 2

Abstract

An accident occurred when repeated operation of a starter failed to start the engine. The driver lifted the drivers seat, activated the choke knob on the carburettor pressure regulator and when he again operated the started button, the gas air mixture in the engine compartment ignited and caused an explosion. The flash flame ignited his clothing, causing his death. The heat also melted the hosepipe at the gas bottle, causing a stream of butane-propane mixture, which also ignited and killed another person.

[mechanical equipment failure, fatality]

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]

8964 1997

Source : THE SAFETY AND HEALTH PRACTITIONER, APRIL, 1997.

Location : Iowa, USA

Injured : 18 **Dead** : 4

Abstract

An explosion occurred in a nitrogen facility. The incident released 5700 tonnes of anhydrous ammonia and 25,000 gallons of nitric acid. Four people were killed and 18 injured.

[spill, leak, fatality, injury]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 1 **Dead :** 0

Abstract

A tin of paint thinners exploded causing severe burns to man.
[explosion]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , SINGAPORE

Injured : 1 **Dead :** 0

Abstract

Lightning struck a naphtha storage tank.

[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 : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Texas, USA

Injured : 2 Dead : 8

Abstract

An explosion occurred at a metal fabricating plant. The accident happened when workers uncapped a nitrogen tank scheduled for maintenance. The tank was one of sixteen containing either water or nitrogen scheduled for maintenance and should have been un-pressurised. Instead the tank turned out to be under 5000 PSI pressure and the force of the blast blew through the roof of the facility.

[high pressure, fatality]

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]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV.

Location : Kondinin, WESTERN AUSTRALIA

Injured : 0 **Dead** : 1

Abstract

A road transportation incident. Correct packing procedures helped reduce the impact of the rollover of a semi-trailer. The trailer was carrying four 205 litter drums of nitric acid and four cases containing six 500ml bottles of hydrofluoric acid. The severity of the incident was minimised due to the fact that the load had been secured as required and all the dangerous goods were found to be in approved packaging.

There was some spillage of nitric acid but the cases containing hydrofluoric acid were not damaged during the incident. However, the death of the driver contributed to delays in identifying the type of products involved and the extent of the spill. In addition, a number of other factors delayed the response of emergency services.

1. The incident occurred at night in an isolated and remote location.
2. The truck was not required to display placards because of the small quantity of dangerous goods on board.
3. Shipping documents could not be recovered due to damage sustained to the driver's cab.

[fatality]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 0 Dead : 0

Abstract

A 6 inch untreated/raw naphtha line failed catastrophically near the base of the vacuum tower and the outflow autoignited. Both the reformer and the naphtha hydrotreater depressured in less than 15 minutes through the ruptured pipe. The resultant torch fire and subsequent fires from leaking flanges and pipe failures burned for approximately 10 hours. Two flare connections failed which contributed significantly to the duration of the fire as the plant was being shutdown and depressured to the flare system. Property damage is estimated at \$10 million (£5.9 million) (1996). Commercial loss is estimated at \$20 million (£11.9 million) (1996) as units, not directly affected by fire, were shutdown for weeks and the vacuum tower was down for over two months. An environmental release of FCC catalyst affected areas outside the plant, as the various units were shut down.

Untreated naphtha from the crude units were combined into a single stream prior to introduction into the naphtha hydrotreater. The failure occurred in the line from one of the crude units, downstream of the last exchanger and prior to the point where the two streams join. The naphtha line was at normal conditions prior to the incident at approximately 450 psig and 600 degrees F (317 degrees C). There were no indications from any of the alarms or any of the nearby employees that there was any problem with the line immediately prior to the fire. The piping was originally installed in 1965 and specified as aluminised (or "Alonised" as it is referred to) carbon steel piping. "Alonising" is an old process, no longer in common use for process piping, performed mainly to enhance the resistance of steels to high temperature, high sulfur environments. Although this piping was in service for over 30 years, sections of this same line near the failure had experienced only slight-to-moderate pitting and had retained nearly its original wall thickness.

[pipeline failure, fire - consequence, damage to equipment, autoignition, processing]

Lessons

The following recommendations were made:

1. Ensure that potential corrosion problems are adequately addressed with appropriate expertise and level of management.
2. Develop an action tracking system for all recommendations resulting from investigations, HAZOPS, audits, etc.
3. Re-evaluate piping inspection program.
4. Consider outside review of mechanical integrity program to share and incorporate best practices.
5. Replace alonized carbon steel pipe in high temperature/high sulfur services.
6. Consider amending emergency response plan to include call-out of personnel to assist in operational shutdown of units in major emergencies.
7. Emergency response drills should consider shutdown and isolation procedures and review of location of valves and switches.
8. Review the procedures in place for the emergency operation center and staging area including the need for a checklist and registration of first responders.
9. Develop a site specific plan for industrial hygiene exposure assessment on and off site during emergencies.
10. Review the adequacy of stationary fire protection in heavily congested areas.
11. Review the location, identification and accessibility of emergency isolation valves and switches.
12. Review the adequacy of existing emergency communication and notification systems within the refinery.
13. Make certain inspection thickness monitoring locations are sufficient to detect localized corrosion.
14. Conduct external audits of inspection programs and associated data management systems every 5 years to ensure continual mechanical integrity improvement and sharing of best practices.
15. Review adequacy of fire protection systems in congested areas and particularly for flare lines.
16. Check drainage in plant areas to remove expected quantity of fire water.
17. Ensure that all emergency systems are clearly identified and accessible.
18. Additional operational assistance is required in major emergencies to secure the safe shutdown or operation of other units.

8640 10 September 1996

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

Location : , UK

Injured : 1 Dead : 0

Abstract

A road transportation incident. Liquid nitrogen spillage onto M25 motorway when road tanker overturned.

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]

8638 29 August 1996

Source : LLOYDS LIST, 1996, SEP, 12.

Location : Turov, BELARUS

Injured : 0 Dead : 0

Abstract

Transportation. Up to 400 tonnes of oil leaked from pipeline following rupture.

Lessons

[None Reported]

8630 09 August 1996

Source : LLOYDS LIST, 1996, AUG, 13.

Location : , GREECE

Injured : 0 Dead : 0

Abstract

Loading of oil at a terminal resulted in a spillage when loading pipe ruptured during a storm.

The spillage of 300 tonnes of oil occurred when hose broke during routine unloading of marine tanker causing pollution. The company blamed the accident on the weather but they were fined \$650,000 (1996) due to the vessel not being safely docked and delay in shutting off the loading valve. The master and first mate have been charged with causing the pollution and the refinery director and loading manager have also been indicted over the incident.

[weather effects]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 0 Dead : 0

Abstract

As a result of the change over of desalted crude tower feed pumps, a vacuum tower, on this refinery, became pressured. Vacuum tower bottoms back flowed into the 10 psi steam line and out of the relief vent stack, spraying across private and public property. The total loss is estimated at \$900,000 (£539,000) (1996), of which the clean-up cost was \$800,000 (£479,000) (1996).

[gas / vapour release, backflow, product loss, overpressurisation, operational activities, pump, line]

Lessons

The following recommendations were made:

1. Major operational changes should be carried out preferably on day shift when more people are available and avoiding the weariness of night shift. Such changes need to be carefully planned, and if possible rehearsed.
 2. Operating at rates that require flow controller bypasses to be open implies that the flow rates are beyond design capacity which may put the system at a control risk. This should be reviewed under "Management of Change".
 3. Pressure controllers are very difficult to operate on manual and this should be recognized.
 4. Compound gauges should always clearly indicate a state of vacuum or pressure to avoid error.
 5. A non-return/check valve and upstream bleed are required for all stripping steam connections to hydrocarbon service.
 6. Steam lines can achieve vacuum and the pressure in some process systems can rise above the design of some low pressure steam lines.
 7. When fractionator tower charge rates are increased or reduced there should be a plan which also sets the product draw-off rates to avoid tower flooding or pumparound loss.
-

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]

Source : LLOYDS LIST, 1996, JUL, 29, JUL, 31, AUG, 7. LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

Location : , MEXICO

Injured : 36 Dead : 9

Abstract

An explosion occurred in a gas plant which was caused by a liquid gas leak. Three explosions were felt several kilometres away from the plant. Two natural gas plants destroyed which were capable of processing 500 million cubic ft per day.

The blasts were caused by a liquid gas leak from a remotely controlled valve during pump out of an LPG bullet for maintenance. Three explosions were felt several kilometres away from the plant. Insurance losses could reach US\$1billion. Initial property damage estimate is some US\$ 250 million with total final loss up to US\$ 1 billion including business loss

[valve failure, damage to equipment, storage equipment]

Lessons

[None Reported]

8619 22 July 1996

Source : LLOYDS LIST, 1996, JUL, 26.

Location : Quebec, CANADA

Injured : 0 **Dead** : 0

Abstract

A fire roared through a foam plastic plant.

[fire - consequence, processing]

Lessons

[None Reported]

8615 13 July 1996

Source : LLOYDS LIST, 1996, JUL, 16.

Location : Texas, USA

Injured : 0 **Dead** : 2

Abstract

An oil well explosion and fire occurred. Fatality.

[fire - consequence]

Lessons

[None Reported]

8625 22 June 1996

Source : LLOYDS LIST, 1996, AUG, 3.

Location : , NIGERIA

Injured : 0 Dead : 0

Abstract

Transportation. A leak occurred on a southern swamp pipeline causing a spillage of 600,000 to 800,000 barrels of oil.

Lessons

[None Reported]

8602 18 June 1996

Source : LLOYDS LIST, 1996, JUN, 24.

Location : Rostov, RUSSIA

Injured : 0 **Dead** : 1

Abstract

Oil leaking from a broken seam on a pipeline spilt onto an electric welding apparatus and consequently sparked a fire during repair work. 70,000 cubic feet of oil spillage. Fatality.
[fire - consequence]

Lessons

[None Reported]

8609 14 June 1996

Source : LLOYDS LIST, 1996, JUL, 5.

Location : Samara Region, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Oil in two settling tanks attached to pipeline caught fire.

[fire - consequence]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.; HEALTH AND SAFETY AT WORK JUNE 1997.

Location : Huddersfield, UK

Injured : 0 Dead : 0

Abstract

An explosion occurred causing the roof of a plant to be blown off. This was due to overpressurisation of the reactant tank.

The firm was fined £50,000 (1996) after an explosion demolished half of its premises. The reactor explosion happened after added a chemical nitrosyl sulphuric acid which was too low for it to react. He turned off the reactor's cooling water when he thought the process was complete. The temperature actually built up until the explosion occurred from a runaway reaction. The reactor top went through the roof and landed 100 metres away. The base went downwards through one floor and embedded itself in the concrete floor below. A previous incident in August 1995 2 tonnes contents of the reactor erupted through the lid at 270 degrees C.

[reactors and reaction equipment, methyl nitrophenol, runaway reaction, processing, methyl nitrophenol, nitrosyl sulphuric acid]

Lessons

[None Reported]

8597 02 June 1996

Source : LLOYDS LIST, 1996, JUN, 4.

Location : Gothenburg Area, SWEDEN

Injured : 0 **Dead** : 0

Abstract

Oil slick found.

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion occurred in a batch processing unit on a plant. The batch processing unit was being used to manufacture the hair dye chemical methyl nitrophenol. All three stages in the chemical process were exothermic and both the rate of reagent addition and temperature.

The one tonne, two meter wide reactor lid was thrown through the roof, coming to ground 100 meters away. The 500 gallon reactor, situated at the top of the four storey building, was blasted down through two floors, landing on top of another process plant. No was injured in the incident. A cloud of acid gases was released, leading to complaints from nearby residents and businesses of spotting of cars and property.

[exothermic reaction, reactors and reaction equipment, gas / vapour release]

Lessons

[None Reported]

8456 18 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, MAY, 27.

Location : Normandy, FRANCE

Injured : 0 Dead : 0

Abstract

Lightning struck a glyoxal plant and set it on fire. The fire was brought under control quickly and nitric oxide emissions were contained within the plant.
[fire - consequence, processing]

Lessons

[None Reported]

8594 14 May 1996

Source : LLOYDS LIST, 1996, MAY, 14.

Location : Shumerlya, RUSSIA

Injured : - **Dead** : 0

Abstract

A rail transportation incident. A train crash caused spillage of phenol. Many injured in clean up operations.

[injury]

Lessons

[None Reported]

8460 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 10.

Location : Milan, ITALY

Injured : 0 **Dead :** 0

Abstract

An explosion damaged one of two reactors in this phthalic anhydride plant.
[reactors and reaction equipment, damage to equipment, processing]

Lessons

[None Reported]

9999 25 April 1996

Source : LOSS CONTROL NEWS LETTER, 2/96.

Location : Grozny, RUSSIA

Injured : 0 **Dead** : 0

Abstract

An oil well, one of the largest in the area, was set alight by machine gun fire. Business Interruption loss estimated at US\$ 0.3m (1996) per day.
[fire - consequence, processing, terrorism]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : California, USA

Injured : 0 **Dead** : 0

Abstract

A fire broke out when propane spilt into an enclosed refinery water system.

[fire - consequence, leak, spill, contamination, refining]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

Transportation. A 30 inch, 550 million scfm natural gas pipeline and compression station were shutdown due to an explosion. Operation is expected to resume at 80% rate in the short term until compression can be restored.
[compressor]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Tyumen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. The fire followed a natural gas leak when the 1,200 mm pipeline ruptured. Several dozen metres of pipeline had to be replaced.
[fire - consequence, pipeline failure]

Lessons

[None Reported]

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

Location : Hunterdon County, USA

Injured : 0 **Dead** : 0

Abstract

A fire occurred at propane gas processing plant.

[fire - consequence]

Lessons

[None Reported]

8588 23 March 1996

Source : LLOYDS LIST, 1996, MAR, 25.

Location : Uttar Pradesh, INDIA

Injured : 1 **Dead** : 3

Abstract

An explosion of a tank of methane gas at an effluent treatment plant was caused by welding on the roof of the tank to repair leaks. Police have registered a case of criminal negligence against the company. Fatality.
[safety procedures inadequate]

Lessons

[None Reported]

8587 23 March 1996

Source : LLOYDS LIST, 1996, MAR, 25.

Location : Bashkortostan Region, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. About 600 tonnes of oil spillage after a pipeline leaked.

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]

8585 21 March 1996

Source : LLOYDS LIST, 1996, MAR, 22.

Location : Rijeka, CROATIA

Injured : 0 **Dead** : 0

Abstract

Spillage of 30 tonnes of oil into the sea from a tank.

Lessons

[None Reported]

8584 20 March 1996

Source : LLOYDS LIST, 1996, MAR, 21.

Location : Orenburg region, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. A break in a major pipeline caused spillage of 500 tonnes of oil onto the ground.

Lessons

[None Reported]

8665 19 March 1996

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

Location : , UK

Injured : 0 Dead : 0

Abstract

Hundreds of gallons of oil spillage from a factory. Emergency team was fighting a pollution threat.

[processing]

Lessons

[None Reported]

8583 19 March 1996

Source : LLOYDS LIST, 1996, MAR, 21.

Location : Galveston, USA

Injured : 0 Dead : 0

Abstract

A river transportation incident. A river barge caused an oil spillage in waters.

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]

8579 10 March 1996

Source : LLOYDS LIST, 1996, MAR, 12.

Location : Dagestan, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Explosion in section of 1020 mm natural gas pipeline.

Lessons

[None Reported]

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

Location : Wisconsin, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A train of 32 cars including 15 carrying propane derailed. Two rail tankers ruptured and caught fire causing a feed mill and other buildings to catch fire.

[fire - consequence, derailment]

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]

8690 22 February 1996

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

Location : Chechnya, Dagestan, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. A fire occurred following an explosion on part of a natural gas pipeline. There was a second on the 2nd March.

Lessons

[None Reported]

8711 19 February 1996

Source : THE CHEMICAL ENGINEER, 1996, MAR, 7.

Location : , UK

Injured : 11 Dead : 0

Abstract

A road transportation incident. Approximately 1 tonne of nitrobenzene was spilled following a road tanker crash which occurred when a tanker crossed the central reservation and collided with a tanker carrying diesel. Both tanker cabs caught fire. Some pollution of a river occurred.

[collision, fire - consequence]

Lessons

[None Reported]

8461 19 February 1996

Source : ENDS REPORT, 1996, MAR.; THE CHEMICAL ENGINEER, 7 MARCH, 1996.

Location : Billingham; Cleveland, UK

Injured : 11 **Dead** : 0

Abstract

A road transportation incident. A road tanker collided with a diesel tanker, caused by loss of control. Substances involved: nitrobenzene, diesel. Both vehicles caught fire.

Clean up costs estimated at £200,000 (1996).

[fire - consequence, collision, loss of control, spill]

Lessons

Although harmful to aquatic life, nitrobenzene is biodegradable.

Source : THE GUARDIAN, 1996, FEB, 17,; THE OBSERVER, 1996, FEB, 18,; HAZARDOUS CARGO BULLETIN, SEPTEMBER 1997, VOL 18, NO.9.; BBC NEWS, FEBRUARY 11, 1998, (<http://www.bbc.co.uk>).

Location : Wales, UK

Injured : 0 **Dead** : 0

Abstract

Pilot error caused the grounding of an oil tanker carrying 130,000 tonnes of light crude oil at the entrance to a harbour. Although the main engine was stopped, put astern and both anchors dropped, the vessel continued to run ahead finally coming to rest aground. The starboard cargo ballast tanks were ruptured by the first grounding resulting in heavy trim by the head and starboard list. A quantity of oil was lost from the damaged cargo tanks.

It was decided to manoeuvre the vessel into deeper water using tugs where the vessel could be anchored and lightered to be allowed to enter the harbour and discharged the remainder of the cargo. This was achieved without further loss of cargo but a forecast of gale force winds led to the decision to turn into the wind and re-anchor. While preparations for lightering were still in progress the weather worsened and control was lost and the vessel grounded again.

Four days later the vessel was brought under control and taken in to the harbour where the remainder of the cargo was discharged. Although there was no loss of life or serious injury, a total of 71,800 tonnes of crude oil was lost, of which only 2,500 tonnes escaped during the initial grounding.

[spill, environmental, ship ran aground]

Lessons

[None Reported]

Source : EUROPEAN CHEMICAL NEWS, 12-18, FEB 18, 1996.

Location : Ramat Hovav, ISRAEL

Injured : 10 **Dead** : 0

Abstract

An explosion occurred in a reactor at a bromine compounds site. An investigation was launched and was expected to focus on a boiler containing methyl chloride and bromine. Damage was not serious.

[reactors and reaction equipment, damage to equipment, reaction, injury]

Lessons

[None Reported]

8573 05 February 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, FEB, 12.

Location : , ISRAEL

Injured : 10 Dead : 0

Abstract

Explosion in a reactor at bromine compounds site. Investigation will focus on a boiler containing methyl chloride and bromine.
[reactors and reaction equipment, processing]

Lessons

[None Reported]

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

Location : Lugansk, UKRAINE

Injured : 1 Dead : 0

Abstract

Transportation. Explosion in natural gas pipeline sending flames 100 metres high.

Lessons

[None Reported]

8578 01 February 1996

Source : LLOYDS LIST, 1996, MAR, 11.

Location : , TRINIDAD AND TOBAGO

Injured : 0 Dead : 0

Abstract

Transportation. Oil spillage halted in 30 inch concrete covered pipeline in harbour.

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, FEB, 2.

Location : Southern Urals, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Explosion in 50 inch natural gas pipeline.

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 : 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]

8415 20 January 1996

Source : LLOYDS LIST, 1996, JAN, 22.

Location : River Giaga, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Safety valve broken by thieves in pipeline sending 300 tonnes of oil into frozen river.

[vandalism, spill]

Lessons

[None Reported]

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

Location : Krasnodar, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Damage to the pipeline is believed to have occurred during an illegal attempt to siphon off the oil. The pipeline has now been repaired. Spillage of 350 - 400 tonnes of oil.
[sabotage]

Lessons

[None Reported]

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]

1100 16 January 1996

Source : LLOYDS LIST, 1996, JAN, 26.

Location : Samara region, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. An oil slick discovered in the nearby river indicating a leak from the underwater section of the 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]

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 : LLOYDS LIST, 1996, JAN, 13.

Location : Chechnya, RUSSIA

Injured : 0 **Dead :** 0

Abstract

An oil well caught fire due to dilapidated condition.

[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 6 Dead : 3

Abstract

An explosion occurred in a plant. The incident occurred when a block valve failed, resulting in the release of liquid propylene. The explosion occurred shortly after the release.

Three people were killed and six others seriously injured.

The cause of the incident is not known but an investigation is to be carried out, although it is thought that the insert of the valve became dislodged during maintenance work and that the internals were blown out from the valve body.

[valve failure, spill, fatality, injury]

Lessons

[None Reported]

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]

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

Location : Yokkaichi, JAPAN

Injured : 0 Dead : 1

Abstract

Two 50,000 tpa HIPS lines at the 200,000 tpa facility were closed following explosion. Substance involved: polystyrene. Fatality.
[processing]

Lessons

[None Reported]

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

Location : Bashkortostan, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Following a spillage in a pipeline, estimated to be between 468 - 2400 tonnes, oil has polluted a river. The oil was set on fire in an effort to clear up the spillage. The damaged pipeline which runs underneath the river is to be raised to the surface for inspection and repair when the precise location of the leak is found.

[pollution, fire - consequence]

Lessons

[None Reported]

8244 21 December 1995

Source : LLOYDS LIST, 1995, DEC, 21.

Location : Edmonton, CANADA

Injured : 0 Dead : 0

Abstract

An oil well spillage resulting from a wellbore casing failure could spill 1000 barrels per day for 4 weeks before attempts to halt the flow are successful.

Lessons

[None Reported]

8245 21 December 1995

Source : THE GUARDIAN, 1995, DEC, 23.; THE CHEMICAL ENGINEER, 1996, JAN, 11.

Location : North Shields, UK

Injured : 4 **Dead** : 3

Abstract

High pressure testing with nitrogen resulted in an explosion. Fatality.

Lessons

[None Reported]

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

Location : Mstislavl, BELARUS

Injured : 0 **Dead :** 0

Abstract

Transportation. An explosion on the section of a natural gas pipeline due to high pressure.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A dust explosion and fire occurred in a primary degasser bin. The bin had been charged with a 50 tonne blend of powder grade from the loop reaction system, and was fifty minutes into the one-hour air degassing/powder recirculation cycle when the incident occurred.

The emergency services and the plant manufacturing teams quickly extinguished the fire. Both reactors were immediately shut down. No injuries were reported.

The explosion occurred due to a build-up of a non-conducting skin of antioxidant, polymer and wax on the walls of the degassing bin and pipework. The likely source of ignition was static, thought to have resulted from a propagating brush discharge inside the vessel.

[fire - consequence, processing, reactors and reaction equipment,

Lessons

The report stated the following conclusions:

1. The incident was caused by a build-up of a non-conducting skin of antioxidant, polymer and wax on the wall of the degassing bin and associated pipework. It is thought that this caused the system to accumulate static charge similar to a capacitor, generating a propagating brush discharge, which initiated a dust explosion inside the vessel. An investigation into this theory is being carried out.
 2. The build-up of the non-conducting skin found in the degassing bin, and other degassing, intermediate and final product vessels was caused by the addition of an aqueous antioxidant compound.
 3. The degasser reached temperatures in excess of 600 degrees C. Internal damage was limited to some minor distortion of vessel cross members and the top of the vent bag filter housing. Minimal damage to equipment external to the source of ignition occurred.
-

Source : LLOYDS LIST, 1995, DEC, 7.

Location : Kanawha County, Nitro, West Virginia, USA

Injured : 0 **Dead :** 0

Abstract

A release of phosphorus trichloride occurred causing residents in a number of cities to stay indoors.

[gas / vapour release]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 6 **Dead :** 3

Abstract

Ball valve blow-out on propylene system. A ball valve failed and released liquid propylene, which lead to an explosion. The incident was caused by the ball valve being fitted in the wrong direction. There was damage to equipment damage and material loss. Fatality.
[valve failure, installation inadequate, product loss, maintenance]

Lessons

Maintenance workers must be trained not to attempt to work on any item with which they are not 100 percent familiar as to its construction, and when necessary to seek information before starting, if they have any doubts. Supervision must play a vital part in ensuring that those instructed to do a job are provided with the correct information to avoid incidents. Manufacturers drawings unfortunately sometimes leave much to be desired, which means that someone with first-hand experience of the item is very valuable in preventing incidents.

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

Location : Arauca, COLOMBIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Pumping stopped on pipeline to allow repair after sabotage attempt. Spillage 10,000 bbl of oil.

Lessons

[None Reported]

8226 16 November 1995

Source : MANCHESTER EVENING NEWS, 1995, NOV, 16.

Location : Heaton Chapel, Stockport, UK

Injured : 4 **Dead** : 0

Abstract

A fire occurred in a tank containing naphtha and bitumen melted the aluminium tank.

[fire - consequence]

Lessons

[None Reported]

Source : LLOYDS LIST, 1995, NOV, 17.

Location : Yekaterinburg, RUSSIA

Injured : 0 Dead : 0

Abstract

A fire broke out as a result of an explosion in a gasometer at a distribution station. Substance involved: natural gas.

[fire - consequence]

Lessons

[None Reported]

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

Location : Bogalusa, Louisiana, USA

Injured : 400 **Dead** : 0

Abstract

A rail transportation incident. The release of nitrogen tetroxide was caused by a ruptured rail tanker. 3000 evacuated.
[evacuation, nitrogen peroxide]

Lessons

[None Reported]

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]

8207 24 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.; EUROPEAN CHEMICAL NEWS, 1995, OCT, 30.

Location : Ludwigshaven, GERMANY

Injured : 3 Dead : 1

Abstract

A river transportation incident. Explosion and fire occurred on inland waterways river tanker during discharge of 930 tonnes of methanol at plant. Fatality.
[fire - consequence, unloading]

Lessons

[None Reported]

8189 19 October 1995

Source : LLOYDS LIST, 1995, OCT, 19.

Location : , ST. LUCIA

Injured : 0 Dead : 0

Abstract

An oil spillage occurred during loading operations at a terminal.

Lessons

[None Reported]

8204 17 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Mina Al Ahmadi, KUWAIT

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. One of 2 strings of flexible hoses parted during loading of 350,000 dwt marine oil tanker at single buoy mooring. Spillage of 800 tonnes of oil.

Lessons

[None Reported]

8187 15 October 1995

Source : LLOYDS LIST, 1995, OCT, 16.

Location : Stenungsund, SWEDEN

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A marine gas carrier overflowed into port when shore tank was overfilled and the overflow poured over the tanker deck.

Only small amounts of water sludge with oil escaped. Spill.

[unloading]

Lessons

[None Reported]

8192 10 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, NOV.

Location : Bugrysh, Udmurtia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. A fire occurred after rail tanker with propane derailed and overturned. Fire over area of 1000 sq. metres.
[rail incidents, derailment, fire - consequence]

Lessons

[None Reported]

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 : 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.
-

1795 30 September 1995

Source : LLOYDS LIST, 1996, JAN, 13.

Location :

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident involving a chemical tanker. An explosion and fire occurred on board while unloading methanol cargo. Constructive total loss.
[fire - consequence]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Map Ta Phut, THAILAND

Injured : 0 **Dead :** 2

Abstract

A marine transportation incident. An explosion and fire occurred on a marine chemical tanker during unloading of methanol at a pier. Fatality.

Lessons

[None Reported]

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

Location : Map La Phut, THAILAND

Injured : 0 **Dead** : 2

Abstract

A marine transportation incident. An explosion and fire occurred on board a chemical marine tanker during unloading of methanol. Fatality.
[fire - consequence]

Lessons

[None Reported]

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 : HAZARDOUS CARGO BULLETIN, 1995, NOV.

Location : Bingham Canyon, Utah, USA

Injured : 0 **Dead :** 0

Abstract

An explosion damaged converting furnace. Cooling element failed in new smelter and released water onto molten metal.

[cooling equipment, spill, metal - molten]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, NOV.

Location : Brisbane, Queensland, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Hose coupling on marine tanker failed during discharge at wharf during unloading. Small spillage of oil due to prompt shut down of pump.

[coupling failure]

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 : LLOYDS LIST, 1995, SEP, 16,; HAZARDOUS CARGO BULLETIN, 1995, NOV.

Location : Saldanka Bay, SOUTH AFRICA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. 25,000 litres of crude oil spillage into harbour during unloading of marine oil tanker probably due to a burst pipe.

Lessons

[None Reported]

8241 25 August 1995

Source : LLOYDS LIST, 1995, DEC, 27.

Location : , SINGAPORE

Injured : 0 **Dead** : 0

Abstract

300 tonnes of oil spillage into the sea from the refinery when a valve on a pipe was left open after maintenance work.
[operator error, refining]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, OCT.

Location : Rotterdam, NETHERLANDS

Injured : 1 **Dead** : 1

Abstract

A marine transportation incident. A marine tanker barge loading at terminal was struck by ro-ro ferry and sank. 10 tonnes of naphtha spillage to canal from damaged hull. Small LPG spillage. Fatality.

[collision]

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.

1968 21 August 1995

Source : ASSOCIATED PRESS

Location : Bellingham, Washington, USA

Injured : 5 **Dead :** 0

Abstract

A road transportation incident. A road tanker carrying liquefied oxygen overturned on State Highway and started leaking. Evacuation of people within half mile carried out. Release of material left to evaporate.

[gas / vapour release]

Lessons

[None Reported]

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

Location : Grozny, Chechen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

An explosion at an oil refinery started a large fire. An investigation was started by the authorities to establish whether the explosion was caused by a deliberate act.

[refining]

Lessons

[None Reported]

1723 18 August 1995

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

Location : Sverdlovsk, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. A natural gas pipeline rupture led to an explosion and fire.

[fire - consequence]

Lessons

[None Reported]

1965 16 August 1995

Source : LLOYDS LIST, 1995, AUG, 28.

Location : Perm, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Oil leaked from damaged pipe onto hot machinery and spilled over an area of 300 sq. metres. Hot surface.

Lessons

[None Reported]

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

Location : Lisichansk, UKRAINE

Injured : 8 **Dead** : 1

Abstract

An explosion in an oil refinery knocked out the country's sole propylene production unit. The refinery continued to work. The refinery was shut down for the first five months of the year and annual capacity has now been reduced from 23 million tonnes to 16 million tonnes. It has processed a mere 680,000 tonnes so far this year.

[refining, fatality]

Lessons

[None Reported]

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

Location : La Chira, PERU

Injured : 0 **Dead** : 0

Abstract

Spillage of 18,000 gallons of oil occurred when unloading at a facility. Rough seas caused a hose to break loose during the unloading, resulting in an oil slick of 15 km. The shore line for approximately 13 km was affected.

[pollution, weather effects]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 1 **Dead :** 0

Abstract

A driver/operator of a tanker being loaded with polyethylene pellets fell to the ground from the top of the tanker.

He sustained head and arm injuries.

During the loading of the tanker, the driver/operator had noticed that pellets were being spilled from the loading sock. He moved along the top of the tanker barrel to try and stop the spillage. He lost his balance and fell, after coming into contact with scaffolding. The tanker loading operation was halted.

The driver/operator was treated for his injuries at the scene, before being transferred to hospital.

An enquiry team investigated the incident.

[road tanker, fall, injury]

Lessons

1. Modifications to scaffolding in the loading area were recommended to prevent it from protruding beyond the fixed loading platform.
 2. The requirement for some form of restraint to be provided on/near the tanker top to prevent falls, in the event that tanker ports have to be accessed (e.g. use of tankers with collapsible handrails; provision of a grab rail in the loading tunnel; harness and restraining cord provision across loading platform working areas).
 3. Review of the frequency of first aid training.
 4. Review of policy for calling a doctor and for transfers to hospital.
-

1887 06 August 1995

Source : LLOYDS LIST, 1995, AUG, 11, AUG 16.

Location : Conchan, La Chira, PERU

Injured : 0 **Dead** : 0

Abstract

Marine transportation. Hose on marine tanker broke during unloading of oil causing spillage of 18,000 gallons to sea. 13 km of shore line affected.
[pollution]

Lessons

[None Reported]

1477 01 August 1995

Source : THE CHEMICAL ENGINEER, 1995, SEP, 14.; LLOYDS LIST, 1995, AUG, 19.; EUROPEAN CHEMICAL NEWS, 1995, AUG, 21.

Location : Oldbury, West Midlands, UK

Injured : 0 **Dead** : 0

Abstract

The explosion in phosphoric acid plant was caused by overpressurisation within a column used to condense phosphorus pentoxide formed by phosphorus burning in air in a reactor at the bottom. This caused a bursting disc to rupture.

[reactors and reaction equipment, processing]

Lessons

[None Reported]

1892 August 1995

Source : LLOYDS LIST, 1995, 12 AUG.

Location : Kama River, RUSSIA

Injured : 0 **Dead :** 0

Abstract

25 tonnes of black oil spillage into a river from broken pipe.

Lessons

[None Reported]

1700 29 July 1995

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

Location : Rapid City, Manitoba, CANADA

Injured : 0 **Dead** : 0

Abstract

Transportation. Escaping natural gas from a pipeline break caught fire and burned itself out after the break was isolated by closing valves either side of the break. Stress corrosion cracking was possibly a cause.

[fire - consequence, leak]

Lessons

[None Reported]

3467 24 July 1995

Source : LLOYDS LIST, 1995, JUL, 26.

Location : Texas City, Texas, USA

Injured : 0 **Dead** : 0

Abstract

Oil leaking from a catalytic cracker led to an explosion and fire. Interruption expected to last 13 days.

[fire - consequence, cracking]

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 : HAZARDOUS CARGO BULLETIN, 1995, SEP.

Location : Tacoma, Washington, USA

Injured : 0 **Dead** : 0

Abstract

Port operation shut-down for 4 hours due to phosphorus fire in a tank container.

[fire - consequence, plant shutdown]

Lessons

[None Reported]

1516 17 July 1995

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

Location : Samotlor Field, Tyumen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Explosion in field was caused by the rupture of a pipeline due to corrosion. Spillage of oil covered 500 sq. metres.

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]

8407 14 July 1995

Source : IChemE

Location : ,

Injured : 0 Dead : 0

Abstract

Depentaniser bottoms pump failure. A fire started in the seal area of the depentaniser pump, fuelled by leaking process fluid. It was found that the pump's bulb drain plug had fallen out and the loss of oil caused overheating and failure of the pump bearings, eventual deformation of seal and subsequent product leakage. When the plug was removed for maintenance, at some time, it was not completely re-inserted. Over a period of time, the plug backed out of the housing, probably due to vibration.
[fire - consequence, processing]

Lessons

Checking for system tightness is essential on equipment, such as pumps, after maintenance, including oil changes. Records should be available of maintenance, lube oil changes, etc. to establish pump history.
Adequate pump isolation facilities e.g., remotely actuated and protected isolating valves are usually recommended for hydrocarbon duties depending on characteristics of fluid being pumped (volatility, toxicity, temperature, etc.).
Deluge systems need to be regularly tested and flushed through, and pipe work and nozzles preferably constructed of materials not subject to corrosion and blockage.

3223 14 July 1995

Source : LLOYDS LIST, 1995, JUL, 15.

Location : Houston, Texas, USA

Injured : 0 **Dead** : 0

Abstract

Fire lasting one and a half hours at oil company installation caused shut down of the Ship Canal.

[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]

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

Location : Ozochi, NIGERIA

Injured : 0 **Dead :** 3

Abstract

Transportation. Fire at a leaking oil pipeline. 15 members of the community tried to stop the oil gushing out of the pipeline when it caught fire. Three fatalities and three missing.

[fire - consequence]

Lessons

[None Reported]

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

Abstract

An 8 inch line on a carbon disulphide plant fractured and a 9 metre diameter fireball resulted. The line was carrying a mixture of carbon disulphide, hydrogen sulphide and methane at 600 degrees C between the furnace and the reactor. The fire was brought under control by shutting down production and allowing it to burn out in a controlled manner. The incident caused release of sulphur dioxide to the environment and loss of production. Damage to plant was minimal and there were no injuries.

The cause was unknown at the time of the report. The pipe failed at the heat affected section close to a weld. It had been in service for at least 12 years and was due its next two-yearly inspection in September 1995. Ultrasonic thickness tests on the failed pipe revealed inconsistencies with the results from September 1993. The appearance of the failed section of pipe differed substantially from the remaining sections.

[fire/explosion, fire - consequence, mechanical equipment failure, reactors and reaction equipment, material transfer, gas / vapour release, material of construction failure]

Lessons

1. A major incident had occurred and only good fortune prevented serious casualties and potential escalation of the incident.
 2. The shift team dealt with the incident effectively.
 3. Their task could have been eased if emergency procedures had been clarified and rehearsed. In particular the workload of dealing with incoming telephone calls at a time of intense activity was a problem.
 4. The frequency of examination on some pipelines on hazardous duty was inadequate and failed to reveal a section of pipe which was below specification.
-

1589 26 June 1995

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

Location : Volga, RUSSIA

Injured : 0 **Dead** : 1

Abstract

A rail transportation incident. Loading of 3 rail tankers with butane and propane when there was an explosion. The blaze spread to 18 other rail tankers. Fatality.

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]

1845 14 June 1995

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

Location : Volgograd, RUSSIA

Injured : 10 **Dead** : 0

Abstract

A rail transportation incident. A rail tanker containing liquefied propane caught fire. Explosion spread and set light to other tankers.
[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Natural gas pipeline system overpressure. A pilot diaphragm in a metering station supplying the plant with natural gas failed. Due to several other compounding issues, the pilot failure caused the stand-by let-down station to go wide open, and resulted in a serious overpressure of the plant's natural gas distribution system. The incident was caused by failure of a diaphragm on the second stage PCV pilot which sent natural gas to the pilot vent line; the pressure equalising across the diaphragm simulated a low sensing pressure and caused the second stage PCV to go wide open, creating overpressure in system. There was no regularly scheduled programme of servicing and testing on meter station valves and instrumentation. Servicing was sporadic and minimal. The pilot diaphragms were not replaced according to manufacturer's recommendations, based on minimum expected life. Near miss.

[overpressurisation, operation inadequate]

Lessons

For utility supplies entering petrochemical plants:

1. Don't assume that they are adequately protected. Analyse the risks and assess the safeguards associated with these interfaces.
 2. Ensure there is ongoing maintenance of equipment and instrumentation whose reliability impacts on your plant.
-

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Oil spill at a dock at a refinery. During the transfer of lube oil back into the refinery for reprocessing, the discharge hose compression fitting at the flanged connection to the existing pipework failed, resulting in a major loss of oil containment. It was found that the hose, supplied by a third party, contained a fabrication defect. The cause was due to the failed fitting ferrule not being tight enough and the swaging dolly was too small.
[material transfer, refining, flange failure]

Lessons

If necessary to use hoses supplied by third parties, they should only be used when their history is known and the hose tested before use.

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

Location : Surgut, Tyumen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. A 700 mm diameter oil pipeline ruptured and a fire occurred. The fire shutdown 2 power transmission lines.

[fire - consequence, plant shutdown]

Lessons

[None Reported]

2499 22 May 1995

Source : LLOYDS LIST, 1995, JUN, 3.

Location : Tianjin, CHINA

Injured : 0 **Dead** : 6

Abstract

Explosion in building where technicians working late on a chemical substitute for musk failed to control a volatile nitrogen compound which exploded violently destroying a 3 storey building and throwing iron girders a distance of 300 metres. Fatality.
[explosion, damage to equipment]

Lessons

[None Reported]

2475 15 May 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1995.

Location : Grozny, Chechen Republic, RUSSIA

Injured : 0 **Dead :** 0

Abstract

5 storage tanks damaged and 15,000 tonnes of oil destroyed in attack by terrorists using grenade launchers.

[terrorism, damage to equipment, product loss]

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]

8271 07 May 1995

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

Location : Amur region, RUSSIA

Injured : 1 **Dead** : 2

Abstract

A rail transportation incident. Derailment of 27 rail cars. Explosion of 3 rail tankers containing propane. Fatality.

Lessons

[None Reported]

2194 04 May 1995

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1995.

Location : Greenwood County, South Carolina, USA

Injured : 0 **Dead** : 0

Abstract

Fire destroyed a 75,000 sq. ft. plastics reprocessing facility with a capacity of 35 million lbs/yr and caused explosions of propane cylinders on fork lift truck in the plant.

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Crude distillation unit fire and shutdown at a refinery. Piping on the bottom of the desalter safety valve outlet header, adjacent to the crude tower, failed. Hot oil was released and ignited. There was damage to equipment and product loss.

It was found that hot oil corrosion along the bottom of safety valve discharge piping header led to failure of the piping. The basic cause was failure to identify the hazard presented by process conditions, both at the original design process and the subsequent review.

[fire - consequence, valve failure, spill, design or procedure error, refining, oil - hot]

Lessons

Design standards for pressure relief valve piping must take into consideration different process conditions (in this case, no flow).

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Tucson, Arizona, USA

Injured : 0 **Dead** : 0

Abstract

A fire destroyed film set when 35 cum (cubic metre) propane tank and black powder store threatened by flames. 300 employees and visitors evacuated.
[fire - consequence, evacuation, black powder (gunpowder)]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1995, DEC.; FIRE ENGINEERING, 1995, DEC.; HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Lodi, New Jersey, USA

Injured : 0 **Dead** : 5

Abstract

An explosion severely damaged a plant. Problems occurred when mixing 1000 lbs of aluminium powder and 8000 lbs of sodium hydrosulphite. When benzaldehyde was added, a pipe that fed the chemical clogged. Workers tried to clear the blockage with water and some reacted with the sodium hydrosulphite and caused the mixture to smoulder. Nitrogen was added to smother the reaction and some material was being drummed off when the explosion occurred.

[damage to equipment, processing, batch reaction, fatality]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1995.

Location : Scarborough, Toronto, CANADA

Injured : 2 **Dead** : 0

Abstract

An explosion at a plastics producer plant injured 2 firemen and caused the evacuation of neighbouring schools and residents because of emissions of chemicals (phenol, formaldehyde, xylene).

[fire - consequence, injury]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

MTBE (methyl tert butyl ether) spill from hired barge. A marine transportation incident. A tank barge, loaded with a cargo of MTBE was being pushed on a waterway when the crew of the tugboat detected a strong smell of MTBE. A water dip on all cargo tanks led to the discovery of a hole in the barge. It was found that the barge was holed prior to loading of MTBE, at which time MTBE began being released. The cause was the lack of a thorough check of the barge prior to loading.

[spill, inspection inadequate]

Lessons

There is difficulty in detecting hydrocarbon (e.g., MTBE) spills on the water for hydrocarbons that are miscible with water.

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]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Silver Bay, Minnesota, USA

Injured : 0 **Dead** : 0

Abstract

Burning oil sprayed from pipe destroyed electrical cables following pelletiser bearing failure. Two furnaces shut down for up to 3 weeks.
[damage to equipment, processing]

Lessons

[None Reported]

8130 28 March 1995

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

Location : Neftegorsk, Sakhalin Island, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Earthquake 7.5 on the Richter scale caused extensive damage to the oil production operation. A 53 cm pipeline had 15 breaks. 11 pumping stations, 230 wells and 3 oil and gas gathering stations were damaged.

[damage to equipment, processing]

Lessons

[None Reported]

8100 07 March 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Udmurt Republic, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Natural gas pipeline ruptured causing massive explosion and fire. 4 sq. km. area burnt out. Soil subsidence due to melting snow suspected as cause.

[fire - consequence]

Lessons

[None Reported]

8089 05 March 1995

Source : NEWSGRID

Location : Tuapse, RUSSIA

Injured : 0 Dead : 0

Abstract

A pumping station explosion at the oil processing plant was heard in the outskirts of the city and resulted in a fire which was extinguished one hour later. Repair was expected to take 2 days.
[fire - consequence]

Lessons

[None Reported]

8539 05 March 1995

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

Location : Kaohsiung, TAIWAN

Injured : 0 **Dead :** 0

Abstract

A methanol factory was shaken by several explosions and the ensuing fire took 6 hours to control.

[fire - consequence, processing]

Lessons

[None Reported]

8559 March 1995

Source : NEWS STRAITS TIME MALAYSIA

Location : Pangkor, MALAYSIA

Injured : 0 **Dead :** 0

Abstract

41 drums of potassium cyanide were dumped at a island landfill. Three fish breeders located 500 metres away blamed the dumping of the drums on the killing of 18000 fish.

[pollution]

Lessons

[None Reported]

8147 27 February 1995

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]

8528 17 February 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, APR.; EUROPEAN CHEMICAL NEWS, 1995, FEB, 27.

Location : Tabasco, MEXICO

Injured : 23 **Dead** : 1

Abstract

Transportation. Explosion in gasoline pipeline and secondary blasts in parallel natural gas pipeline and LPG pipelines supplying port. Fatality.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, APR.; EUROPEAN CHEMICAL NEWS, 1995, FEB, 27.

Location : Essen, GERMANY

Injured : 4 **Dead :** 1

Abstract

An explosion and fire occurred at a chemical plant applying silicone coatings. The blast occurred when some polymethyl hydrogen siloxane was accidentally fed into a reactor, together with the correct feedstock, allyl glycidyl ether. The two epoxides reacted, overheated and hydrogen burst out of a ruptured pipe into the building, where it mixed with air and exploded. The 5 workers were caught in the resulting fire. According to the Company, the police believe that human error is to blame. Although both chemicals were labelled, they were stored in drums of the same colour. Damage is put at DM 10m \$6.7m (1995). Fatality.

[fire - consequence, human causes, damage to equipment, identification inadequate, overheating, chemicals added incorrectly, charging reactor, reactors and reaction equipment]

Lessons

[None Reported]

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

Location : Marneulskiy, GEORGIA

Injured : 0 **Dead** : 0

Abstract

A 30 metre section of pipeline was destroyed supplying natural gas.

[sabotage]

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]

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

Location : Vermilion Bay, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

100 metres of pipeline torn up by explosion and fire involving 45 million scfd of natural gas.
[fire - consequence]

Lessons

[None Reported]

8506 04 February 1995

Source : LLOYDS LIST, 1995, FEB, 9.

Location : Vermillion Bay, CANADA

Injured : 0 **Dead :** 0

Abstract

Transportation. Explosion created two craters along natural gas pipeline that hurled lengths of pipe into the air.

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]

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location :

Injured : 0 Dead : 0

Abstract

A road transportation incident. 3 one tonne IBC (intermediate bulk containers) filled with polyester amide (toxic substance) broke through the side of an unaccompanied curtain sided trailer and fell onto the deck. The trailer contained 17 IBC.
[damage to equipment]

Lessons

[None Reported]

8498 23 January 1995

Source : LLOYDS LIST

Location : Usinsk, Komi Republic, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. 300 tonnes of oil was spilt from corroded pipeline.

[corrosion, spill]

Lessons

[None Reported]

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

Location : , KUWAIT

Injured : 0 Dead : 0

Abstract

An explosion followed the release of gas from a glycol dehydration unit associated with the compression of natural gas produced from oilfields.
[processing]

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 2, 1995.

Location : Linyuang, TAIWAN

Injured : 0 Dead : 0

Abstract

Fire in the flare area of this 200,000 tonne /year MTBE (methyl tert butyl ether) facility led to a 14 day interruption of production.
[fire - consequence, processing]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1995, JAN.

Location : Linyuang, TAIWAN

Injured : 0 Dead : 0

Abstract

A fire halted production at this 200,000 tpy MTBE (methyl tert butyl ether) facility resulting in a two week disruption of supply to the mainland.
[fire - consequence, product loss, processing]

Lessons

[None Reported]

8490 06 January 1995

Source : LLOYDS LIST, 1995, JAN, 9.

Location : Mississippi, USA

Injured : 0 Dead : 0

Abstract

A river transportation incident. While a barge was transferring bunker oil to a bulk carrier there was a spillage of 10 barrels.
[material transfer]

Lessons

[None Reported]

8721 03 January 1995

Source : LLOYDS LIST, 1995, JAN.

Location : , HUNGARY

Injured : 0 Dead : 0

Abstract

A large oil spill occurred which entered a near-by river.

[pollution]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JAN, 3.

Location : Essex, UK

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Vapour emission during discharge of oil at terminal. Local complaints.

[gas / vapour release, environmental]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Fired heater tube failure. A heater tube failed during the start-up of a naphtha hydrotreater unit, causing damage to equipment and product loss. It was found that a liquid seal stopped flow while heater was firing and the tube failed due to ductile overload/severe overheating (blockage). The incident was caused by changes to process conditions and modifications to unit that led to the development of liquid seals.
[tube failure, design or procedure error]

Lessons

Modifications to process design conditions and equipment must be subject to technical assessment and safety review.

Fired heaters require adequate instrumentation to ensure that overheating/uneven heating of tubes does not occur, e.g., individual pass flow and temperature monitoring, skin thermocouples, etc.

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

Location : Suplacul de Barcau, ROMANIA

Injured : 0 **Dead :** 0

Abstract

An oil leak occurred during refinery processing led to spillage into a nearby river leading to downstream pollution as far as Hungary. Clean up hampered by adverse weather.

[processing, refining]

Lessons

[None Reported]

Source : LLOYDS LIST, 1995, JAN, 4.; HAZARDOUS CARGO BULLETIN, 1995, MAR.

Location : Suplacui de Barcau, ROMANIA

Injured : 0 **Dead** : 0

Abstract

An oil spillage from a processing accident in the refinery caused pollution in a river also 57 km downstream.

[refining]

Lessons

[None Reported]

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

Location : Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

A fire followed rupture of a heat recovery vessel, resulting in shutdown of methanol and chlorine and caustic soda units.

[fire - consequence, processing, plant shutdown]

Lessons

[None Reported]

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

Location : Heerlen, NETHERLANDS

Injured : 0 **Dead** : 0

Abstract

A fire on one of two naphtha crackers reduced ethylene production by 40% for two weeks. The fire was brief but intense, following a release of naphtha, hydrogen and catalyst. Damage is estimated at US\$570,000 (1994).
[fire - consequence, damage to equipment, cracking]

Lessons

[None Reported]

8486 18 December 1994

Source : LLOYDS LIST, 1995, JAN,; HAZARDOUS CARGO BULLETIN, 1995, MAR.

Location : Tyumen Region, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Leaked oil from pipeline ignited and covered 600 sq metres of land. Power lines damaged and 43 wells closed.
[spill, damage to equipment]

Lessons

[None Reported]

Source : LLOYDS LIST, 1994, 15 DEC., & 20 DEC.

Location : Port Neal; Sioux City; Iowa, USA

Injured : 15 **Dead :** 5

Abstract

Explosion in ammonium nitrate fertiliser plant. Metal fragments punctured a 15 000 refrigerated storage tank of ammonia causing spillage of 5 700 tonnes of ammonia contained in bund but some released to atmosphere. Metal fragments also punctured nitric acid tank causing spillage of 100 tons of 56% nitric acid. 2500 people from 4 towns 25-30 miles away were evacuated. 3 nearby power stations damaged and line across river knocked out. Fatality
[evacuation, processing]

Lessons

[None Reported]

6783 05 December 1994

Source : LLOYDS LIST, 1994, 8 DEC.

Location : Acajutla, EL SALVADOR

Injured : 0 Dead : 0

Abstract

Blockage in pipes going to sludge separation tanks caused oil spillage and pollution to 1.5 km of beach which is severely oiled. Oil did not go into sea.
[flow restriction]

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]

6780 01 December 1994

Source : LLOYDS LIST, 1994, 6 DEC.

Location : North Shore; Montreal, CANADA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. A spill of 60 000 litres of oil occurred during rail tanker derailment.

Lessons

[None Reported]

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

Location : Monogas, VENEZUELA

Injured : 0 **Dead** : 27

Abstract

A road transportation incident. A bus ploughed into two buses on the side of a mountainous road, one of which had broken down, resulting in a collision with a 12 inch oil pipeline. The ensuing fire led to fatality. Oil supply to refining centres disrupted.
[fire - consequence]

Lessons

[None Reported]

6779 27 November 1994

Source : LOSS PREVENTION BULLETIN, 126, 03; EUROPEAN CHEMICAL NEWS, 1994, 5 DEC.; THE CHEMICAL ENGINEER, 1994, 15 DEC.

Location : Burghausen; Bavaria, GERMANY

Injured : 13 **Dead :** 1

Abstract

Incident at a polyvinyl acetate plant. A faulty power switch cut off the electricity supply to a circulating pump in an acrylic acid tank. The temperature of the acid in the pipes then fell from the safe range of 15 - 25 degrees C to 12 degrees C when it crystallised. The crystallised acid material polymerised uncontrollably destroying the storage unit, a manufacturing unit and a warehouse. Fatality.

[polymerisation, power supply failure, processing]

Lessons

1. The temperature of the tank to be monitored.
 2. The circulation pump to be equipped with a temperature control safety switch.
 3. Safeguards to ensure that the temperature of the storage tank and building do not fall below the crystallisation temperature.
 4. Analytical surveillance to ensure inhibitor level does not fall below 200 ppm.
 5. Measurement of large cycle throughput
 6. A stopper system installed.
 7. Pressure release system for storage tanks.
-

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]

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

Location : Krasnoturinsk, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Explosion, spill and fire in major natural gas pipeline in isolated area. 20 km section damaged.

[fire - consequence]

Lessons

[None Reported]

6767 16 November 1994

Source : THE CHEMICAL ENGINEER, 1994, 24 NOV.

Location : Carrington; Manchester, UK

Injured : 0 **Dead** : 0

Abstract

An automatic shutdown was triggered and resulted in material being released to a 40 m vent stack. A flash fire ignited the material leaving the stack causing an explosion and fire ball that ripped through low density polyethylene plant.

[processing]

Lessons

[None Reported]

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

Location : Plock, POLAND

Injured : 0 Dead : 0

Abstract

Explosion and fire in 50 m high vessel at a 300,000 tpy naphtha cracker. Plastics production restricted. False readings on controls suspected after weekend power cut.

[fire - consequence, power supply failure, cracking]

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]

6760 10 November 1994

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

Location : Corpus Christi; Texas, USA

Injured : 2 **Dead** : 0

Abstract

Brief fire at an oil water separator extinguished in 35 minutes.

[fire - consequence, separation]

Lessons

[None Reported]

6757 07 November 1994

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

Location : Baltimore; Maryland, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Terminal struck by berthing vehicle, pier part submerged and pipeline cracked. 16 000 litres of oil spillage.

Lessons

[None Reported]

6754 05 November 1994

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

Location : , MALACCA STRAITS

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Due to a navigation error a marine tanker hit rocks, causing a spill of palm oil to the sea from holed tank.

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Compressor seal oil system malfunction at a refinery. The auxiliary seal oil pump started up while the primary seal oil pump was operating, resulting in abnormally high pressures and piping vibration. Seal oil was carried through the system and resulted in coking up of exchangers. Failure of pressure switch on auxiliary pump, inability to reset/ secure auxiliary pump, abnormally high pressures in system, excessive vibration in area piping, compressor tripped, seal oil tank level controller failed closed, seal oil carried through system via process stream. Absence of a feed divert or cut-out system in emergency, which would have prevented coke deposits in exchangers and other downstream vessels was the cause of this incident.

Product loss, \$402,000 (1994), cost of maintenance, \$50,000 (1994).

[refining]

Lessons

In this incident, the pressure switch began the chain of events leading to a considerable loss. Demonstrated here is the importance of evaluating ALL causes contributing to an event. In this case, evaluating causes associated with the seal oil carryover, led to discovery of a real susceptibility and provided opportunity to put controls in place to prevent considerable loss, whether the result of equipment failure (as was in this one incident) or the result of minor upsets.

6745 29 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1995, JAN.; LLOYDS LIST, 1994, 2 NOV.

Location : Concord; Ohio, USA

Injured : 0 **Dead** : 0

Abstract

Fire located at natural gas fuelled machine with plastics left in mould.

[fire - consequence, processing]

Lessons

[None Reported]

6743 24 October 1994

Source : THE CHEMICAL ENGINEER, 1994, 27 OCT.

Location : Tees Dock; Cleveland, UK

Injured : 14 Dead : 0

Abstract

A road transportation incident. Methyl methacrylate spilled from a road tanker as it was being loaded onto a ferry. There was a 2 inch gap in a rear seal.

Lessons

[None Reported]

6741 24 October 1994

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

Location : Serpukhov, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Natural gas pipeline damaged by explosion.

Lessons

[None Reported]

6740 23 October 1994

Source : NEWSGRID

Location : Houston; Texas, USA

Injured : 0 **Dead :** 0

Abstract

Debris coming down a swollen river caused 3 breaks that spewed about 1.2 million gallon of gasoline and oil into the burning river. Probably 5 pipelines ruptured.

[spill, explosion, fire - consequence, flood]

Lessons

[None Reported]

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

Location : Cedar Bayou; Texas, USA

Injured : 0 **Dead** : 0

Abstract

Texas floods caused plant shutdown at a site involving ethylene and polyethylene plants and general utilities. Flood water breached bund walls, dykes, and inundated substation, control room and offices.

[processing]

Lessons

[None Reported]

6730 17 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 29 OCT.

Location : Lethbridge; Alberta, CANADA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Derailment of a train carrying methanol in 6 cars. Two rail tankers leaked. Led to the evacuation of people.
[spill]

Lessons

[None Reported]

6724 12 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 14 OCT.

Location : Pasadena; Texas, USA

Injured : 3 Dead : 0

Abstract

Explosion at methanol plant followed by two minor explosions in adjacent alcohol plant. Power supplies also knocked out.
[processing]

Lessons

[None Reported]

6717 04 October 1994

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

Location : Rastanura, SAUDI ARABIA

Injured : 0 **Dead** : 0

Abstract

Loading overpressured a wing tank on a marine tanker causing an oil spill.
[overpressurisation]

Lessons

[None Reported]

6713 01 October 1994

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

Location : Athens, GREECE

Injured : 0 **Dead** : 0

Abstract

Products marine tanker damaged pipeline after loading at a refinery. Causing a spill of 500 tonnes of oil into the sea.
[damage to equipment]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 1

Abstract

A contract employee was fatally injured when he, his equipment, and part of the contents of the reactor were expelled in a rapid release of pressure. It was found that the building-up of nitrogen pressure under surface of crusted layer, caused by restriction of flow through the layer, chipping at the crust may well have initiated the breach, released the energy. There was no continuous monitoring of the reactor pressure, which was not recognized as a hazard. [high pressure, reactors and reaction equipment, fatality, spill, flow restriction]

Lessons

There are many situations where pressure has built up and then suddenly released, projecting components violently, e.g., in trying to remove fired heater header plugs, in attempting to clean heat exchangers with projection of tube plugs by trapped pressure, etc. It is necessary to take precautions to protect against all toxic/flammable hazards.

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

Location : Guadalajara, MEXICO

Injured : 0 **Dead** : 3

Abstract

3 killed during routine maintenance. A contract worker was asphyxiated by nitrogen in a vessel of an air separation unit, the other two died in the rescue attempt. Fatality.

[entry into confined space, asphyxiation, separation equipment]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; TASS, 1994, 21 SEP.; LLOYDS LIST, 1994, 22 SEP.

Location : Lisichansk, UKRAINE

Injured : 10 **Dead** : 3

Abstract

A blocked coil or pipe in a furnace caused 5 explosions and a large fire at this oil refinery. Fatality.

[fire - consequence, refining]

Lessons

[None Reported]

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

Location : Rayong, THAILAND

Injured : 3 **Dead** : 3

Abstract

Explosion outside cracking furnace during commissioning test run by contractors. Fire spread in open drainage channels. Fire attributed to accumulation of naphtha in oil/water drainage system. Vapour cloud formed when hot water discharged into system. Ignition of vapour occurred at the high pressure steam main. Fatality.

[fire - consequence]

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]

6696 13 September 1994

Source : EUROPEAN CHEMICAL NEWS, 1994, 19 SEP.; LLOYDS LIST, 1994, 14 SEP.; LOCAL NEWSPAPER.

Location : Geelong, AUSTRALIA

Injured : 1 **Dead** : 1

Abstract

A fireball and some minor explosions followed a major explosion in polypropylene plant. Fatality.

[fire - consequence, processing]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 123, 13-14.

Location : ,

Injured : 0 Dead : 0

Abstract

This incident occurred during the application of a polyurethane foam and a silicone finish to the roof of a vacant building. Shortly after workers applied a perimeter coating of silicone, a spark from a nearby welding operation ignited vapour from the coating. A worker immediately used a fire extinguisher to put out the fire. The site superintendent and the fire department were notified, but further assistance was not required. The damaged section of roof was repaired the same day, and all welding activities were suspended until work on the roof was completed.

[fire - consequence]

Lessons

The following steps should be taken to prevent or control fires associated with roof fires.

1. Identify and communicate all potential hazards before work begins.

This process is particularly important when unseen hazards exist, such as the presence of flammable vapours. Precautions to ensure that materials do not reach their flashpoints should be planned and executed. All required thermometers, thermostats, and other safety devices for Heating equipment should be routinely inspected by qualified personnel.

2. Control hazardous materials on the job site.

This should include co-ordination of concurrent work so that hazards are recognised and minimised. Ensure that nearby workers are not exposed to hazards.

3. Develop fire protection plans that will minimise the potential for roof fires and ensure their control.

4. Plans for responding to potential roof fires should include controlling a fire to prevent its spread to other areas.

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

Location : Houston; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A decomposition caused an explosion and fire in peroxide plant. 2 tonnes of sulphuric acid and sulphur dioxide fumes were released.

[fire - consequence, processing]

Lessons

[None Reported]

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

Location : Uto Island, FINLAND

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A marine tanker that sunk in 1947 started leaking oil at 3 cum per day. The vessel is believed to contain between 600 tonnes and 900 tonnes of oil.

[sinking, spill, pollution]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A near miss incident occurred following modification to a nitrogen pressure control system on a flaking process in a slurry plant. A new nitrogen pressure let down station was fitted at a plant shutdown with a plant modification request being completed. The "slurry bell" being fed with nitrogen was designed for 22 psig working pressure and had been tested to 38 psig. The existing 22 psig nitrogen supply system was replaced with one which allowed 60 psig pressure. Plant operators unaware of this had been running the process for several days with a manual valve throttled back to control the process. Subsequent investigation showed that the equipment had not been subject to any commissioning trials. Swarf was blown into the reducing valve blocking it open and allowing upstream pressure to run on through it.

[process control & instrumentation, design or procedure error]

Lessons

The Change Control procedure was immediately strengthened to avoid reoccurrence.

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]

6670 18 August 1994

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

Location : Houston; Texas, USA

Injured : 2 **Dead** : 0

Abstract

Flash fire at polyethylene plant due to hexane leaking into reaction vessel containing wax and igniting.

[fire - consequence]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1994, OCT., 92.

Location : White Plains; New York, USA

Injured : 23 **Dead** : 1

Abstract

A road transportation incident. A road tanker hit an overpass bridge support. The tank containing 3.56 cum propane, ruptured, leaked and ignited. The force of the blast propelled the main part of the cargo tank over 100 metres. 10 house destroyed. Fatality.
[fire - consequence]

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]

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]

Source : OIL AND GAS JOURNAL, 1994, 25 JUL.

Location : Cinizia; Gallup; New Mexico, USA

Injured : 2 **Dead** : 0

Abstract

Pressure vessel used to treat propane failed in an alkylation unit.

[vessel failure, rupture, gas / vapour release, processing]

Lessons

[None Reported]

Source : CHEMICAL WEEK INTERNATIONAL, PAGE 6, 1994, JUL, 27.

Location : California, USA

Injured : 1 Dead : 2

Abstract

A road transportation incident. A lorry carrying drums and a bulk container of acetic acid, bleach, sodium hydroxide, methanol, sulphuric acid and surfactants, was involved in an accident. The spillage caused the evacuation of residents. Fatality.

[leak]

Lessons

[None Reported]

6631 15 July 1994

Source : LLOYDS LIST, 1994, 3 AUG.

Location : Laguna De Bay, PHILIPPINES

Injured : 0 **Dead** : 0

Abstract

7000 barrels of oil spilled from a broken tanker fuel hose at a power plant.

[material transfer]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A blockage of approximately one tonne of fused polymer occurred in the cutter hood, pellet slurry pot, and associated pipework of an extruder. The overall cost of the incident, mainly loss of production, was estimated £40,000 (1994).

The pelleter speed had dropped (or stopped) due to a fault in the pelleter speed drive. The low pelleter speed alarm/trip had been disabled and bypassed.
[extrusion, plant / property / equipment]

Lessons

1. Changes to the plant were made without proper authority.
 2. No permit to work was raised for bypassing the pelleter low speed trip. The speed sensor was also bypassed.
 3. Not all personnel were aware of implications of these bypass operations.
 4. Stress present due to multiple tasks
 5. Recommendations were made and procedures put in place to address all these findings.
-

6629 12 July 1994

Source : ICHEME

Location : , FRANCE

Injured : 0 Dead : 0

Abstract

Roof of polyisobutylene storage tank opened.

Lessons

[None Reported]

6626 11 July 1994

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

Location : Agdeya, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A high pressure natural gas pipeline explosion burnt for 16 hours

Lessons

[None Reported]

6625 10 July 1994

Source : CHEMICAL HAZARDS IN INDUSTRY, 1994, OCT.

Location : Delfzijl, NETHERLANDS

Injured : 0 **Dead** : 0

Abstract

Methanol plant seriously damaged by fire after a natural gas pipeline leaked and ignited.

[fire - consequence]

Lessons

[None Reported]

6623 08 July 1994

Source : OIL AND GAS JOURNAL, 1994, 18 JUL.; LLOYDS LIST, 1994, 11 JUL.

Location : Ryazan, RUSSIA

Injured : 5 **Dead** : 4

Abstract

Explosion in furnace of the catalytic reforming unit of an oil refinery during maintenance work. Fatality.
[catalytic reformer]

Lessons

[None Reported]

6622 08 July 1994

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

Location : Den Helder 50 Miles Off Coast, NETHERLANDS

Injured : 0 **Dead** : 0

Abstract

A 35 -40 km long oil spill believed to have been illegally discharged at night. Spill was 30 m wide and contained about 50 tonnes of oil.
[pollution, deliberate acts]

Lessons

[None Reported]

6617 04 July 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 9 JUL.

Location : Maitland; Ontario, CANADA

Injured : 0 **Dead** : 0

Abstract

A fire in the nitric acid plant destroyed 55% of the plant. Led to the evacuation of 30 people.

[fire - consequence, processing]

Lessons

[None Reported]

6614 01 July 1994

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

Location : Mississippi River, USA

Injured : 2 **Dead** : 1

Abstract

Drilling barge spudded down and ruptured natural gas pipeline. Fatality.

Lessons

[None Reported]

6606 27 June 1994

Source : LLOYDS LIST, 1994, 30 JUN.

Location : Bastian Bay; Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

A natural gas pipeline rupture and caught fire.

[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]

Source : LLOYDS LIST, 1994, 27 JUN.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, AUG.

Location : Kfar Vitkin, ISRAEL

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Derailment of 5 rail tanker cars of methyl bromide and pesticides led to damage to equipment but no injuries or spillage.

Lessons

[None Reported]

6593 13 June 1994

Source : LLOYDS LIST, 1994, 14 JUN.

Location : Piraeus, GREECE

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Oil spillage from petroleum products on a marine tanker

Lessons

[None Reported]

6588 11 June 1994

Source : LLOYDS LIST, 1994, 15 JUN.

Location : , BAHAMAS

Injured : 0 Dead : 0

Abstract

Oil leak from underground 42 inch pipeline buried 8 ft.

[spill]

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]

6572 28 May 1994

Source : LLOYDS LIST, 1994, 31 MAY.

Location : Houston Ship Canal; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Collision of 2 barges with marine tanker. Small oil spill.

Lessons

[None Reported]

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

Location : Pasadena; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A small fire broke out on oil soaked insulation in a delayed coker unit.

[lagging fire, processing]

Lessons

[None Reported]

6565 26 May 1994

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

Location : Baytown; Texas, USA

Injured : 0 **Dead** : 0

Abstract

Repackaging facility for plastic products caught fire.

[fire - consequence]

Lessons

[None Reported]

6566 26 May 1994

Source : LLOYDS LIST, 1994, 28 MAY.

Location : Sydney; Nova Scotia, CANADA

Injured : 0 **Dead** : 0

Abstract

Reported that a transformer containing polychlorinated biphenyls (PCBs) suffered an explosion. Led to the evacuation of homes.

Lessons

[None Reported]

6562 22 May 1994

Source : LLOYDS LIST, 1994, 25 MAY.

Location : Cadiz Area, SPAIN

Injured : 0 **Dead** : 0

Abstract

An oil slick covering 21 sq miles of sea was dispersed.

[pollution]

Lessons

[None Reported]

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

Location : Kaohsiung, TAIWAN

Injured : 0 **Dead** : 0

Abstract

Fire on a cracker in a furnace and was put out in 5 minutes. Caused thought to be due to cracked furnace tube. Substance involved naphtha.
[tube failure, fire - consequence, cracking]

Lessons

[None Reported]

6559 19 May 1994

Source : LLOYDS LIST, 1994, 25 MAY.

Location : Santos, BRAZIL

Injured : 0 Dead : 0

Abstract

A road transportation incident. A spill of 10 tonnes of oil occurred from a road tanker parked at port.

Lessons

[None Reported]

6547 10 May 1994

Source : LLOYDS LIST, 1994, 12 MAY.

Location : Immingham, UK

Injured : 2 **Dead** : 0

Abstract

Magnesium granule plant fire while being prepared for maintenance.

[fire - consequence]

Lessons

[None Reported]

6539 07 May 1994

Source : LLOYDS LIST, 1994, 25 MAY.

Location : Kaohsiung, TAIWAN

Injured : 0 **Dead** : 1

Abstract

Explosion at a plastic foam plant. Fatality.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A rigger was attempting to lift a polymer drier from its mountings using an overhead pneumatic crane, which ran directly above the motor. It would then have been transferred to another lifting beam. The control box for the crane did not have directions marked on the buttons, nor did all the buttons appear to be working. When buttons were depressed there was a delay in the response, and sometimes they did not work at all. The motor was lifted about 6 inches above its mountings, however, it was not possible to move the motor towards the second beam as there was no response to the controls. The control box was passed to the electrician while the rigger climbed up to physically push the crane trolley in the required direction. As the trolley was being pushed, one pair of wheels rose up on the I-beam and the other pair came off the I-beam. The trolley jammed in this position, with the motor still suspended under it. The motor was then transferred to a chain block on a second lifting beam. The causes of this incident were identified as:

1. Defective Equipment - The trolley was unstable and the chain gathering box was damaged.
2. Inadequate Engineering - There was no anti-tilt device fitted, the crane was not balanced and the wheels were not wide enough to stay on the beam in the event of the wheels on the other side tilting.
3. Inadequate Equipment Specification - No anti-tilt device was specified for the crane.

[polymer, mechanical equipment failure, maintenance

Lessons

The following actions were taken:

1. All fixed trolleys were to be fitted with some type of anti-tilt device.
2. Checking and maintaining of the anti-tilt devices was to be added to the plant safety checks.
3. Each plant area was to review whether they needed the lifting equipment in place, or whether temporary lifting equipment would be more cost effective.
4. Stores were to be supplied with a new specification for all new fixed lifting equipment. Non-standard equipment was to be fully discussed with the Workshop before purchase.

6529 01 May 1994

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

Location : Porvoo, FINLAND

Injured : 0 **Dead** : 0

Abstract

Explosion in polyethylene unit causing 1 week plant shutdown.

[processing]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak occurred at the base of a debutaniser into the skirt of the column and subsequently overflowed into the plant sump. The leak resulted in the loss of 4.5 tonnes of polymer and approximately 2.5 kg of raffinate. The plant was immediately shutdown and the butane content of the column was pumped to storage. The factory fire service was called, but was not needed. There were no injuries, but the plant was shut down for 8 days. Although attempts were made to recover the polymer from the sump, some was found in the effluent outlet, such that the consent limit of 30 ppm oil would have been exceeded. The investigation into the incident showed that:

1. The site of the leak was a corroded 2 inch NB nozzle at the base of the column. The nozzle was a dead leg with no flow.
2. The corrosion was probably the result of condensate lying in the nozzle for 3-4 month periods between plant wash out.
3. Severe thinning had occurred at the interface between the polymer and the condensate.
4. A failure had occurred on a dead leg nozzle on a reboiler recirculation pump some months earlier. However, this nozzle had not been recognised as being vulnerable to the same type of failure.

[normal operations, plant shutdown]

Lessons

In addition to various repairs, inspections and stress calculations on the column, the following actions were taken:

1. The corrosion mechanism was to be investigated by the Company Metallurgist.
 2. The Plant Wash operating instructions were to be updated to cover the draining of dead legs to show they are free of condensate.
 3. When a scheme of examination is set up for a plant item, previous inspection reports should first be reviewed.
 4. The drainage route for the plant effluent should be reviewed.
 5. Some alterations to the Emergency Response Procedures were recommended for further consideration.
-

6524 27 April 1994

Source : LLOYDS LIST, 1994, 28 APR.

Location : , MALTA

Injured : 0 Dead : 0

Abstract

Oil slick 10 km by 3 km approached shore.

[pollution]

Lessons

[None Reported]

Source : OIL AND GAS JOURNAL, 1994, MAY.

Location : Mont Belvieu; Texas, USA

Injured : 2 **Dead** : 0

Abstract

Explosion and fire at natural gas liquids (NGL) fractionating plant. Damage limited to pipe, electrical and process control systems.
[separation equipment, fire - consequence, plant shutdown]

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]

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

Location : Saratov, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Explosion ruptured a natural gas pipeline fire followed.

[fire - consequence]

Lessons

[None Reported]

6512 16 April 1994

Source : LLOYDS LIST, 1994, 18 APR.

Location : Cork Harbour, IRELAND

Injured : 0 **Dead** : 0

Abstract

Natural gas pipeline damaged by vessel which dragged pipeline 25 m across the seabed. Possibly caused by an anchor.
[marine vessel snagged pipeline, damage to equipment]

Lessons

[None Reported]

6510 14 April 1994

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

Location : Punjab, PAKISTAN

Injured : 4 **Dead** : 0

Abstract

Fire during adjustments by commissioning engineers when high pressure oil ignited after leak at new thermal power station plant. Extensive damage to roof.
[fire - consequence]

Lessons

[None Reported]

6508 14 April 1994

Source : CHEMICAL WEEK, 1994, 20 APR.

Location : Ludwigshaven, GERMANY

Injured : 7 **Dead** : 0

Abstract

A mixture of phosgene and hydrochloric acid leaked from a dyestuffs unit.

[gas / vapour release, processing]

Lessons

[None Reported]

6507 14 April 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUN.; LLOYDS LIST, 1994, 27 APR.; FIRE PREVENTION, 1994, OCT.

Location : Balch Springs; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. A road tanker carrying 21 ton of pesticide crashed and suffered an explosion causing evacuation of 4000 people in a 5 sq mile area.

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]

6503 11 April 1994

Source : LLOYDS LIST, 1994, 25 MAY.

Location : Sao Sebastiao, BRAZIL

Injured : 00 **Dead** : 0

Abstract

Spill of oil from marine tanker during unloading operations.

Lessons

[None Reported]

6498 08 April 1994

Source : LLOYDS LIST, 1994, 9 APR., & 11 APR.

Location : Zaanstad; Amsterdam, NETHERLANDS

Injured : 5 **Dead** : 1

Abstract

Explosion at chemical packaging plant. A barrel containing chemicals toppled over and was set on fire by sparks from a forklift truck. The blaze spread to tanks containing propane and butane. Fatality.

[fire - consequence, processing]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A container was being loaded with shrink-wrapped pallet loads of bagged polyethylene product using a forklift truck. A proprietary mobile ramp was being used to allow access to the container, the platform of which is approximately 4ft above ground level. During the loading operation the ramp became detached from the container and resulted in the forklift truck and driver being placed in a hazardous position.

No injuries were sustained by the driver and damage to the fork-lift truck and ramp were minimal.

The cause of the accident was the failure to adhere to correct operating procedures for locating the ramp to the container.

[loading, operation inadequate, near miss]

Lessons

1. The secondary safety stop 'A' frame is to be bolted to the floor.
 2. The loading ramp is to be fitted with a mechanical stop.
 3. The security chains will be locked in position
 4. Operating Instructions are to be revised.
 5. All warehouse personnel to be given refresher training on container filling operation.
 6. Housekeeping standards should be improved in the loading area.
 7. Prior to further use of ramps inspections should be carried out to ensure the ramp is fit for purpose.
 8. All 'near-misses' should be reported
-

6494 05 April 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUN.; LLOYDS LIST, 1994, 7 APR.

Location : Sui, PAKISTAN

Injured : 0 Dead : 0

Abstract

Fire and explosion following a leak in a pipeline between purification plant and compressor supplying natural gas from an installation. The suspected cause was overheating of the pipe.

[fire - consequence]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUN.; LLOYDS LIST, 1994, 16 APR.

Location : Perham Area; Minnesota, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. derailment of 20 rail tankers occurred including one carrying chlorine. Homes located within 5 miles down wind were evacuated. The chlorine tanker did not leak but one containing petroleum type material did leak and this was contained.
[spill, evacuation]

Lessons

[None Reported]

6485 31 March 1994

Source : LLOYDS LIST, 1994, 1 APR.

Location : , GULF OF OMAN

Injured : 0 Dead : 0

Abstract

A marine transportation incident. 2 marine tankers were in collision resulting in an oil spillage of 7000 tonnes. No fire.

Lessons

[None Reported]

6486 31 March 1994

Source : LLOYDS LIST, 1994, 1 APR.; EUROPEAN CHEMICAL NEWS, 1994, 18 APR.

Location : Krefeld-uerdingen, GERMANY

Injured : 0 **Dead** : 0

Abstract

Fire broke out at paraffin plant causing serious damage.

[fire - consequence]

Lessons

[None Reported]

6480 26 March 1994

Source : LLOYDS LIST, 1994, 28 MAR.

Location : Borgofranco D'ivrea, ITALY

Injured : 0 **Dead** : 0

Abstract

An oil pipeline sprang a leak causing the shutting of a motorway.

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.

6476 22 March 1994

Source : LLOYDS LIST, 1994, 30 MAR.

Location : Chesapeake,virginia, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Vessel sustained a 31 cm gash to fuel tank when mooring at a terminal causing an oil spill.

Lessons

[None Reported]

6475 21 March 1994

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

Location : Minas Oilfield, INDONESIA

Injured : 31 **Dead** : 1

Abstract

A 12 inch natural gas pipeline failed injuring passengers in a passing bus. Cause of pipeline failure was unclear.
[fatality, injury]

Lessons

[None Reported]

6468 17 March 1994

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

Location : Karachi, PAKISTAN

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. Fire in road tanker carrying oil while filling at gasoline pump. Tanker driven from pump. Fire engulfed tanker and 13 shops but under control in 2 hours.

[fire - consequence]

Lessons

[None Reported]
