

1321113 December 2000

Source : BBC NEWS, 13 DECEMBER, 2000, (<http://www.bbc.co.uk>).

Location : Bermeja, ECUADOR

Injured : - Dead : 6

Abstract

An explosion occurred on a pipeline carrying crude oil. At least six people were killed in the explosion. It is thought that a bomb caused the rupture on the pipeline.

Lessons

[None Reported]

1321205 December 2000

Source : BBC NEWS, 5 DECEMBER, 2000, (<http://www.bbc.co.uk>).

Location : Calcutta, INDIA

Injured : 100+ Dead : 2

Abstract

An ammonia gas leak occurred at a meat processing factory killing two people and injuring at least one hundred others. Thousands of nearby residents and factory workers were forced to flee the area.

[gas / vapour release, injury, fatality]

Lessons

[None Reported]

1321430 November 2000

Source : YAHOO NEWS, NOVEMBER 30, 2000, (<http://www.uk.news.yahoo.com>)

Location : Northampton, UK

Injured : 0 Dead : 0

Abstract

A rail transportation incident. Two carriages of a freight train derailed, fortunately the wagons stayed upright although the track was damaged in the incident. One wagon was carrying a freight container and another a 100 tonne flask, contents unknown. An investigation is underway into the cause of the derailment. Cost of repairs is estimated at £750,000 (2000).
[derailment - consequence, chemicals unknown]

Lessons

[None Reported]

1314926 November 2000

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

Location : Cornwall, UK

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A cargo ship containing more than 40,000 tonnes of metal ores, 370 tonnes of diesel and a quantity of other fuels suffered steering problems in strong winds. The cargo ship became disabled off the coast of Cornwall raising fears of pollution. Fortunately the ship managed to gain power and was escorted to safety.
[bauxite, magnesium ore, diesel oil, fuel oil, steering failure, near miss]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 17, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to 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 : Johannesburg, SOUTH AFRICA

Injured : - **Dead :** 11

Abstract

A fire and explosion occurred at a chemical factory killing eleven workers and injuring many more.

The incident occurred when fire reached gas containers, which then exploded. It is thought that the fire started when flammable chemical spilled onto a gas burner.

An investigation into the incident is underway.

[burns, fire - consequence, chemical - flammable, hot surface, injury, fatality]

Lessons

[None Reported]

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

Location : Great Barrier Reef, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A container ship carrying hazardous materials, fuel and oil ran aground on a reef causing a hole in the bow section, there are no reports of any spillage.

An attempt to refloat the ship is being made.

[ship ran aground, chemicals unknown]

Lessons

[None Reported]

13192November 2000

Source : BBC NEWS, 5 NOVEMBER 2000, (<http://www.bbc.co.uk>).

Location : , BRAZIL

Injured : 0 Dead : 0

Abstract

A marine transportation incident. An oil tanker spilled an estimated twenty thousand gallons of crude oil. The incident occurred when the tanker collided with a pier whilst trying to dock. Part of the tankers hull was ripped open.
[marine tanker, collision]

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]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 30, 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 : Manitoba, CANADA

Injured : 0 **Dead :** 0

Abstract

Approximately 300 tonnes of molten copper was released when two leaks occurred in reverberatory furnace at a mining company. The furnace holds 500 tonnes of molten metal; at the time of the incident it was three-quarters full.

Workers attempted to build a sand barrier to stop the molten copper from flowing across the building and re-routed the flow into a converter pit.

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 : Diyarbakir, TURKEY

Injured : 130 **Dead :** 0

Abstract

A chlorine gas leak occurred at a water purification plant. The incident occurred as fire fighters were replacing containers of chlorine gas used to purify drinking water.

One hundred and thirty residents of a nearby city were affected by the release of the chlorine gas and were hospitalised.

[gas / vapour release, injury]

Lessons

[None Reported]

Source : <http://www.edie.net/news/Archive/3387.html>

Location : Kentucky, USA

Injured : 0 **Dead** : 0

Abstract

Approximately 250 million gallons of water mixed with 155,000 cubic yards of coal wastes spilled into a stream after an unexpected underground mine collapsed. The stream runs into major rivers and there are fears of an environmental disaster.

An estimated 30,000 people are without water and local wildlife has been affected.

A major clean up and investigation is underway.

Lessons

[None Reported]

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

Location : Kazanlak, BULGARIA

Injured : 1 **Dead** : 1

Abstract

An explosion occurred at a military factory when a chemical caught fire. At least one person was killed and other injured in the incident.

[fire - consequence, fatality, injury, chemicals unknown]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 4, 2000, (<http://www.chemsafety.gov>).

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Location : Albany, USA

Injured : 0 **Dead :** 0

Abstract

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

[fire - consequence, damage to equipment, evacuation]

Lessons

[None Reported]

1319803 October 2000

Source : BBC NEWS, 3 OCTOBER 2000, (<http://www.bbc.co.uk>).

Location : , SINGAPORE OFFSHORE

Injured : 0 Dead : 0

Abstract

A marine transportation incident. An oil tanker containing over 40,000 tonnes of crude oil released 7,000 tonnes of the product into the sea after running aground.

There are reports of no injuries but four cargo tanks have been damaged in the incident. A 300-meter boom is being used to contain the spill and to prevent more oil from escaping.

[marine tanker, damage to equipment, ship ran aground]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 4, 2000, (<http://www.chemsafety.gov>).

Location : West Chester, Ohio, USA

Injured : 4 **Dead** : 0

Abstract

Chemical fumes were released during a mixing process in a vat whilst making an epoxy product. The building and nearby businesses were evacuated. Four people were injured in the incident.

[chemical - fume, gas / vapour release, evacuation , injury]

Lessons

[None Reported]

13209October 2000

Source : CNN.COM, DECEMBER 11, 2000, (<http://www.cnn.com>).

Location : South Carolina, USA

Injured : 0 **Dead** : 0

Abstract

A crack has been found in a pipe at a nuclear power plant. A 2.7-inch tear occurred along a weld seam on the pipe, which carries scalding contaminated water from a nuclear reactor core. Approximately 100 pounds of boric acid spilled. It has been reported that there has been no threat to the environment. An investigation into the incident is underway.

[material transfer, weld failure, reactors and reaction equipment]

Lessons

[None Reported]

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

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Location : Bonita, Los Angeles, USA

Injured : 4 **Dead :** 0

Abstract

Noxious clouds were released from a cotton gin when a leak occurred on a 30,000-gallon tank containing anhydrous ammonia. Approximately 150 people were evacuated. The fumes affected four people.

[gas / vapour release, evacuation, people]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

Location : New York, USA

Injured : 61 Dead : 0

Abstract

A rail transportation incident. Anhydrous ammonia leaked from a freight train injuring sixty-one people and forcing the evacuation of nearby residents.

[injury]

Lessons

[None Reported]

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

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Location : Prudhoe Bay, Alaska, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 29,400 gallons of mixed crude oil and water overflowed a setting tank. Fortunately the spill was contained in lined cells and the surrounding area was not contaminated.

The incident occurred at a processing facility where oil, water and gas are separated from the crude after it comes out of the ground.

In addition to the crude oil mixed with water, ethylene glycol was spilled inside the processing facility. This was also contained in a lined cell and did not contaminate the ground. No one was injured in the incident.

An investigation into the two spills is being carried out.

Lessons

[None Reported]

Source : ALTAVISTA, 24 AUGUST, 2000, (<http://www.altavista.com>).

Location : , ARGENTINA

Injured : 0 Dead : 0

Abstract

A petrochemical plant was closed down for five days when a leak of chlorine gas was discovered. An investigation into the incident is being carried out. Fortunately no one was affected by the leak.

[gas / vapour release]

Lessons

[None Reported]

1300817 August 2000

Source : BBC NEWS, 17 AUGUST, 2000, (<http://www.bbc.co.uk>); YAHOO NEWS, AUGUST 17, 2000, (<http://www.yahoo.co.uk>).

Location : Southampton, UK

Injured : 0 **Dead** : 1

Abstract

A contract worker was killed during cleaning operations when he fell into a tank containing chemicals. The worker was rescued and taken to hospital where he died.

An investigation into the incident is being carried out.

[fall, fatality, unknown chemicals]

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]

1299415 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 15, 2000, (<http://www.cnn.com>).

Location : Malta, Montana, USA

Injured : 0 Dead : 0

Abstract

A rail transportation incident. A freight train including tankers containing a poisonous chemical derailed forcing the evacuation of nearby residents and the closure of a highway. Sparks from the derailed tankers caused small fires for several miles.

Three of the tankers contained carbon disulphide, a poisonous, highly flammable chemical used in the making of solvents and cellophane. Two other tankers contained titanium dioxide and posed no threat to the environment. Fortunately no leak occurred.

[derailment, fire - consequence]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : Montana, USA

Injured : 0 Dead : 0

Abstract

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

[derailment - consequence, fire - consequence, evacuation]

Lessons

[None Reported]

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

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Location : Glenrock, USA

Injured : 0 **Dead :** 0

Abstract

A dust explosion occurred at a power plant. The incident occurred when coal dust was ignited inside an inactive silo. It is thought that the coal inside the silo shifted, resulting in an air-dust mixture hot enough to ignite. The explosion could have been a lot worse as the silo contained 60 tonnes of coal compared to its 1,000 tonnes capacity. The incident occurred even though the plant had been blanketing the silo with carbon dioxide as a precaution measure.

[silo/hopper]

Lessons

[None Reported]

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

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Location : Bentonville, USA

Injured : 0 **Dead :** 0

Abstract

An ammonia leak occurred at a food processing plant forcing the evacuation of the nearby area. No one was injured in the incident.

Lessons

[None Reported]

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

Location : Taketoyo, JAPAN

Injured : 56 Dead : 0

Abstract

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

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

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

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

Lessons

[None Reported]

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

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Location : Gulfport, USA

Injured : 0 **Dead :** 0

Abstract

A waste disposal unit was found to be leaking hazardous materials acetone, formaldehyde, crystal violet and ethanol into a room at a hospital. The hospital was closed as a consequence.

An investigation into the leak found that the cause was due to a clogged pipe in the waste system.

The waste system neutralises hazardous chemicals before they are treated along with sewage.

[spill]

Lessons

[None Reported]

13010 August 2000

Source : BBC NEWS, 17 AUGUST, 2000, (<http://www.bbc.co.uk>).

Location : Warri, NIGERIA

Injured : - Dead : -

Abstract

A deliberate act of sabotage on an oil well caused a large spill resulting in wide spread pollution, the equivalent of thousands of barrels of crude oil spilled into creeks, rivers and across farm land.

[deliberate acts]

Lessons

[None Reported]

13020August 2000

Source : EDIE NEWSROOM, 21 AUGUST, 2000, (<http://www.edie.net/news/>).

Location : Costa del Sol, SPAIN

Injured : 0 Dead : 0

Abstract

Cleaning emissions have been blamed for pollution that occurred over nine days on beaches across the Costa del Sol resulting in the closure of resorts and constant coastal clean up. The incident occurred during cleaning operations in the crude tanks of the petrol tanker.

[marine tanker, leak, hydrocarbon, cleaning fluid, ecological damage]

Lessons

[None Reported]

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

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Location : Volgograd, RUSSIA

Injured : 7 **Dead :** 2

Abstract

An explosion occurred on a chemical plant killing two workers and injuring seven others. The incident occurred when a pipe exploded at the chemical factory releasing vapour, which evaporated.

An investigation into the cause of the incident is underway.

Chemical involved: ammonia

[fatality, gas / vapour release, injury]

Lessons

[None Reported]

1284017 July 2000

Source : BBC NEWS, 17 JULY, 2000, (<http://www.bbc.co.uk>).

Location : Ho Chi Minh City, VIETNAM

Injured : 10 **Dead** : 16+

Abstract

A road transportation incident. A bus carrying chemicals exploded killing at least sixteen people and seriously burning ten others.

The cause of the explosion is not known but approximately twenty containers of unknown chemicals were on board at the time of the incident.

[fatality, explosion, burns, unidentified cause, injury]

Lessons

[None Reported]

1283916 July 2000

Source : BBC NEWS, 18 JULY, 2000, (<http://www.bbc.co.uk>).

Location : Curitiba, BRAZIL

Injured : 0 Dead : 0

Abstract

At least four million litres of crude oil leaked from an underwater pipeline at a refinery into a nearby river.

The incident occurred when the pipeline ruptured spilling the crude for up to two hours into the river.

More than thirty floating barriers have been set up to try to contain the spill and to vacuum the oil off the surface.

The company has been fined \$100m (2000).

[pipeline failure, environmental, ecological damage]

Lessons

[None Reported]

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

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Location : Lawrence, USA

Injured : 0 **Dead :** 0

Abstract

An explosion / pressure release occurred whilst bringing a plant on line at an industrial plant involving several occurrences.

The incident occurred when a compressor malfunctioned approximately an hour later the auxiliary boiler malfunctioned, releasing ammonia to atmosphere.

A few hours later a third malfunction occurred when workers again were trying to bring the plant back online when a gasket blew and ignited hydrogen causing an explosion / pressure release.

[see record 12930 for second explosion at the same plant] [gasket failure, gas / vapour release]

Lessons

[None Reported]

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

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Location : Lancaster, USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at a food packaging plant releasing ammonia into the atmosphere. A worker was seriously burned and a nearby resident affected by the fumes. The building was evacuated.

It is thought that a flange on an air compressor failed causing the safety valve to fly off releasing ammonia. The ammonia may have mixed with oil in the workshop area resulting in the explosion.

The fire started by the explosion was extinguished and the leak stopped within minutes.

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

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, JULY 1, 2000, (<http://www.cnn.com>).

Location : Philadelphia, USA

Injured : 0 Dead : 0

Abstract

A fire occurred at a refinery that produces cumene, used to manufacture plastics and synthetics. The fire occurred due to a leak of hydrogen from a ruptured pipeline, which ignited.

The fire was brought under control within a few hours and fire fighters remained on site to make sure escaping vapours burned out safely.

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

[fire - consequence, refining]

Lessons

[None Reported]

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

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Location : Lahore, PAKISTAN

Injured : 24 **Dead :** 1

Abstract

An anhydrous ammonia leak ignited killing a worker at a storage facility. Approximately twenty-four people were affected as the toxic fumes spread through out the factory. Workers were evacuated.

The fire was extinguished and the gas leak sealed.

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

Lessons

[None Reported]

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

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Location : Cadwell, USA

Injured : 1 **Dead :** 0

Abstract

A worker was injured by frigid liquid ammonia whilst trying to shut off a leaking valve during servicing of a refrigeration system. The worker was treated for a burned forearm.

Approximately twenty-four workers were evacuated from the plant.

Hazardous materials team shut off the valve.

[maintenance, burns, refrigeration unit, evacuation, injury]

Lessons

[None Reported]

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

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Location : Waimairi, NEWZEALAND

Injured : 0 **Dead :** 0

Abstract

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

Lessons

[None Reported]

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

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Location : Smyrna, Georgia, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a tank containing benzoyl peroxide at a chemical plant. No one was injured in the incident. Damage to the building is estimated at \$100,000 (2000).

[damage to equipment]

Lessons

[None Reported]

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

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Location : , ROMANIA/BULGARIA

Injured : 0 **Dead :** 0

Abstract

A chemical plant released a cloud of ammonia over a nearby town. Ammonia content was found to be 3.7 times the above acceptable level.

High ammonia concentrations can cause respiratory problems.

[gas / vapour release, people]

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 : Akron, USA

Injured : 3 **Dead :** 0

Abstract

A fire and explosion occurred three days after an explosion that injured two people. Three workers suffered serious burns.

The incident occurred, as workers were mixing chemicals in a large vat. The force of the explosion blew out a cement wall and caused a fire, which was quickly extinguished.

Damage is estimated at more than \$1 million (2000).

It is thought that sparks from a passing forlift truck triggered the explosion.

[fire - consequence, unknown chemicals, injury]

Lessons

[None Reported]

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

Location : North Carolina, USA

Injured : 100+ Dead : -

Abstract

It is thought that a chemical compound corroded steel cables within a concrete pedestrian walkway, causing it to collapse. More than 100 people were injured in the incident.

It is not known how calcium chloride entered the grout, which was used in the construction of the 320-foot long walkway.

[material of construction failure, collapse, injury]

Lessons

The following recommendation was stated:

The use of chlorides in prestressed concrete structured permits rust to form more easily when moisture is present.

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

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Location : St Tammany Parish, USA

Injured : 5 **Dead :** 0

Abstract

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

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

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

Lessons

[None Reported]

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

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Location : Orlando, Florida, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 900 gallons of a chlorine based chemical spilled in a residential area. The surrounding area was evacuated. The incident occurred when a leak occurred from a 3,000-gallon road tanker, which was delivering 1,900 gallons to a local swimming pool. [evacuation, gas / vapour release, road transportation]

Lessons

[None Reported]

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

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Location : Dacatur, USA

Injured : 2 **Dead :** 0

Abstract

Approximately 1 million gallons of a fermenting corn and water mixture spilled from two 500,000-gallon ethanol processing tanks. Two workers were injured in the incident. The two tanks ruptured causing the liquid to spill.

A dike system was built and the liquid was pumped into holding containers.

The liquid was approximately 99 percent water and contained corn mash as part of the early ethanol process.

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

[material of construction failure, injury]

Lessons

[None Reported]

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

Location : Cherkassy Region, UKRAINE

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Six tank cars of a freight train derailed after heavy rains flooded the track, approximately 100 tonnes of ammonia solution spilt. Nearby residents were evacuated as a precaution. No injuries occurred.

[derailment - consequence, rain, spill, evacuation]

Lessons

[None Reported]

1252518 May 2000

Source : EUROPEAN CHEMICAL NEWS, 29 MAY, 2000.

Location : Nikopol, ROMANIA

Injured : 0 **Dead** : 0

Abstract

An ammonia cloud emitted from a chemical plant causing massive air pollution.

A nearby river port was affected for an hour by ammonia at concentrations five times more than acceptable levels.

[gas / vapour release]

Lessons

[None Reported]

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

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Location : Deerfield Beach, Florida, USA

Injured : 0 **Dead :** 0

Abstract

A chemical fire occurred at a laboratory. Fire fighters used dry-chemical extinguishers as they feared that the chemicals involved may react with water.

The cause of the fire is not known.

[fire - consequence, laboratory work, unknown chemicals, unidentified cause]

Lessons

[None Reported]

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

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Location : South Bend, USA

Injured : 3 **Dead :** 1

Abstract

An explosion occurred at a chemical plant killing a worker and injuring three others. The explosion occurred when workers were transferring a brake cleaning fluid from a large drum to eight 55-gallon tanks, the fumes ignited.

[material transfer, drums, fatality, burns, injury]

Lessons

[None Reported]

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

Location : New Iberia, Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Ten cars of a cargo train derailed, three cars overturned as a result, one containing flammable butyl acrylate leaked. Nearby residents were evacuated as a precaution.

[derailment, evacuation]

Lessons

[None Reported]

1276001 May 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; SAFETY ONLINE, 2 MAR 2000, (<http://www.safetyonline.com>).

Location : Blainville, USA

Injured : 0 **Dead** : 3

Abstract

An explosion occurred whilst workers were carrying out a vehicle safety test when a 500 kg tank of compressed air exploded killing three workers. The cause of the incident is not known.

[fatality]

Lessons

[None Reported]

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

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Location : North Charleston, USA**Injured :** 2+ **Dead :** 0**Abstract**

An explosion occurred at an ice plant causing the release of anhydrous ammonia. Anhydrous ammonia is used as a coolant in the production of ice.

At least two people were affected by fumes and nearby residents were evacuated.

An investigation is underway to find the cause of the explosion.

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

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Georgia, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. An explosion occurred when a car collided with a road tanker carrying diesel fuel, which collided with a tractor-trailer carrying a farm chemical.

No injuries were reported.

[collision, unknown chemicals]

Lessons

[None Reported]

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

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Location : Chrudim, CZECH REPUBLIC

Injured : 11 **Dead** : 0

Abstract

A fire occurred at an agrochemical plant releasing potentially harmful vapour to atmosphere. The fire is believed to have started in a storage area containing chemical substances.

Eleven people were affected.

[fire - consequence, gas / vapour release, injury, unknown chemicals]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, APRIL 11, 2000, (www.cnn.com);; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 11 APRIL, 2000, (http://www.chemsafety.gov),

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Location : Dothan, Alabama, USA

Injured : 33 **Dead** : 0

Abstract

Approximately four hundred nearby residents were evacuated after ammonia gas leaked from a fertilizer plant. Thirty-three people were taken to hospital for treatment of minor respiratory problems.

The leak occurred from an 18,000-gallon tank at a food plant. It is thought that the cause of the leak was due to mechanical valve failure.

Diluted ammonia solutions are used for household cleaning; concentrated ammonia can cause suffocation and death.

[evacuation, mechanical equipment failure, injury]

Lessons

[None Reported]

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

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Location : Leetsdale, USA

Injured : 5 **Dead :** 0

Abstract

An explosion occurred at a copper plant. It is thought the explosion was caused by water contaminating the copper during the casting process, when molten copper is poured into a mould and cooled by a water bath into solid cakes.

Fiver workers were injured in the blast.

[burns, contamination, processing, injury]

Lessons

[None Reported]

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

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Location : Somerset, USA

Injured : 0 **Dead :** 0

Abstract

Approximately half a gallon of chemical spilled from a copying machine forcing 150 workers to be evacuated. Fumes from the spill entered the building's ventilation system and spread throughout the building.

[evacuation, gas / vapour release, ammonia, leak]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; BBC NEWS, 9 APRIL 2000, (<http://www.bbc.co.uk>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Kent, UK

Injured : 0 **Dead :** 0

Abstract

A release of carbon dioxide occurred at a nuclear power plant forcing the evacuation of the facility.

The reactor had been shut down for maintenance.

The emergency was declared when a monitoring system detected the gas in a basement.

It was reported that there was no risk of nuclear leak.

An investigation is being carried out.

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

Lessons

[None Reported]

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

Location : Delaware, USA

Injured : 0 Dead : 0

Abstract

A river transportation incident. The steering of a river tanker carrying ammonium nitrate cargo broke causing it to ground. No pollution occurred. The tanker was refloated.

[steering failure, transport effects]

Lessons

[None Reported]

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

Location : , UK OFFSHORE

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A Ro-ro lost four containers overboard in heavy seas, one contained p-cresol and another contained epichlorohydrin.
[environmental]

Lessons

[None Reported]

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

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Location : Fullerton, California, USA

Injured : 0 **Dead :** 0

Abstract

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

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

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

Lessons

[None Reported]

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

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Location : Two Rivers, Wisconsin, USA

Injured : 0 **Dead :** 0

Abstract

An alarm at a water plant signalled a chlorine leak forcing the evacuation of nearby buildings. A hazardous materials team shut off the valve in the plant, stopping the leak.

It is not known what caused the leak. No one was injured in the incident.

The alarm was automatically set to go off when the concentration in the air exceeds 1 part per million.

[gas / vapour release]

Lessons

[None Reported]

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

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Location : Pasadena, USA

Injured : 71 **Dead :** 1

Abstract

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

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

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

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

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

Lessons

[None Reported]

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

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Location : Jackson, Mississippi, USA

Injured : 20 **Dead :** 0

Abstract

Anhydrous ammonia fumes escaped from an agricultural tank. Approximately 20 people were treated at hospital after being affected by the toxic gas leak.

The gas causes shortness of breath and respiratory irritation. Prolonged exposure can be fatal.

The incident occurred when thieves left open a valve on the tank causing the leak.

[gas / vapour release, deliberate acts, people, toxic fumes, injury]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MARCH, 2000, (<http://www.chemsafety.gov>).

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Location : Lily, USA

Injured : 48 **Dead :** 0

Abstract

Sulphuric and hydrochloric acid were accidentally mixed resulting in two accidental releases of chlorine gas. The building was evacuated.

Forty eight people were treated for minor respiratory problems.

[sulphuric acid, gas / vapour release, evacuation, accidental mixing, mixer, injury]

Lessons

[None Reported]

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

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Location : Muncie, USA

Injured : 0 **Dead :** 0

Abstract

A fire and several explosions occurred at a plant causing severe damage.

The fire was made even worse by exploding chemical tanks.

Water from the fire bypassed the plant's wastewater treatment plant and spilled directly into the nearby river.

It is feared that runoff water from the fire may be contaminated.

An investigation into the incident determined that the blaze started in the storage area.

[fire - consequence, damage to equipment, contamination, design or procedure error, unknown chemicals]

Lessons

[None Reported]

Source : CNI NEWS, 21 MARCH 2000, (<http://www.cnionline.com>); CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 21 MARCH, 2000, (<http://www.chemsafety.gov>).

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Location : Channelview, Texas, USA

Injured : 0 **Dead** : 2

Abstract

Two workers carrying out sandblasting work inside a 22-by-27 foot boiler were found dead by a third worker at a chemical plant. It is not known what hazardous chemicals were involved as the boiler used water to create steam and did not handle chemicals. The workers were provided with breathing air due to the nature of the space they were in and because of the sandblasting operation. An investigation into the cause found a low level of oxygen in the cylinders used.
[cleaning, fatality, tools & access equipment, asphyxiation, chemicals unknown]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 OCTOBER, 1999, (<http://www.chemsafety.gov>).

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Location : Owens Crossroads, Alabama, USA

Injured : 1 **Dead :** 0

Abstract

An explosion occurred at a fireworks factory. The incident occurred whilst a worker was mixing chemical compounds when a reaction occurred, sparking a flash fire and explosion. The worker suffered severe burns to his body.

[fire - consequence, unwanted chemical reaction, unknown chemicals, injury]

Lessons

[None Reported]

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

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Location : Florida, USA

Injured : 0 **Dead :** 1

Abstract

A road transportation incident. A road tanker containing aviation fuel overturned on a highway when trying to avoid slower vehicles. The driver was killed in the accident.

[fire - consequence, fatality]

Lessons

[None Reported]

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

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Location : Chonburi, THAILAND

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a footwear factory. The factory was totally destroyed in the fire which was fuelled by combustible adhesives and rubber stored inside.

An investigation into the incident is being carried out.

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

Lessons

[None Reported]

Source : AUSTRALIAN BROADCASTING COMPANY, 14, MARCH, 2000.; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (<http://www.chemsafety.gov>).

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Location : Collie, AUSTRALIA

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, 12 MARCH, 2000, (<http://www.cnn.com>).
CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 21, 2000,
(<http://www.chemsafety.gov>).

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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]

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

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Location : Lake Alfred, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fertilizer plant. The incident occurred whilst plant workers were welding a metal bin, which was still containing chemicals. The fire occurred inside a 12-foot by 30-foot hopper containing a mixture of sludge, or sewage, and ammonium nitrate used to make the fertilizer. Fifteen workers were evacuated and fire fighters eventually brought the fire under control. Sand was placed around a nearby storm drain to contain the chemicals.

The plant was closed down for repairs and clean up.

No injuries were reported.

[fire - consequence, evacuation, plant shutdown, design or procedure error]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 5 APRIL, 2000, (<http://www.chemsafety.gov>),

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Location : Newport, USA

Injured : 0 **Dead :** 0

Abstract

A chemical plant was ordered to shut down as a precaution due to the potential of an explosion occurring and the possibility of contamination of a well. The company was ordered to shut down after inspectors found corroded and leaking containers and decaying chemicals.

[plant shutdown, human causes, unknown chemicals]

Lessons

[None Reported]

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

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Location : Elizabethton, Tennessee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical plant causing the release of chlorine and ammonia into a watercourse killing hundreds of fish.

The building was severely damaged in the fire.

[fire - consequence, ecological damage, spill, processing]

Lessons

[None Reported]

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

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Location : Texas, USA

Injured : 85 **Dead :** 0

Abstract

Approximately nineteen pounds of acrolein was released forcing the evacuation of 350 construction workers. The incident occurred when a feed water pump blew a fuse leading to an emergency controlled shutdown of a unit used for the manufacture of acrylic acid.

Eight five workers received medical attention as a precaution due to complains of eye and throat irritation. All but six were released.

Acrolein is harmful if absorbed through skin.

It is harmful if swallowed. Inhalation may be fatal as a result of spasm, inflammation of the larynx and bronchi, chemical pnemonitis and pulmonary edema.

Dermatitis, breathing difficulty, headache, nausea, GI disturbances.

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

Lessons

[None Reported]

Source : OIL & GAS JOURNAL, FEBRUARY 2, 2000,; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 4 FEBRUARY, 2000, (<http://www.chemsafety.gov>),

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Location : Mailliao, CHINA

Injured : 0 **Dead :** 3

Abstract

Three workers were asphyxiated when argon and hydrogen gas leaked from pipes they were installing on an aromatics plant being built on a cracking complex.

[asphyxiation, gas / vapour release, operational activities]

Lessons

[None Reported]

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

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Location : , USA

Injured : 0 **Dead :** 0

Abstract

A spill occurred at an electroplating company causing the evacuation of nearby residents.

The incident occurred when a malfunctioning water line or valve at the electroplating plant caused excess water at the small shop to mix with chemical residue used in the electroplating process.

[mechanical equipment failure, accidental mixing, normal operations, unknown chemicals]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, APRIL 2000.

Location :

Injured : 0 Dead : 3

Abstract

An incident occurred at a naphtha cracking complex during installation work on an armoatics plant under construction.

Three workers were asphyxiated by argon and hydrogen which was found to be leaking from the pipes that they were installing at the time of the incident.

[asphyxiation, maintenance]

Lessons

[None Reported]

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

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Location : Baia Mare, ROMANIA

Injured : 0 **Dead :** 0

Abstract

A spill of cyanide occurred when the protective wall of a dam at a gold smelter was damaged by heavy snowfalls.

Cyanide levels were recorded at 700 times the normal in nearby river water after the spill. The smelter was closed down pending an investigation.

The spill forced towns along the river to close their water intake systems and has killed fish, birds and other wildlife.

[solids processing, heating equipment, plant shutdown, environmental, ecological damage, weather effects, cyanide product]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, MAY 2000.

Location : Cardenas, CUBA

Injured : 0 Dead : 3

Abstract

A marine transportation. Three crewmembers were killed when an explosion occurred on board a marine tanker whilst manoeuvring to load a cargo of crude oil. The vessel broke in two and one part sank. Slight pollution occurred.

[fatality, sinking]

Lessons

[None Reported]

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

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Location : , USA

Injured : 1 **Dead :** 0

Abstract

A fire and explosion occurred at a refinery on two separate days. The first to occur was an explosion, which slightly injured a worker and badly damaged a platformer.

The fire occurred about a week later and involved a vacuum that feeds into the plant's fluid catalytic cracking unit. Approximately 130 gallons of crude oil had caught fire.

The fire was put out within minutes using hand-held fire extinguishers.

It is thought that a fractured steam line caused the fire.

[fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

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

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Location : Cambridge, USA

Injured : 3 **Dead :** 0

Abstract

Apartments at a university were evacuated when carbon monoxide fumes were discovered to be emanating from a fire sparked by an explosion.

The explosion occurred on a transformer underneath the buildings.

Three residents who were affected were treated for minor injuries.

[evacuation, gas / vapour release, injury]

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 24, 2000, (<http://www.chemsafety.gov>).

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Location : Garrison, USA

Injured : 1 **Dead :** 0

Abstract

An acetylene tank exploded as a plumber was carrying out welding work on pipes at a hospital.

The plumber was involved in maintenance work in a tunnel system under the building at the time of the accident. The plumber suffered minor burn injuries.

[explosion, burns, injury]

Lessons

[None Reported]

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

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Location : , USA

Injured : 10 **Dead :** 0

Abstract

Chemical fumes from an anti-corrosion compound were spread through a building by the facility's ventilation system, causing the evacuation of about 1,100 employees. Ten people were sent to hospital complaining of respiratory problems.

The anti-corrosion compound collected as a result of a drain blockage.

[gas / vapour release, flow restriction, people, chemical - fume, 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 : 30+ **Dead :** 0

Abstract

An ammonia line broke in an area where approximately 50 people were working.

Five people were reported to have suffered injuries and another twenty-five to thirty were sent to a local hospital for the effects of ammonia.

[mechanical equipment failure, injury]

Lessons

[None Reported]

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

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Location : Akron, Ohio, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 400 gallons of butadiene, a flammable material used in the production of synthetic rubber, was accidentally released at a chemical plant. Workers and visitors to the plant were evacuated. It is thought there will be no environmental impact from the release.

An investigation into the incident is underway.

[gas / vapour release, evacuation, leak]

Lessons

[None Reported]

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

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Location : , USA**Injured :** 2 **Dead :** 0**Abstract**

An explosion and fire occurred on a food processing plant injuring two workers. The incident occurred when fire fighters responded to a report of an ammonia leak, while they were on site the explosion and fire occurred.

Injuries to workers were reported to be minor. The fire was brought under control after fire fighters used a ladder truck to pour water on the building.

Chemicals involved in the incident: Ammonia (anhydrous).

[fire - consequence, injury]

Lessons

[None Reported]

132232000

Source : EUROPEAN CHEMICAL NEWS, 18 DECEMBER 2000 - 7 JANUARY 2001.

Location : Ludwigshafen, GERMANY

Injured : 0 **Dead** : 0

Abstract

A chemical spill occurred at a chemical plant. The incident occurred when a drum of isopropanol and methyl vinyl ketone burst injuring a worker and affecting several others including visitors at the site.

It is thought that a drum containing residue of caustic soda was accidentally filled with the mixture causing the drum to rupture.

[accidental mixing, drums]

Lessons

[None Reported]

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]

Source : HAZARDOUS CARGO BULLETIN, JANUARY 2000.

Location : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A 144-car freight train derailed due to a worn wheel bearing. An uncertain amount of acid leaked from one car carrying 5.5 tonnes of product. A nearby residential area was evacuated.

[derailment - consequence, bearing failure, spill, evacuation]

Lessons

[None Reported]

Source : BBC NEWS, NOVEMBER 16, 1999.

Location : Ecuador, SOUTH AMERICA

Injured : 0 **Dead :** 0

Abstract

A main oil pipeline was blown-up. The blast, caused by dynamite, put a section of the line out of service and caused tens of thousands of barrels of crude oil to spill.

[deliberate acts]

Lessons

[None Reported]

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

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Location : Malden, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 100 lbs of ammonia was released from a plant, forcing the evacuation of 200 nearby residents. The ammonia was used as a cooling agent for a refrigeration unit.

The cause is not known. No one was injured.

[gas / vapour release]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, NOVEMBER 6, 1999, (<http://www.cnn.com>).

Location : Missouri, USA

Injured : 1 Dead : 1

Abstract

An explosion occurred in a fireworks plant, killing one person and seriously burning another. The workers were working with black powder used in fireworks when the explosion occurred. The blast blew the roof off the building, fortunately the thick concrete walls kept the explosion from damaging other parts of the building.

The cause of the explosion is under investigation.

[fatality, burns, damage to equipment, processing, black powder (gunpowder)]

Lessons

[None Reported]

1251812 October 1999

Source : HAZARDOUS CARGO BULLETIN, MAY 2000.

Location : Alberta, CANADA

Injured : 1 Dead : 0

Abstract

A road transportation incident. A tractor-trailer ran out of control off a road and overturned. Approximately 6,700 litres of crude oil spilled as a result.
[loss of control, injury]

Lessons

[None Reported]

1195110 October 1999

Source : THE SUN, OCTOBER 11, 1999.

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak of hazardous chemicals occurred in an airport cargo area when a package fell from a baggage trailer. Fire crews were put on stand-by whilst the package which had just been unloaded, was examined.

An area of half a mile from the main runway and terminal was sealed off.

The substance was found to be a low-grade hazardous chemical.

[leak, spill, unloading, near miss, container, chemicals unknown]

Lessons

1208330 September 1999

Source : EUROPEAN CHEMICAL NEWS, 25/31 OCTOBER 1999,; JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY, FEBRUARY 2000, VOLUME 39, NUMBER 1,; CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; NEW SCIENTIST, 8 JAN 2000, (2220), 5,; BBC NEWS, 27 APRIL, 2000, (<http://www.bbc.co.uk>).

Location : Tokaimura, JAPAN

Injured : 56 **Dead** : 2

Abstract

A nuclear chain reaction was triggered whilst workers were mixing a uranium solution at a uranium processing plant. Fifty five people, mainly plant workers and emergency personnel were exposed to the radiation, three remained in a serious condition. Nearby residents were evacuated.

It is thought that a water jacket designed to cool the tank, fuelled the reaction as it reflected neutrons back into the uranium solution. The emergency crews managed to drain the water jacket and douse the hot material with boric acid, which absorbs neutrons. The reaction finally stopped after 17 hours.

[radioactive, reactors and reaction equipment, evacuation, people, unwanted chemical reaction, human causes]

The following conclusions were published in the Journal of the British Nuclear Energy Society, February 2000, Volume 39, Numer 1.

The cause of the incident has been confirmed. A solution of 16.6 kg of 18.85 enriched uranium was poured into a precipitation tank, in which the maximum amount of uranium should be limited to 2.4 kg.

[fatality]

Lessons

[None Reported]

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

Location : , AFRICA

Injured : 0 Dead : 0

Abstract

A bomb attack carried out on a pipeline stemmed the flow of crude oil. The pipeline had just begun exporting crude oil. Slight damage occurred.
[damage to equipment]

Lessons

[None Reported]

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

Location : Dorset, UK

Injured : 0 Dead : 0

Abstract

A chromic acid, a toxic heavy metal used in metal plating process spilled into a ditch. The ditch flows into a conservation site. Most of the acid contaminating the ditch was prevented from reaching the conservation site by damming the ditch and pumping the acid into temporary storage tanks.

Poor maintenance had allowed the acid to leak.

The company was fined £3,255 and costs of £9,500 (2000).

[leak, maintenance inadequate, pollution]

Lessons

[None Reported]

1210127 August 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAFETY ONLINE, 30 AUG 1999, (<http://www.safetyon-line.com/>),; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : Ontario, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Six cars of a rail tanker containing flammable liquid derailed. This led to the evacuation of hundreds of people. One of the cars rolled past a steel stopper at the end of a storage line, spilling a large amount of recovered alcohol into a car park. A temporary dyke of sand was created to stop the flow of liquid. Some material entered a storm drain. The incident is under investigation.
[derailment - consequence]

Lessons

[None Reported]

1175024 August 1999

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

Location : , ENGLISH CHANNEL

Injured : 20+ Dead : 0

Abstract

A marine transportation incident. A cargo vessel collided with a cruise liner with more than 2,000 people on board.

Fortunately, the cruise liner was able to reach a nearby port safely despite severe damage to its bow.

The 52,000 tonne container ship, caught fire after the collision. More than 40 of the ships 3,092 containers held hazardous materials two of which carrying cyanide, these were stowed in the centre of the vessel and there was no danger of them being lost overboard. Some of the containers fell into the sea during the impact.

Coast guards reported no sign of trouble before the collision and that no radio message had been taken from either vessel.

[container ship, passenger ship, collision, fire - consequence, near miss, spill, damage to equipment, cyanide product]

Lessons

[None Reported]

Source : CNN.COM, U.S. NEWS, AUGUST 16, 1999, (<http://www.cnn.com>); HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : North Carolina, USA

Injured : 2 Dead : 0

Abstract

A break in a pipeline sent a yellowish cloud of toxic chemicals into the air above a pharmaceutical plant causing the evacuation of a nearby trailer park. Two workers were injured when the pipeline broke, releasing approximately 400 gallons of bromine, one suffered burns and the other complained of respiratory problems. Both were under observation at hospital. Approximately seventy five people were evacuated. Much of the bromine released was in liquid form and was contained, though some formed a cloud.

[gas / vapour release, pipeline failure, processing, evacuation, injury]

Lessons

Bromine, a chemical that can cause severe injury or death when inhaled, ingested or after coming into skin contact

1164414 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 16, 1999, (<http://www.cnn.com>).

Location : Georgia, USA

Injured : 8 Dead : 1

Abstract

Six workers were injured and one killed in a coal dust explosion and fire at a power generating plant.

Three injured mechanics and electricians were in critical condition at hospital with third degree burns over more than half of their body.

The accident occurred in a unit of the plant's coal burning plant minutes after workers restarted a coal pulverizer.

The pulveriser had been taken off-line for some maintenance work. The mechanics had finished the maintenance and were testing it.

The cause of the explosion is not known.

[fire - consequence, solids processing equipment, fatality, injury]

Lessons

[None Reported]

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 : BBC NEWS, 3 AUGUST, 1999, (<http://www.bbc.co.uk>).

Location : , UK

Injured : 100+ Dead : 0

Abstract

More than one hundred children were taken to hospital after a chlorine leak at a swimming pool. The swimming pool was immediately evacuated. It is thought that a faulty pump is to blame.

[people, evacuation, pump failure, leak, spill, gas / vapour release]

Lessons

[None Reported]

Source : BBC NEWS, AUGUST 5, 1999, (<http://www.bbc.co.uk>).

Location : , AUSTRALIA

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A marine tanker spilled approximately 80,000 litres of light crude oil into a harbour, releasing a cloud of acrid fumes over a city. Emergency crews fought to contain the spill, the bulk of the oil was contained behind booms.

An number of birds have been found coated with oil, and dead fish have been washed up on the shore.

It is thought the cause of the spill was due to an open valve while the ship was discharging.

[gas / vapour release, ecological damage, unloading, operation inadequate]

Lessons

[None Reported]

1288927 July 1999

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A relief valve on a HF alkylation unit acid settler failed to operate under overpressure during an emergency shutdown of all process units following a power failure.

A subsequent release of hazardous materials occurred.

[valve failure, overpressurisation, gas / vapour release, damage to equipment, power supply failure, processing, chemicals unknown]

Lessons

[None Reported]

1148526 July 1999

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

Location : Kuzbass Region, RUSSIA

Injured : 3+ **Dead** : 3

Abstract

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

Lessons

[None Reported]

1175524 July 1999

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

Location : Palm Springs, USA

Injured : 0 Dead : 0

Abstract

A rail transportation incident. Eleven cars of a train derailed onto their sides forcing the evacuation of the area.

The train carrying 122 cars, including one containing chromium trioxide, a highly combustible substance when mixed with water and toxic if inhaled.

Fortunately, the car remained on the tracks.

No one was injured. The cause is under investigation.

[derailment - consequence, near miss]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : Iowa, USA

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Two of twenty six cars derailed from a freight train spilling denatured alcohol. Half of a nearby town was evacuated as fire crews and a specialist team worked to contain the spill.

[derailment, evacuation]

Lessons

[None Reported]

1207205 July 1999

Source : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999.

Location : , USA

Injured : 150+ Dead : 0

Abstract

A series of explosions occurred at a chemical plant, injuring 21 workers. Clouds of bauxite dust were dispersed into the atmosphere.

Over one hundred and fifty residents were treated at hospital. The cause of the incident is not yet known but it is thought that an explosion in a powerhouse burst a gas line which then caused the caustic soda facility to explode.

[processing, gas / vapour release, bauxite, injury]

Lessons

[None Reported]

Source : FIRE PREVENTION 323, AUGUST 1999.

Location : Dorset, UK

Injured : 6 **Dead** : 0

Abstract

Several containers of dry cleaning mixture tetrachloroethaline were spilled. Six people were treated for the effects of inhaling chemical fumes. The spill was quickly contained and there was no danger to the environment.

[cleaning fluid, people, gas / vapour release]

Lessons

[None Reported]

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

Location : Tennessee, USA

Injured : 1 **Dead** : 2

Abstract

Two welders working on a supposedly empty crude oil storage tank near an oil field were killed when the tank exploded, a third worker was air lifted to hospital. People in nearby houses were evacuated.

The fire that followed the explosion was brought under control in half an hour.

It is thought that a spark ignited the explosion, an investigation is underway.

[welding, storage tanks, fire - consequence, evacuation, fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : , AUSTRALIA

Injured : 0 **Dead :** 0

Abstract

A marine transport incident. A faulty coupling on a floating hose used for discharging crude oil to a refinery was found to be leaking causing the spillage of 270 m3 of crude oil into the sea, fouling the beaches and a reef.
[coupling failure, unloading, pollution]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : Texas, USA

Injured : 0 **Dead** : 0

Abstract

A marine transport incident. A loading arm broke whilst a tanker was discharging crude oil at a refinery. Approximately 4,000 l of oil was spilt into the dock. Booms and skimmers were used to clean-up.
[unloading, mechanical equipment failure, spill]

Lessons

[None Reported]

1142623 June 1999

Source : C & EN, JUNE 28, 1999.

Location : , USA

Injured : 3 Dead : 2

Abstract

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

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

The cause of the explosion and fire is being investigated.

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

[fire - consequence, fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : Dagestan, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A crude export line was bombed causing oil to leak. A fire ensued.

[fire - consequence, pipeline, crude oil, spill, leak]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : Bashkortostan, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A rupture occurred on a main oil line. More than 400 tonnes of oil spilled into a near-by river. A response team was brought in to deal with the spill.
[material transfer, pipeline, crude oil]

Lessons

[None Reported]

11098June 1999

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

Location : , BELGIUM

Injured : - **Dead** : 0

Abstract

More than 100 people complained of headaches, dizziness and stomach upsets after drinking canned soft drinks. Investigations into the incident found that the factory had used the wrong type of carbon dioxide gas that gives the drink its fizz, making the drink taste bad, also a fungicide had caused some contamination.

[bottling plant, people, operation inadequate]

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]

1143118 May 1999

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

Location : , AFRICA

Injured : 0 **Dead :** 0

Abstract

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

Lessons

[None Reported]

1102313 May 1999

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

Location : , INDIA

Injured : - Dead : 44

Abstract

An explosion and fire which started in a chemical warehouse claimed the lives of 44 people and injured many others.

The broke out in a two storey warehouse thought to house unlicensed flammable chemicals. The subsequent fire swept through shops in a densely populated area, fanned by a dust storm passing through the city.

[fire - consequence, warehousing, fatality, injury]

Lessons

[None Reported]

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

Location : Wales, UK

Injured : 0 Dead : 0

Abstract

Approximately 40 kg of an ammonia based refrigeration substance was released from a cooling unit and spilled into a nearby river.

The substance entered a surface water drain nearby, discharging into a small stream and into the river.

Over 1,000 fish were killed.

The company was fined £2,000 and costs of £200 (2000).

[environmental, cooling equipment, design or procedure error]

Lessons

The incident highlights the need for accurate up-to-date drainage plans and for operators to be fully aware of the potential risks to the environment from their sites.

1059028 March 1999

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

Location : Hampshire, UK

Injured : 0 **Dead :** 0

Abstract

An investigation carried out after thousands of fish were killed, traced an ammonia leak to a nearby factory.

A three mile stretch of the river was found to have been contaminated by ammonia.

Special tankers were used to flush out the contaminated water.

[ecological damage, contamination, pollution]

Lessons

[None Reported]

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

Location : , UK

Injured : 0 Dead : 0

Abstract

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

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

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

Lessons

[None Reported]

1052116 March 1999

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

Location : , UK

Injured : 50+ **Dead** : 0

Abstract

More than fifty people were taken to hospital after a chemical spillage. The leak was of sodium hydroxide, believed to be from cleaning solution. Fire crews wearing special suits managed to control the spillage and a mobile decontamination unit was called in to clean-up.
[cleaning fluid]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Gas condensate under pressure was released to atmosphere during the removal of a spool piece on the suction side of a pump to install an additional valve. The spool piece contained a cone screen that was plugged with wood fragments. This had prevented the upstream section of the pipe from being depressurised and vented.

The incident occurred when contract workers unbolted the first flange downstream of the screen and removed the gasket and joint. They then unbolted the other end of the spool pipe upstream of the screen and immediately downstream of the leaking valve. As soon as the last bolt had been loosened, the spool piece became free and condensate and wood fragments blew out of the open end between the screen and the suction valve. The contract workers were sprayed with condensate from the knees down.

The immediate causes:

1. The complete bolting of the flange when this section of pipe contained trapped high-pressure condensate.
2. A blocked cone strainer with no means to check that it may prevent the section of pipe from being pressured and vented.

[gas / vapour release, maintenance, operation inadequate]

Lessons

The following lessons were learnt:

1. Always assume that the pipe may still contain liquid and or pressure when breaking a flange.
 2. Take appropriate precautions and always break a joint in the correct manner.
-

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

Location : , UK

Injured : 0 Dead : 0

Abstract

A road transportation incident. A lorry carrying a skip loaded with car batteries was stopped by police when clear liquid had been seen escaping from the back of the vehicle.

It was found that the liquid was battery acid, which was leaking from the skip.

A sample of the liquid pouring from the skip showed it to be highly acidic, with a pH value of less than 1. The company was fined £7,000 and costs of £1,1865 (2000).

[spill, human causes, corrosion]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN 145, 24.

Location : River Plate, ARGENTINA

Injured : 0 **Dead** : 0

Abstract

A river transportation incident. An oil spill occurred when two ships collided. One of the ships, an oil tanker, was carrying approximately 30,000 tonnes of crude oil the other was carrying cargo.

[collision]

Lessons

[None Reported]

1082313 January 1999

Source : ICHEME

Location : , GERMANY

Injured : 0 Dead : 4

Abstract

An air transportation incident. A military refuelling plane carrying 18,000 litres of fuel burst into flames upon crashing in a wooded area near a Dutch border, killing all four crew members.

It took more than 100 fire fighters approximately three hours to extinguish the burning plane.

[fire - consequence, explosion, aviation fuel, fatality]

Lessons

[None Reported]

128771999

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Lightning struck two open-top floating roof tanks containing crude oil causing extensive rim seal fires.

The fire was eventually extinguished by using foam and water.

No injuries occurred in the incident.

Damage is estimated at approximately US\$1 million (1999) and cost of foam US\$114,600 (1999).

[fire - consequence, storage tanks]

Lessons

[None Reported]

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

Location : , UK

Injured : 0 Dead : 0

Abstract

A foul smelling substance was reported entering a river. The source was traced to a plant where samples were taken from two outlets. This detected that ammonia levels were over the permitted limits.

It was also discovered that a blockage had occurred in pipework of the final settlement tank, which prevented activated sludge used in the system from returning to the head of the aeration basin. This sludge is needed for the biodegradation of the organic matter in the sewage effluent and if its level is not maintained the effectiveness of the process is reduced.

Site operators did not notice the problem and the effluent monitor was out of action undergoing repairs.

The company was fined £6,000 and costs of £660 (2000).

[drains & sewers, design or procedure error, pollution]

Lessons

[None Reported]

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 OCTOBER, 1999, (<http://www.chemsafety.gov>).

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CHEMICAL HAZARDS IN INDUSTRY, JANUARY 1999.

Location : Baltimore, USA

Injured : 5 **Dead :** 0

Abstract

An explosion and fire occurred at a chemical plant resulting in the release of benzene and hydrochloric acid. Five people were injured in the incident. Most suffered severe burns; one employee suffered back injuries after falling 30 feet.

The explosion is thought to have occurred in a 3000 gallon reactor in the alkylation unit during routine maintenance. Sediment is believed to have remained in the tank despite having been purged of benzene and hydrochloric acid.

[fire - consequence, reactors and reaction equipment, spill, design or procedure error, injury]

Lessons

[None Reported]

Source : ICHEME**Location :** , UK**Injured :** 1 **Dead :** 0**Abstract**

Part of a benzene plant was shutdown, as part of the annual shutdown programme. As part of the preparations for maintenance the main process sections were drained, purged and steamed in accordance with the set procedures. Work then began on the stripper column reboiler circuit, including two heat exchangers. The actions required for the preparation of one of the exchangers had been highlighted, and so it was assumed these actions had been completed. Under a Permit to Work the foreman and 4 of his team commenced on unbolting the exchanger end plate and the main channel end flange. The work was not completed and was carried forward to the next shift. During the work it was noticed that the exchanger surface was still hot. This was assumed to be due to steaming operations in the shell side of the exchanger. The following day under a re-signed Permit to Work, the team continued with unbolting and the exchanger end plate seal was released. Hot condensate spilled out of the bottom section of the exchanger end channel. When the flow ceased the final bolts were removed from the end plate flange and the end plate cover was rigged ready for lifting down to ground level. Approximately 10 minutes after the end plate was removed, a fitter working adjacent to the area was hit by a large flow of hot condensate, which flowed from the exchanger, impinged on a tube baffle plate and then sprayed over the fitter. He crawled away and colleagues put him under a safety shower until the ambulance arrived. The fitter received scalds to his back and neck. Investigations showed that there had been ineffective isolation of the exchanger system from the live LP plant steam supply. There were also passing valves on the condensate system which contributed to the presence of hot condensate. The highlighted had not in fact been completed and there had been inadequate physical checking of the isolation work prior to handover for maintenance. The Permit to Work system had not highlighted potential hazards, and due to work overload was not being operated effectively.

[permit to work system inadequate, burns, isolation inadequate]

Lessons

The following recommendations were made:

1. Key isolation valves should be checked for passing.
2. All work packs were re-checked for proper system isolation before shutdown work recommenced.
3. The organisation and supervision for the shutdown were reviewed and clear requirements for detailed recording and handover of progress between shift teams were set.
4. A schedule was to be set up for a management review of the progress of the new coordination routine and for general safety auditing of the shutdown activities on the plant.
5. The lessons learnt from the incident were to be circulated to other plants undergoing shutdown, to identify Best Practice for the future.
6. Generic recommendations from other condensate related incidents were to be reinforced.

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.

10790September 1998

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

Location : , UK

Injured : 0 Dead : 0

Abstract

Vandals caused five million gallons of raw sewage to pour into an estuary, decimating fish stocks in part of a nearby river.

The vandals cut through a chain fence and closed the valves of a sewage pipe leading to a nearby treatment works. This caused a build-up of pressure which blew open a manhole cover.

Workers had to overcome ammonia fumes to stop the flow of sewage, which is thought to have continued for three hours.

Samples taken from the river revealed levels of oxygen a tenth of what they should be.

[vandalism, spill, pollution, drains & sewers, waste water treatment, overpressure, ecological damage]

Lessons

[None Reported]

10445September 1998

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

Location : , UK

Injured : 0 Dead : 0

Abstract

Vandals caused five million gallons of raw sewage to pour into an estuary, decimating fish stocks in part of a nearby river.

The vandals cut through a chain fence and closed the valves of a sewage pipe leading to a nearby treatment works. This caused a build-up of pressure which blew open a manhole cover.

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Samples taken from the river revealed levels of oxygen a tenth of what they should be.

[vandalism, ecological damage, sewer]

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]

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]

Source : BBC NEWS, 9 AUG, 1998.

Location : , UK

Injured : 26 Dead : 0

Abstract

A chemical pollution incident occurred at a swimming pool which injured 26 people. The injured suffered mainly respiratory problems. It is thought two chemicals were mixed together, releasing a gas into the pool area. An investigation into the incident is being carried out.
[incorrect chemical present, gas / vapour release, spill, unknown chemicals, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A plant used boron trifluoride (BF₃) catalyst, dissolved in ethanol. The catalyst was fed to the plant from a pair of drums which were pressurised to feed catalyst through one of two parallel filters to the reactor. The drain/vent system from the filters passed through a non-return valve to a caustic scrubber. One drum ran empty and the operator changed over to the second. He noticed high pressure drop over the on-line filter and changed this over too. A valve operating error exposed the non-return valve pressure, rather than the normal 1 bar, although this was still within its design pressure.

A leak then occurred from the cover of the non return valve. The BF₃ reacted with moisture in the air to form a dense cloud containing hydrogen fluoride which dispersed slowly due to calm weather conditions.

Operators donned gastight suits to enable plant isolation. A water curtain was used to contain the gas cloud and sodium carbonate to treat acidic material in the drain sump.

The non-return valve cover had been deformed due to overtightening of the bolts and the gasket thickness was too low for the duty, providing an inadequate seal.

[non-return valve, spill, gasket failure, processing]

Lessons

1. Better specification of equipment was required to ensure its fitness for purpose. This especially applies to pipework specification and materials, gasket materials and thickness. Checks required to ensure installed equipment meets specification.
 2. Need for a system to identify gasket thickness and type on the plant.
 3. Review need for automatic leak detection and benefit of remote isolation valves of the BF₃ banded area from the main effluent system.
 4. Assess danger of toxic fumes being drawn into the control room ventilation system.
-

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 16, 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 : Harrisburg, USA

Injured : 0 **Dead :** 0

Abstract

An ammonium hydroxide tank collapsed releasing an unknown quantity of the chemical. The cause is not known.

[spill, unidentified cause]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

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

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Location : Clairton, USA

Injured : 2 **Dead :** 2

Abstract

An explosion occurred at a coal tar distillation plant killing two workers and injuring another two.

The explosion occurred during welding work on a pipe connected to a one million gallon coal tar distillation tank, which was out of service at the time of the incident.

[fatality, injury]

Lessons

[None Reported]

Source : FIRE PREVENTION 325, OCTOBER 1999.

Location : Wales, UK

Injured : 0 Dead : 0

Abstract

A fire occurred at a plastic factory. The fire brigade were called when a small fire was discovered in some scrap fibreglass.

Two workers attempted to extinguish the fire using carbon dioxide and a powder extinguisher. The premises were evacuated.

By the time the fire brigade had arrived, acetone and fibreglass resin stored on the premises were producing toxic gases, intensifying the fire and smoke.

Severe damage occurred to the building.

It is thought that a spark from welding equipment being used by workers had ignited a fibreglass drum.

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

Lessons

[None Reported]

1040408 January 1998

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

Location : Glasgow, UK

Injured : 14 **Dead** : 0

Abstract

Fourteen workers were injured by hot metal and chemicals after a tank exploded. Two suffered fractured ribs while others were showered with shrapnel from the ruptured tank sustaining cuts and burns. The incident occurred when the workers were repairing the six-foot high tank. A hairline fracture was suspected to have caused the failure following the pressurisation of the vessel.

[explosion, tank failure, material of construction failure, unknown chemicals, injury]

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]

102791998

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

Location : , USA

Injured : 15 Dead : 1

Abstract

A fire control system at a nuclear waste storage site was accidentally activated, killing one and injuring fifteen.

Maintenance work on electrical systems was being carried out when the fire suppression system, which uses carbon dioxide to snuff out flames by removing oxygen from the air, filled the room the workers were in with dangerous gas.

[fire - consequence, radioactive, safety equipment failure, fatality, injury]

Lessons

[None Reported]

Source : CHEMISTRY IN BRITAIN, JULY, 1998.

Location : , UK

Injured : 1 Dead : 0

Abstract

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

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

Lessons

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

114881998

Source : BBC NEWS, JULY 6, 1999,
(<http://www.bbc.co.uk>).

Location : , UK

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. A train carrying more than 1,000 tonnes of coal derailed. Fourteen wagons left the track, blocking the main east coast railway line and causing major disruption to passenger services for four days. No one was injured.

A fault in the track is thought to have been the main reason for the accident.

[derailment - consequence, rail incidents]

Lessons

[None Reported]

106051998

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

An on-line crude unit heat exchanger vent line was fractured during a lifting operation. The strap/webbing sling being used to install a tube bundle into the shell of the lower of a pair of horizontal heat exchangers came into contact with the vent line and fractured it releasing approximately 32 barrels of crude oil into the area. There were no injuries or fires.

The immediate cause of the spillage was a failure in the preparations to ensure that the crane operation could not damage equipment on the crude unit. The basic cause was a failure to provide a method statement and formal risk assessment for the crane lift and ensure that the vent line was adequately protected or decommissioned.

[design or procedure error, damage to equipment]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

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

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

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

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

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

Lessons

The report stated:

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

Source : 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 : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a crude oil pipeline, which led to a spill and subsequent ignition.

It is thought the incident occurred due to a terrorist assault on the pipeline. Explosions occurred at three different locations, some 120 km apart. Three refineries were affected by the incident.

[terrorism, transportation]

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]

1273409 October 1997

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

Location : Frankfurt, GERMANY

Injured : 0 **Dead** : 0

Abstract

A fire occurred at a coatings facility. The fire occurred in a filter unit releasing a vapour cloud that drifted over a residential area. No one was injured in the incident.

It is not know how the fire started.

[fire - consequence, gas / vapour release, carbon monoxide]

Lessons

[None Reported]

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

Location : ,

Injured : 0 **Dead :** 1

Abstract

A fire and explosion occurred in the pump room of a tanker resulting in the death of one crew member.

A tanker was lying at anchor in a harbour after discharging a cargo of crude oil. Residual crude oil was being consolidated by pumping into one or two centre tanks. Leaks had earlier occurred into the pump room from defective lines, pump and valve glands and joints resulting in an oil and water mixture in the pump room bilges. A rag was used to plug one of the leaking seals in a bulk head. The atmosphere in the pump room was checked with an explosimeter but no gas was detected.

An officer and a cadet checked that the transfer was taking place satisfactorily. The officer left the cadet to go to breakfast. Some four minutes later an explosion occurred and smoke poured from the pump room and the two pump room ventilators, and a large amount of debris was blown onto the deck. The alarm was raised and a fire fighting party assembled but could not enter the pump room because of the smoke. The pumpman who was on the deck at the time of the explosion informed that the cadet had gone into the pump room earlier.

Because of concern over the possibility of further explosions and the unlikely possibility that the cadet had survived in the pump room, the pump room door was closed, the ventilators sealed and carbon dioxide released into the pump room to extinguish the fire.

The fire was extinguished some hours later and the pump room entered. The cadet was found dead on the upper pump room grating. The body showed evidence of extensive burning and the post mortem showed that he had died almost immediately.

Investigation showed that the source of ignition in the pump room came from the opposite side of the ship to where the main cargo pump and eductor were operating. Two pump room fans were operating at the time. It was noted that an inspection access plate on one of the fans was missing and it transpired had been missing for some time. The bearings on this fan had collapsed and markings on the fan showed that fan blades had been touching at some time. It was concluded the cause of the explosion was a spark created by the fan blades touching, combined with an explosive air mixture resulting from the oil and water accumulation in the pump room.

The reason why the cadet entered the pump room without the authorisation of a responsible officer was not known, but it was concluded that his action had nothing to do with the explosion.

[fire - consequence, marine transport, unloading, fatality]

Lessons

The incident showed the importance of maintaining bilges dry at all times in order to prevent any possibility of an explosive mixture forming where machinery is operating.

1. Ventilation in pump rooms should be designed to prevent the formation of stagnant air pockets, especially low down. This was shown by the fact that the accident occurred despite consistent explosimeter readings of 5% being recorded over the previous two days. As a result of the accident, the company modified its ships to ensure that ventilation suction points were below the pump room floor lower grating. Also, all ships with steam fans were modified by removing the fans to outside the pump room and fitting them in the main ventilator trunkings.

2. Regulations regarding unauthorised entry to certain sections should be enforced more strongly.

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a crude oil onshore well following an explosion.

Approximately 5 tonnes of crude oil was spilled.

The well was capped and the fire extinguished.

[fire - consequence, exploration]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0 **Dead :** 0

Abstract

A crack occurred in a flange on an undersea pipeline, which led to a spillage of 30 tonnes of crude oil. The line was shutdown when the leak was detected. The spillage was contained.

[environmental, transportation]

Lessons

[None Reported]

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

Location : California, USA

Injured : 2 Dead : 0

Abstract

A leak of rain water mixed with chlorine occurred from a 200 litter drum causing an acrid, yellow cloud to spread over the area forcing evacuation of nearby homes.

[accidental mixing]

Lessons

[None Reported]

Source : ICHEME**Location :** ,**Injured :** 1 **Dead :** 0

Abstract

An ammonia tank was taken out of service in the July for its scheduled 3-year inspection and hydraulic pressure test. At that time, the opportunity was taken to replace valves A and B (part of a block and bleed system) on the steaming-out line to the tank. On August 13, during the first discharge of ammonia from a truck, an operator discovered valve B was leaking. He identified this valve as type suitable for steam but unsuitable for ammonia service. As a precautionary measure the tank was taken out of service with the ammonia depressured through a water drum to absorb the gas. At 09:00 hrs. on September 11, three contractors (including the supervisor) arrived to get their work permit signed and issued. The work to replace valves A and B involved the dismantling of the small diameter pipe that was fixed to the ammonia tank at flange 2. The Operator (Issuing Authority for the work permit) wrote on the permit form that the tank still contained ammonia vapours. He also informed the contractors that it would be necessary for them to wear breathing apparatus for all the work associated with the piping/valves to the tank. He did not, however, write this requirement on the permit form. At 14:00 hours, two of the three contractors (excluding the supervisor who was busy on another job) returned to disconnect flange 1. The contractor working on the flange wore breathing apparatus while the other stood by the breathing air gas bottle. While working on flange 2, the contractor's supervisor returned, put on breathing apparatus and assisted his colleague in removal of the pipe. The contractor's supervisor then decided to remove the leaded joint and clean it by scraping. At that moment he decided to remove his breathing apparatus (presumably to see more clearly) because he considered the atmosphere to be safe. As he bent down near the flange opening he was exposed to ammonia vapour. He was driven to the first aid station by one of his colleagues and transferred to hospital.

[unloading, gas / vapour release, safety procedures inadequate, permit to work system inadequate, asphyxiation]

Lessons

The issue of a work permit which, after all, is only a piece of paper does not by itself make a maintenance job safe. This is dependent upon the care and attention given by the Issuing Authority in the removal of known hazards and making certain that those performing the work are made fully knowledgeable of any remaining potential hazards and precautionary measures to be followed.

During any maintenance/repair work, replaced equipment or parts thereof must have exactly the same specification unless the modification is authorized under the Management of Change procedure.

Those who issue permits-to-work must be formally trained and certified as a competent Issuing Authority for a specific process area/unit.

Contractor's supervisors who act as a Performing Authority by accepting permits and the conditions for the work must be trained in this responsibility.

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

Location : New Jersey, USA

Injured : 0 **Dead** : 0

Abstract

An air transportation incident. A cargo plane carrying hazardous materials crash landed at an airport, the aircraft was apparently on fire before landing. All crew escaped.

[fire - consequence, chemicals unknown]

Lessons

[None Reported]

8794 27 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : Kaohsiung, TIAWAN

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

A crude oil floating roof tank, which had not been in operation since 13 July 1997, was struck by lightning. Only a portion of the seal of the tank was damaged by a fire.

[fire - consequence, damage to equipment, storage]

Lessons

[None Reported]

8654 19 July 1997

Source : LOSS PREVENTION BULLETIN, 136, 24,; ENVIRONMENT ACTION, OCTOBER/NOVEMBER 1999.

Location : Wales, UK

Injured : 0 Dead : 0

Abstract

A major emergency operation was launched on the 19 July, after a bromine gas leak at a chemical plant.

The incident occurred when a plant fault caused several tonnes of bromine to enter a tank used for acid dilution and recover. Ventilation and pumping equipment malfunctioned, a water seal blew and bromine vapour was released through an overflow pipe.

More than 40 fire-fighters were involved in an attempt to contain the leak.

Ground monitors and jet sprays were used to disperse the gas cloud. The situation was finally brought under control about ninety minutes later. Site personnel pumped the chemical to a safe area of the site while the fire-fighters remained on the scene. No-one was injured and there was no need to evacuate local residents.

The company was fined £80,000 and £40,000 (1999) costs.

[gas / vapour release, processing]

Lessons

[None Reported]

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

Location : , USA

Injured : 0 Dead : 0

Abstract

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

[evacuation]

Lessons

[None Reported]

9012 18 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , UK

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

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]

8918 09 July 1997

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

Location : , BRAZIL

Injured : 0 Dead : 1

Abstract

Air transportation incident. An explosion occurred aboard a passenger plane ripping a 2m gash in the fuselage through which a passenger was killed. Unidentified chemicals thought to be the cause.
[fatality, chemical causes, unknown chemicals]

Lessons

[None Reported]

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

Location : , CANADA

Injured : 100+ **Dead :** 0

Abstract

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

Lessons

[None Reported]

1136406 July 1997

Source : LLOYDS LIST, 2 JUL, 1997.

Location : , COLOMBIA

Injured : 0 **Dead :** 0

Abstract

A spillage of crude oil occurred due to an attack on a pipeline, which caused it to rupture. The crude oil field which serves the pipeline was shut down until repairs were carried out.

[terrorism, transportation]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.

Location : Kansas, USA

Injured : 1 **Dead** : 1

Abstract

A rail transportation incident. A train carrying hazardous materials unable to stop at a crossing, crashed into another train, a fire then occurred. 1,000 evacuated.

[fire - consequence, collision, evacuation, fatality, chemicals unknown]

Lessons

[None Reported]

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

Location : , JAPAN

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A double hull tanker with 257,000 tonnes of crude oil, grounded in calm seas. The vessel was refloated but 1,300 tonnes of oil escaped through a damaged bottom plating.

[spill, ship ran aground]

Lessons

[None Reported]

10827 July 1997

Source : ENVIROLINK.

Location : , JAPAN

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A super tanker carrying 76 million gallons of light crude oil spilled 390,000 gallons in to the nearby bay. The tanker strayed from an established shipping lane while trying to avoid other vessels and became caught in strong tides. The tanker scraped a reef just inside the bay, gashing its hull.

The spill covered one-sixth of the 15 mile wide and 35 mile long bay. Some 300 coast guard and navy ships, along with dozens of private fishing boats were mobilised for the clean up.

The spill struck during the harvest time of short necked clams and sea bass.

[ecological damage, leak, navigation error]

Lessons

Benzene and other chemical compound in crude is harmful to marine life.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , WALES

Injured : 5 Dead : 0

Abstract

A release of up to two tonnes of bromine occurred injuring five people and kept local residents confined indoors. Cloud of corrosive orange brown bromine fumes drifted across the nearby village and residents were warned to stay indoors and close their windows.

Fire fighters wearing protective suits and breathing apparatus took 90 minutes to bring the incident under control. Four staff suffered burns and one fireman was treated in hospital the next day. The release occurred when bromide entered a heated acid tank, vaporised and escaped through a vent, but why this happened is not yet known.

[leak, injury]

Lessons

[None Reported]

Source : LLOYDS LIST, 7 JUNE, 1997.

Location : , RUSSIA

Injured : 5 Dead : 0

Abstract

A fire on the crude oil pipeline was started during repair and maintenance work and was probably caused by the failure or misuse of welding equipment. The oil leaking from the damaged pipe was channelled into a special reservoir dug into the ground. The fire was extinguished in 2 days.
[fire - consequence, design or procedure error, transportation, injury]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , CANADA

Injured : 50 **Dead :** 0

Abstract

A release of chlorine gas occurred on a unit at a vinyl plant causing evacuation of the area. An instrumentation failure caused vent lines to build excess pressure which backed chlorine into an air line and released a mixture of chlorine and air for about five minutes. The chlorine gas drifted south of the vinyl unit towards an adjacent polyethylene plant, which was evacuated. 50 people were treated for eye and throat irritation.

[vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A crude oil fire occurred due to failure or careless use of maintenance welding equipment. The situation was aggravated by the high pressure gas pipeline located nearby. The fire was extinguished by foam.

[fire - consequence, design or procedure error]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , BELARUS

Injured : 0 **Dead :** 0

Abstract

Pollution occurred over 70 hectares of marshland when 500 tonnes of crude oil spilled due to the rupture of a nearby pipeline. The damaged section has been blocked off and work is being carried out to pump out the spillage of oil.

[material of construction failure, transportation]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 2 Dead : 1

Abstract

A rail transportation incident. A transportation freight train carrying hazardous chemicals crashed into a coal train. The freight train burst into flames as its two engines and 13 of its cars derailed. Homes within a half-mile radius of the crash site were evacuated for 24 hours. One freight crew member was killed and two were injured but there were no injuries on the coal carrier.

Tank cars carrying bleach, sulphuric acid and ammonium nitrate were initially reported to be on fire at the scene. The sulphuric acid was transferred and a car partially loaded with hydrogen peroxide was removed.

A tank car carrying acetaldehyde continued burning through to the next day.

[fire - consequence, collision, derailment - consequence, evacuation, fatality, injury]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.

Location : West Virginia, USA

Injured : 2 **Dead :** 1

Abstract

A rail transportation incident. A freight train carrying hazardous chemicals rammed into a coal train, two engines and 13 cars derailed and burst into flames, one person was killed and two injured.

[fatality, fire - consequence, derailment, collision, chemicals unknown, injury]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A spillage of 386 tonnes of crude oil occurred following the rupture of a pipeline. 17 tonnes spilt into the Black Sea. Clean up operations involved removing 500 tonnes of contaminated earth. About 700 persons involved in the clean up operations.

[pollution]

Lessons

[None Reported]

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

Location : , OFF SHINGAPORE

Injured : 3 **Dead :** 2

Abstract

A marine transportation incident. An explosion and fire occurred in the engine room of a tanker laden with crude oil.

[fire - consequence, fatality]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. FAIR PLAY.

Location : , THAILAND

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A tanker laden with crude oil grounded in a channel.
[ship ran aground]

Lessons

[None Reported]

8988 06 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Houston, USA

Injured : 7 **Dead** : 0

Abstract

An anhydrous ammonia release occurred. The incident occurred when a 150 lb cylinder of anhydrous ammonia ruptured.

[spill, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 **Dead :** 0

Abstract

Approximately 210 kgs of dope (composition approximately 27% acetate and 73% acetone) was spilt when a joint line failed. The spilt dope was recovered and put into a mixer for reuse.

[joint failure, spill]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Tyneside, UK

Injured : 3 **Dead** : 0

Abstract

An explosion and fire occurred in an acetylene store at a dockyard.

[fire - consequence, storage]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location :

Injured : 0 Dead : 0

Abstract

A gas cylinder exploded in a van taking the roof off. The incident happened when bitumen which was being heated for road repair work overflowed and set the van alight. The workers had placed a drum containing bitumen on a gas ring to heat while they carried out road resurfacing work.

[explosion]

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]

8817 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , USA

Injured : 0 Dead : 0

Abstract

An oil pipeline ruptured spilling 5000 bbl of crude oil into a lake. About 2500 bbl was moped up with absorbents. Inspection revealed a 34 inch gash in the damaged segment of pipe.

[crack]

Lessons

[Noen Reported]

11665May 1997

Source : TANKER CASUALTY REPORT NO. 21, TANKER CASUALTY DATA EXCHANGE SCHEME, INTERNATIONAL CHAMBER OF SHIPPING, LONDON.

Location : ,

Injured : 0 Dead : 0

Abstract

A marine transportation incident. An explosion occurred on a ship at sea whilst it was transferring dirty ballast. No one was injured.

The ship was proceeding in ballast after having discharged a cargo of crude oil. Four holds contained dirty ballast, two holds clean ballast and the remaining empty holds had been cleaned. Dirty ballast was being discharged from a hold which was three-quarters full when an explosion occurred which blew the open hatch covers overboard and caused slight damage to the hatch conning. There was a force 6 wind blowing with rough seas and the ship rolling at the time of explosion (0702 hours).

No definite cause for the explosion was apparent. The possibility of a spark generated by steel to steel friction was discounted. It was concluded that a charged mist and charged water slugs may have formed which on discharge could have caused a spark.

The accepted approach regarding gas concentrations in tanks was that an overrich atmosphere was safe because it was not within the flammable range. Overrich atmospheres are, however, difficult to maintain with any reliability in tanks. Accurate gas measurements now indicate that this assumption may be erroneous and consequently the atmosphere in the tank at the time of the explosion was probably within the flammable range and therefore adequate to propagate an explosion.

[material transfer]

Lessons

1. The operational procedures for the discharge of ballast and tank cleaning were changed following the accident. The assumption that an overrich atmosphere is safe is not now accepted and tanks are now kept gas free during operations. This is achieved by ventilating with fans throughout the discharging and cleaning operations. Measurements are taken at regular intervals to ensure that the atmosphere is below the lower explosive limit.
 2. Following the accident, a recommendation was issued by the International Chamber of Shipping to the effect that OBO type ships should be operated in such a manner as to avoid slack tanks, thus obviating the possibility of ignition by compression or by static electricity.
-

8978 29 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

Location : Bletchley, UK

Injured : 4 **Dead** : 1

Abstract

A fire occurred on a chemicals plant. The plant blends chemicals for plastics, rubbers and adhesives products. The fire which involved the chemical calcium peroxide killed one person and injured four others.

[fire - consequence, fatality, unknown chemicals, injury]

Lessons

[None Reported]

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

Location : Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : ENDS REPORT, APR, 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

One hundred and fifty tonnes of chloroform leaked from a ruptured filter on a pipeline supplying a fluorochemicals plant. The leak continued for four hours before it was detected and halted. Most of the chemical soaked into the ground but a small amount was recovered from an interception trench and by dredging of the nearby canal.

[operational activities]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 1 Dead : 0

Abstract

A contractor was removing a scaffold in the boiler house collapsed from heat stress and fell whilst working above an access well in the turbine room. The temperature was 42 degrees C (107 degrees F). The contractor fell a distance of approximately 5 m, sustaining serious facial injuries.

The incident occurred when at 7:45 am on April 3 ,1997, three contract scaffolders signed on in the boiler house control room to remove scaffolding, work that had begun the day before. The scaffold had been erected around the whole of the perimeter of the turbine floor in order to safely install cabling for the evacuation alarm system and it was in two layers. The top layer had been removed the day before. The lower layer crossed a brick wall well that contained steam lines to the desuperheater. The well was covered with non-bearing beams made up of lagging/insulation materials. The injured scaffolder had been working for 45 minutes removing scaffold directly above a 125 psi lagged steam line when he fell into the well section and onto the non-load bearing beams. The structure collapsed with a loud noise, and he fell a further 3 m to the floor in an avalanche of debris.

The investigating team felt that not enough consideration had been given to the special hazards associated with this job, especially the high temperature of 42 degrees C encountered, and the height. Hazards associated with this work had been considered and recorded as low risk. The completed risk assessment form notes that some consideration had been given to the prevailing heat and noise, and a verbal briefing had been given by the chargehand reminding those involved to take a "break when necessary." The investigating team concluded from the documents that the hazards were not picked up because there was very little, if any, communication between those doing the job and the local operations personnel. The work environment and heat stress contributed significantly, and the investigating team felt that there is probably a low level of understanding of the consequences of each. The potential for this incident to have been a fatality is obvious. The investigating team checked for the possible presence of amine in the atmosphere but concluded this was not possible.

The following action was taken:

1. Review the risk assessment process to ensure the appropriate knowledgeable people are involved at all levels.
2. Communicate the effects of heat stress to all staff.
3. Introduce the use of fall arresting equipment and support, with appropriate training, for all unprotected work areas above 2 m.
4. Improve the quality of tool box talks by turning every significant incident into a briefing to help communicate, and measure that this is done by signed returns and audits.
5. Provide clearer guidance for what an investigation should achieve, and how quickly.
6. Any non-load bearing area should be clearly marked so that it is not missed.

[scaffolding, fall, people, maintenance, safety procedures inadequate, management system inadequate, design or procedure error, injury]

Lessons

1. Always involve people familiar with the working area when assessing risks.
2. Assess the potential for heat stress during maintenance work.
3. Use fall arrestors for all unprotected tasks at heights above 2 m.
4. Ensure all information on the work permit is communicated to and fully understood by those performing the job.

9003 01 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 12 Dead : 0

Abstract

A road transportation incident. Two road transport trucks collided, spilling 200 litres of caustic soda from three drums. Twelve people were treated for burns.
[collision]

Lessons

[None Reported]

Source : ENDS REPORT, MARCH 1997.

Location : , UK

Injured : 0 Dead : 0

Abstract

Staff were attempting to clear a blocked feed pipe at a plant making green pigments when a release of aluminium chloride occurred. Works emergency plan activated when the molten aluminium chloride and salt was released and reacted with water to form hydrogen chloride gas. The roads around the site were closed for two hours and local residents evacuated.

[flow restriction, gas / vapour release, evacuation, processing]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , CHINA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. 1540 lbs of cyanide may have entered a near-by river after a truck carrying 200 drums plunged into it. Nearly 0.5 million people were warned against drinking the water.

[spill, loss of control, cyanide product]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A marine barge capsized after it hit a bridge in fast moving currents. Nitrogen was pumped into the barge to lessen the risk of fire. The volatile cargo of benzene and gasoline was removed and the barge righted.
[vessel overturned, collision]

Lessons

[None Reported]

9009 March 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 0 Dead : 0

Abstract

An acidic effluent was released into a local river causing serious pollution and disabling a local sewage treatment plant. The discharge flowed through a pipe which had been out of operation since 1960s.

[spill, chemical, leak, ecological damage, unknown chemicals]

Lessons

[None Reported]

9010 March 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 0 Dead : 0

Abstract

A leak of molten aluminium and salt. About 100 kg of aluminium chloride mixture was released. The incident occurred whilst staff were attempting to clean a blocked feed pipe. The molten material reacted with atmospheric water from a toxic vapour cloud of hydrogen chloride gas.
[cleaning, unwanted chemical reaction, gas / vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , INDIA

Injured : 0 Dead : 0

Abstract

Blowout at crude oil well caught fire and covered a 3,000 sq metre area. Flames leapt 30-40 metres into the air. Two villages were evacuated. The drilling rig collapsed following the fire. Capping was not expected to be completed for about 60 days.

[fire - consequence, evacuation, exploration]

Lessons

[None Reported]

8801 19 February 1997

Source : LLOYDS LIST, 28 FEB, 1997,; LOSS CONTROL NEWSLETTER, JAN, 1997.

Location : , RUSSIA

Injured : 0 Dead : 0

Abstract

A fire occurred in a storage tank containing hexachloromelamine occurred during maintenance repair work. Chlorine release from the tank when workers tried to extinguished the fire with water.

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

Lessons

[None Reported]

Source : LLOYDS LIST, 18-21 FEB, 1997, LOSS CONTROL NEWSLETTER, JAN, 1997.

Location : , RUSSIA

Injured : 0 Dead : 0

Abstract

A spill occurred of about 1,500 tonnes of crude oil of which 400 tonnes went into the Volga after pipeline ruptured while under repair. A 60 ft section of the pipeline was replaced.

[transportation, pollution, material of construction failure]

Lessons

[None Reported]

9028 09 February 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

Three hundred and thirty pounds of liquid, mostly water but containing 1.5% acetic acid was released. The spill occurred when a control valve failed on a solvent stripper.

No injuries were reported and contamination was minimal.

[mechanical equipment failure, valve failure]

Lessons

[None Reported]

Source : ICHEME**Location :** , UK**Injured :** 2 **Dead :** 0**Abstract**

A company technician and an instrument/electrical contractor were preparing to install a local capillary sealed differential pressure indicator to a catalyst filter. The men had been issued with a permit to work which requires full personal protection equipment and self contained breathing apparatus to be worn. On arriving at the location a nitrogen hose, connected to the catalyst system, was restricting access to the workplace.

To improve access, the hose, previously used to purge the filter from the system and valve isolated at either extremity, was disconnected. This operation released a small quantity of the filter which created a cloud of 10 to 12 inch length to which both men were exposed. At the time of this activity neither of the men had their breathing mask fitted since they were not aware that the disconnection constituted a break of containment for which breathing apparatus had to be worn.

Immediately after this event the contractor, who had been closer to the release than the technician, went to the control room for treatment (water wash and application of catalyst anti-dote gel), after which he received further treatment at the Medical Centre.

The technician was not aware that he had been affected until about an hour later, after this delay he too washed and applied anti-dote in the control room and went for treatment at the Medical Centre.

Both men were taken to hospital where they were kept overnight for observation. They were released in the morning and returned to work that day.

[maintenance, burns, safety procedures inadequate, gas / vapour release, injury]

Lessons

Recommendations following the accident included the following:

Reinforce to Production Teams that connecting and disconnecting of hoses is breaking containment with associated personal protection equipment /control of work requirements.

Operating Instructions to be updated in detail. Infrequent operations require a greater level of detail.

All personnel should be made aware that all injuries, no matter how apparently trivial, should be reported to the Medical Centre for immediate treatment to avoid a more serious condition developing.

Source : FIRE PREVENTION 325, OCTOBER 1999.

Location : , UK

Injured : 0 Dead : 0

Abstract

An explosion occurred within the production line of an aerosol plant causing a fire and injuring three workers. A call to the fire brigade was done immediately after the explosion occurred.

The brigade managed to contain the fire to the packing area, which contained large quantities of cardboard and plastic.

The Health & Safety Executive carried out an investigation and ascertained that after being filled with butane gas, the cans were placed in a warm water bath of approximately 55 degrees C for a few minutes to raise the pressure in the cans from 3 bar to 7-8 bar. At this pressure if there was a weakness in a can then it would show and the gas would vent to fresh air.

To eliminate the problem of the water overheating a device raised the cans out of the water at a pre-set temperature. There was a second with a thermostat that monitored the water's temperature.

It is thought that on this occasion the first device was set too high a temperature and due to a modification earlier in the day, the thermostats had been bypassed. These circumstances resulted in excessive pressure in the aerosol cans and a number of them split, releasing a gas cloud that appears to have travelled outside the immediate vented area to a source of ignition.

[fire - consequence, modification procedures inadequate, high pressure, rupture, leak, normal operations, aerosol propellant]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

The failure of a tank discharge pump caused a tank containing acetic acid and anhydride, to overflow into its bund. The standby pump was started. However a leaking flange required the level in the bund to be controlled by pumping out into road tankers, and to discharge approx 40 to 50 tonnes to trade effluent. This was contained at the water works, with no resultant spillage to the local river.

[pump failure, near miss]

Lessons

[None Reported]

9026 23 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.

Location : Memmingen, GERMANY

Injured : 0 **Dead** : 0

Abstract

A fire caused poisonous gas to pour into the centre of the town. The gas cloud contained traces of cyanide and ammonia. The fire spread to three nearby houses and four nearby apartment blocks were evacuated. The fire started in a factory hall where cleaning fluids were being produced and spread to another building. Arson is the probable cause.

[fire - consequence, gas / vapour release, evacuation, processing, cyanide fumes]

Lessons

[None Reported]

Source : ICHEME

Location : , GERMANY

Injured : 0 Dead : 0

Abstract

An incident at an acrylics manufacturing plant. An upper tray in a steam stripping column shifted. This was normally prevented by regular cleaning measures, but routine cleaning was not scheduled for a further two months.

As a result of the shift and subsequent blockage, inflowing filtrate containing acrylonitrile escaped from the system and leaked into a bunded area. The level in the bund rose such that the contaminated water leaked into an adjacent waterway and into the nearby river.

The local fire brigade attended the scene and pumped the water out of the bund and into a container.

The local County Council and Water Authority were notified.

[flow restriction, spill, processing, environmental]

Lessons

Change of cleaning routine from 6 to 4 months.

Source : HAZARDOUS CARGO BULLETIN, 1997, MAR.

Location : Lahore, PAKISTAN

Injured : 100+ **Dead** : 20

Abstract

A road transportation incident. A leak of poisonous gas occurred, the gas believed to be chlorine, leaked from drums loaded inside two containers which were being carried on a lorry that slid into a ditch. It is believed that the safety valves on the drums had not been tightened properly and loosened as the truck slid into the ditch.

The leak lasted for several hours until the area was flooded the area to dissipate the gas. 1,000 people were evacuated into nearby schools. Police in gas masks eventually removed the containers.

[evacuation, fatality, injury]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , PAKISTAN

Injured : 200 **Dead :** 20

Abstract

A road transportation incident. Chlorine gas leaked from drums loaded inside two containers on a lorry which slid into a ditch. It is believed that the safety valves on the drums had not been tightened properly and loosened as the truck slid into the ditch.

[gas / vapour release, design or procedure error, fatality]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV.

Location : Zambia, AFRICA

Injured : 0 **Dead** : 0

Abstract

A rupture occurred on a crude oil pipeline causing pollution. A recent evidence of further leakage results from split oil filtering down from the pipeline trench and through to the ground water. The pipeline was in a poor state of repair due to the lack of maintenance.

[human causes, spill]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : Dorset, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a plating factory. Firefighters wearing breathing apparatus and chemical protection suits were sent into the factory to find the core of the fire and gauge the danger of the chemicals. It was known that some of the chemicals reacted with water, others would produce highly toxic gases if involved with fire and others were known to be marine pollutants. Therefore, the fire had to be tackled with minimum amounts of water.

The presence of cyanide and the risk of chemical explosion prompted the evacuation of about 300 people from the surrounding area. The intensity of the fire forced firefighters to retreat outside the building and continue operations from there. The fire was contained on the first floor area and extinguished.

Investigation showed that the cause of fire was the overheating of an electrical rectifier, used to convert AC supply to DC for the electroplating process.

Estimated loss was £1,000,000 (1997).

[fire - consequence, toxic gas, cyanide fumes]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A spillage of timber preservative occurred causing pollution of a watercourse. The chemical spill should have been contained within a bund but the bund was unlined and the preservative leaked into the watercourse killing aquatic life.

[ecological damage, unknown chemicals]

Lessons

[None Reported]

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 0 **Dead :** 0

Abstract

A catalyst-containing supply vessel exploded during transfer of solution to another vessel.

[material transfer, explosion, container]

Lessons

[None Reported]

112041997

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A tube failure on the fin fan air cooler released, over a period of 1 hour, approximately 2 tonnes of butane and 10Kg of HF (hydrogen fluoride) vapour.
[processing, condenser, fin fan cooler, gas / vapour release]

Lessons

Current monitoring of the condenser tube X radiographs, at 2 yearly intervals did not identify the fault. The monitoring program is being reviewed.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 0 Dead : 0

Abstract

An incident occurred during a telescoped iron reduction/acetylation process. The reduction was carried out in the presence of an anhydride and the reduction product, an aromatic amine, was converted in situ to the corresponding acetylamino species. The process began when heat was generated in the normal manner but following the addition, the batch self heated at an increased rate. It boiled and the reactor over-pressurised. A substantial amount of the batch was subsequently ejected from the vessel.

[reactors and reaction equipment, overpressurisation, spill, processing, uncontrolled reaction, unknown chemicals]

Lessons

[None Reported]

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 : 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 : ICHEME

Location : , UK

Injured : 0 **Dead :** 0

Abstract

Approximately 6 tonnes of cold glacial acetic acid leaked from a pump gland for up to an hour. The leak went directly to the site drain and into the site effluent system.

[mechanical equipment failure, spill]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A benzene production plant had been restarted after a three day shutdown, and had been on line for approximately 5 hours, when there was a loss of containment at the inlet flange on the top of the reflux drum as plant production rates were being increased. The released material comprised about 500 Kg of a mixture of 75% benzene and 25% other hydrocarbons.

Increases in production immediately before the release had initiated 2-phase flow in line, leading to severe hammer as alternate slugs of vapour and liquid impacted a pipe bend near the reflux inlet. This hammer caused the nuts on the reflux inlet flange to loosen by vibration, with subsequent leakage. The risk of such hammer from the specific combination of pressure, temperature and flow had not been anticipated, and was not covered in the plant operating instructions.

[gas / vapour release, excessive vibration]

Lessons

1. Engineering changes were made to the design and operating envelope of the plant to prevent the combination of pressure, temperature and flow giving rise to the hammer phenomenon.
 2. Additional temperature alarms and flow indicators were provided.
 3. Operating instructions were reviewed and revised.
-

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

930 kgs of flammable liquid, a mixture of acetic acid, ethyl acetate, benzene and water was released when a pipeline flange joint failed, during a plant start-up. This mixture was released to dirt drains.

[joint failure, spill]

Lessons

[None Reported]

9020 December 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 2 Dead : 0

Abstract

An explosion occurred when sparks from a cutting torch ignited vapours emitted from a barrel of scrap metal injuring two workers.

[hot work, vapour cloud explosion, gas / vapour release, flammable chemical, injury]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

During the start-up of an anhydride unit a flange leak occurred resulting in the loss of approximately 5 tonnes of a mixture of acetic acid, acetic anhydride and smaller quantities of benzene. The leak spilt into a dirty drain and was contained on site by being diverted to a containment pit. An incident response team was on standby throughout.

[flange failure, spill, near miss]

Lessons

[None Reported]

8651 27 November 1996

Source : LLOYDS LIST, 1996, DEC, 3.

Location : Lima, PERU

Injured : 0 Dead : 12

Abstract

Fire in fireworks factory when keg of gunpowder exploded. Fatality.
[explosion, fire - consequence, processing, black powder (gunpowder)]

Lessons

[None Reported]

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

Location : Yosu, SOUTH KOREA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A marine crude tanker with 250,000 tonnes crude oil on board struck dolphin causing spillage of 300 tonnes from punctured side tank.

[collision]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A night shift was converting bright dope into matt dope using a mixer by adding titanium paste. When the operator went to discharge the mixer he opened the wrong valves. The dope was discharged to old pipework which at the time was being decommissioned and had an open end. Approximately 2000 kilograms of matt dope was released. The dope was approximately 73% acetone and 27% acetate.

[operator error, mixing, spill, decommissioning]

Lessons

[None Reported]

8645 30 October 1996

Source : LLOYDS LIST, 1996, NOV, 11.

Location : , THAILAND

Injured : 0 Dead : 0

Abstract

1,000 barrels of crude oil spillage leaked into sea during routine transfer operation.

[pollution, material transfer]

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.

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Approximately 1.3 tonnes of aqueous acetone was released (70% acetone) when a bursting disc failed due to a high base pressure during start-up.
[bursting disc failure, high pressure, spill]

Lessons

[None Reported]

8635 24 August 1996

Source : LLOYD LIST, 1996, AUG, 28.; NATIONAL TRANSPORTATION SAFETY BOARD, 1998, (<http://www.nts.gov>).

Location : Lively, Texas, USA

Injured : 0 Dead : 2

Abstract

A transportation incident. An 8-inch diameter steel LPG pipeline transporting liquid butane ruptured sending a butane vapour cloud into a nearby residential area forcing an evacuation.

Two residents were killed when they entered the vapour cloud in a vehicle sparking off an explosion.

Loss of product occurred worth approximately \$217,000, (1996).

It is thought the incident occurred due to corrosion.

[explosion, evacuation, fire - consequence, fatality, product loss]

Lessons

[None Reported]

Source : THE GUARDIAN, 1996, AUG, 8.; CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , UK

Injured : 0 Dead : 2

Abstract

An explosion and fire destroyed an adhesives factory. The incident occurred whilst workers were emptying 205 litre drums containing highly flammable liquids into a 1500 litre vessel by hand. The company was fined £100,000 (1999). Three years previously, the company had begun risk assessment, but had never completed it.

[processing, fatality, material transfer, fire - consequence, safety procedures inadequate]

Lessons

The case highlights the need to comply with Management of Health and Safety at Work Regulations 1992. (Chemical Hazards In Industry, Sept 1999).

9064 03 August 1996

Source : COPYRIGHT 1994-1996, SAN DIEGO DAILY TRANSCRIPT.

Location : California, USA

Injured : 3 Dead : 0

Abstract

A rail transportation incident. A train derailment caused two loaded tank cars to career onto their sides, causing a major spill of non-flammable alcohol and fatty acids. Three boxcars were also involved causing damage to the track.
[damage to equipment]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A sudden emission of some 33 tonnes of hydrocarbon vapour from a floating roof crude tank occurred at a refinery. The release was caused by an uncontrolled heat input to the steam coils in the tank, which contained a mixture of crude oils and a considerable amount of wet process unit slops. This event was potentially catastrophic. When the cause of the emission was discovered, a full emergency response situation was declared, the tank was isolated from the steam supply and cooled to bring it back into a safe condition.

[gas / vapour release, floating roof tank, process causes, refining, design or procedure error]

Lessons

[None Reported]

8592 14 May 1996

Source : LLOYDS LIST, 1996, MAY, 20.

Location : ,

Injured : 0 Dead : 0

Abstract

A leak of ammonia followed by another on the 16 May from a recently constructed plant during start-up operations.

Lessons

[None Reported]

1000012 May 1996

Source : LOSS CONTROL NEWS LETTER, 2/96.

Location : Yerevan, ARMENIA

Injured : 1 **Dead** : 1

Abstract

A plant, located near the centre of the Armenian capital, had been re-opened after public pressure to close in 1988. The explosion was reported not to have resulted in harmful emissions from this chloroprene rubber unit.

[near miss, processing, fatality, gas / vapour release]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Lisichansk, UKRAINE

Injured : 0 **Dead** : 0

Abstract

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

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

Lessons

[None Reported]

8287 02 May 1996

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

Location : Santa Barbara Channel, USA

Injured : 0 **Dead** : 0

Abstract

Spillage of 50 barrels of crude oil during processing.

Lessons

[None Reported]

8786 22 April 1996

Source : EUROPEAN CHEMICAL NEWS 6, 1996, 5, DEC.

Location : Ludwigshafen, GERMANY

Injured : 0 **Dead** : 0

Abstract

Some 1.5 ton of gaseous butadiene escaped through a ruptured pipe at an 80,000 tonne per year plant. There were no injuries and damage was confined to a 30 cm long crack in the affected pipe.

[damage to equipment, leak]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 2ND QUARTER, 1996.

Location : Clear Lake , Texas, USA

Injured : 0 **Dead** : 0

Abstract

A fire occurred in the carbon monoxide unit and lasted 2 hours.

[fire - consequence]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Ryazan, RUSSIA

Injured : 0 **Dead :** 6

Abstract

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

Lessons

[None Reported]

Source : ENDS REPORT 261, 1996, OCT.

Location : Co Durham, UK

Injured : 0 **Dead** : 0

Abstract

Up to 50 kg of chlorine were released from a faulty connection between a road tanker and a storage tank.

[storage tanks, spill, material transfer]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Rostov, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Approximately 500 tonne of crude oil leaked from the 700 mm pipeline into the nearby river.
[spill, pollution]

Lessons

[None Reported]

9998 09 April 1996

Source : LOSS CONTROL NEWS LETTER, 2/96.

Location : Beno-Vedeno, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A large quantity of gas condensate was released in the centre of a village which was subsequently evacuated. Incident due to terrorism.

[gas / vapour release, evacuation]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Texas, USA

Injured : 3 **Dead :** 0

Abstract

An explosion occurred in a crude oil distillation unit, vapour compression room of a refinery.
[refining, pressure raising equipment, compressor, maintenance]

Lessons

[None Reported]

8582 15 March 1996

Source : LLOYDS LIST, 1996, MAR, 16.

Location : Paese, ITALY

Injured : 11 Dead : 1

Abstract

A road transportation incident. Two road tankers carrying butane burst into flames. A gas leak was spotted as 5 tankers were unloading into storage tanks. Schools and houses within 1 km radius evacuated. Fatality.
[evacuation, fire - consequence]

Lessons

[None Reported]

8705 11 March 1996

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

Location : Bintulu, MALAYSIA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Spillage of crude oil occurred following a hose line burst during loading. The accident occurred while the oil marine tanker was making fast to the terminal.

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Bintulu, MALASYIA

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. A spillage of crude oil occurred following a hose line burst while a road tanker was on its way to the terminal.
[mechanical equipment failure]

Lessons

[None Reported]

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.

Location : Tyumen, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. A total of some 12,400 tonne of crude oil leaked from the ruptured pipeline. Pollution had reached areas up to 7.5 km away.
[environmental]

Lessons

[None Reported]

8576 05 March 1996

Source : LLOYDS LIST, 1996, MAR, 8.

Location : Montevideo, URUGUAY

Injured : 0 Dead : 0

Abstract

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

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

Lessons

[None Reported]

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

Location : Samara, RUSSIA

Injured : 0 Dead : 2

Abstract

A mixture of fuel and air caused an explosion when a furnace was being lit to start-up a catalytic reforming facility. Fatality.
[catalytic reformer, residue]

Lessons

[None Reported]

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

Location : Komi Republic, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. 60 cum (cubic metres) of crude oil spillage due to faulty seal.

[seal failure]

Lessons

[None Reported]

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

Location : , AUSTRALIA

Injured : 0 Dead : 0

Abstract

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

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

Lessons

[None Reported]

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

Location : Antioquia, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Explosion on pipeline caused by sabotage was the third on this pipeline this year. 6500 bbl of crude oil spillage.

Lessons

[None Reported]

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

Location : Remedios, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

An explosion tore through a section of the 150,000 barrel per day crude oil pipeline caused by sabotage.

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, FEB, 23.

Location : Tennessee, USA

Injured : 0 **Dead** : 0

Abstract

Rail transportation. 500 evacuated for a second time on the 13 Feb after a flash fire from a midweek chemical spill. Rail tanker split open and 8000 gallons of carbon disulphide spillage. People within 1/2 mile evacuated for two nights.

[fire - consequence, evacuation]

Lessons

[None Reported]

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

Location : Arauquita, COLOMBIA

Injured : 0 **Dead :** 0

Abstract

Transportation. The explosion in the 220,000 bpd pipeline, the tenth this year, caused a 6500 bbl spillage of crude oil into the surrounding area. Sabotage is the most likely cause.

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 : California, USA

Injured : 0 Dead : 2

Abstract

A rail transportation incident. A freight train carrying hazardous chemicals derailed and caught fire. Fatality
[fire - consequence, derailment, chemicals unknown]

Lessons

[None Reported]

1810 01 February 1996

Source : LLOYDS LIST, 1996, FEB, 3.

Location : Los Angeles, USA

Injured : 0 Dead : 0

Abstract

Rail transportation. Freight train carrying hazardous chemicals derailed and caught fire and sent up large toxic cloud causing the evacuation of 1/2 square mile area.

[derailment, gas / vapour release, fire - consequence, chemicals unknown]

Lessons

[None Reported]

Source : ICHEME

Location : , GERMANY

Injured : 0 Dead : 0

Abstract

An incident at a fibre manufacturing plant.

Failure of an electrical supply to a conveyor system led to the incorrect charging of a reactor vessel. The failure was not noticed by the trainee operator until subsequent raw materials, including carbon disulphide, had been charged.

A local panel convened to investigate, and to recommend how to empty the vessel.

[electrical equipment failure, charging reactor, reactors and reaction equipment, plant / property / equipment]

Lessons

Re-draft of operating instructions.

Engineering measures to prevent incorrect charging sequence.

Upgrade of conveyor electrical supply.

8457 24 January 1996

Source : WASTE ENVIRONMENT TODAY, 1996, VOL 3, NO. 3, 1996, VOL 19, NO.10.

Location : Flix, SPAIN

Injured : 0 Dead : 0

Abstract

A leak from a broken valve in the chloroform plant resulted in the release of 5 tonnes of chlorine.

[valve failure, spill, processing]

Lessons

[None Reported]

8660 16 January 1996

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

Location : Ludwigshafen, GERMANY

Injured : 3 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : EUROPEAN CHEMICAL NEWS, 1996, FEB, 26.

Location : Ludwigshafen, GERMANY

Injured : 25 Dead : 0

Abstract

An explosion occurred in a diaphragm chlorine plant causing \$1.4 m (1996) damage. A cloud of hydrochloric acid, sulphuric acid and chlorine was released. The cause was a blockage in the outlet for condensed water vapour from the hydrogen system of the plant. Plastic anti-corrosion material from inside the pipes is believed to have caused the blockage. Hydrogen was then forced back into the electrolytic cell and through its diaphragm into the chlorine system. The excess hydrogen reacted violently with the chlorine causing an explosion in the drier section of the plant where chlorine is washed with sulphuric acid to remove water vapour.

[unwanted chemical reaction, damage to equipment, gas / vapour release, unwanted chemical reaction, processing]

Lessons

[None Reported]

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

Location : North Central, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Rebels detonated two explosive devices on the pipeline carrying crude oil. Some 6,000 bbl of oil spillage, polluting agricultural land and some lagoons.

[explosion, pollution, sabotage]

Lessons

[None Reported]

8571 06 January 1996

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

Location : , UK

Injured : 0 Dead : 0

Abstract

A road transportation incident. Chemical spill on motorway.
[unknown chemicals]

Lessons

[None Reported]

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

Location : Pennsylvania, USA

Injured : 40 **Dead** : 0

Abstract

Chlorine release caused a vapour cloud over the town but was dissipated after a number of hours. The leak occurred while product was being transferred from a rail tanker to production equipment.

[gas / vapour release, material transfer]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 1

Abstract

Contractors were attempting to unplug a blockage in a pump suction line in the bottom of a mix tank used in their process to convert hazardous waste material into cement kiln fuel. One of the contractors decided to enter the tank, contrary to instructions from his supervisor, in an attempt to expedite the work. He was wearing an air purifying respirator (canister mask) and protective clothing but quickly became disoriented and lost consciousness. He had been exposed to benzene. Fatality

[entry into confined space, asphyxiation, operator error]

Lessons

There was lack of sufficient appreciation for the acute toxic hazards of petroleum hydrocarbons.

There is a need to ensure that contractors effectively carry out their written safety programmes in the field.

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

The failure of a crude oil bypass line at a refinery. The crude oil bypass line on the CO1 exchangers on a crude unit failed, and there was a release of crude oil. There was damage to equipment. It was found that there had been severe localised chloride induced under deposit corrosion. Contributing to this was an incorrect unit throughput set point caused by an abnormal increase in line pressure. The area of failure was not easy to access/monitoring and in fact, the line had been leaking for a period of time prior to failure. There was a stagnant area, dead end between the isolation block valve and the main line (as it was not self draining), which allowed the build-up of crude sludge.

[refining]

Lessons

Corrosion to the point of failure in stagnant sections of pipelines is not always easy to detect at early stages and HAZOP and inspection procedures need to assess requirements.

Control limits on operating parameters may need to be fixed to avoid entering potentially hazardous zones in error.

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , UK

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. More than 70,000 metric ton of crude oil spilled in the sea and polluted 35 miles of coastline. The tanker ran aground three times in a rescue attempt.

[ship ran aground, pollution]

Lessons

[None Reported]

Source : LLOYDS LIST, 1996, JAN, 13, JAN, 26.

Location : Komi Region, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Pipeline ruptured causing spillage of 2,800 barrels of crude oil. The rupture was attributed to corrosion. Oil polluted river.
[pollution]

Lessons

[None Reported]

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

Location : Mississippi River, New Orleans, USA

Injured : 0 **Dead** : 0

Abstract

A river transportation incident. 38,000 gallons of crude oil spillage following the collision of a single hulled tanker river barge with a steel dolphin, causing a 1.2 metre gash. River closed to traffic for 4 days.

Lessons

[None Reported]

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

Location : Sullom Voe, UK

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Crude oil spillage occurred of 2 - 5 tonnes. Leak appeared to come from crack in port wing tank of marine oil tanker.

Lessons

[None Reported]

8246 10 December 1995

Source : THE CHEMICAL ENGINEER, 1995, DEC, 14.

Location : Runcon, UK

Injured : 0 Dead : 0

Abstract

A toxic cloud hung over the site following an acid release from one of its storage tanks. Chlorosulphonic acid escaped from the base of a stock tank fuming into a cloud of hydrochloric acid and sulphur trioxide.

[gas / vapour release]

Lessons

[None Reported]

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

Location : Aschaffenburg, GERMANY

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence]

Lessons

[None Reported]

8215 16 November 1995

Source : LLOYDS LIST, 1995, NOV, 18.

Location : Langbank Area, Saskatchewan, CANADA

Injured : 0 **Dead :** 0

Abstract

Transportation. World's longest 34 inch pipeline ruptured for the second time in five months causing the spillage of 7,500 barrels of crude 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]

8216 14 November 1995

Source : LLOYDS LIST, 1995, NOV, 11.

Location : Pittsburgh, Pennsylvania, USA

Injured : 0 Dead : 0

Abstract

An explosion in a tank containing unknown chemicals forced evacuation of houses.

Lessons

[None Reported]

8223 28 October 1995

Source : THE OBSERVER, 1995, OCT, 29.

Location : St Neots, Cambridgeshire, UK

Injured : 0 Dead : 0

Abstract

A fire started in plating plant and engulfed the factory containing unknown chemicals. Residents in the town were advised to stay in-doors.
[fire - consequence]

Lessons

[None Reported]

Source : EMERGENCY PLANNING NEWS, ISSUE 34.

Location : Knebworth, Hertfordshire, UK

Injured : 16 **Dead** : 0

Abstract

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

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

Lessons

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

8251 26 October 1995

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

Location : Ventspils, LATVIA

Injured : 0 **Dead** : 0

Abstract

Transportation. A spillage of more than 50 tonnes of crude oil from a pipeline when there was an illegal attempt to tap into the line.
[sabotage]

Lessons

[None Reported]

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

Location : Shafter, California, USA

Injured : 15 **Dead** : 0

Abstract

A rail transportation incident. Chlorodifluoromethane release following the derailment of a rail tanker.

[gas / vapour release]

Lessons

[None Reported]

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

Location : Colombo, SRI LANKA

Injured : 0 **Dead** : 20

Abstract

155,000 tonnes of crude oil and petroleum products were lost following attacks at two depots and fire. Black smoke shrouded the city. Fatality.
[fire - consequence, sabotage]

Lessons

[None Reported]

8205 19 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Cul de Sac, ST. LUCIA

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Leaking pipe onboard 150,000 dwt marine oil tanker caused 11,000 litres of crude oil to flow to sea and harbour. Small beach pollution.

Lessons

[None Reported]

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

Location : , KUWAIT

Injured : 0 Dead : 0

Abstract

One of two strings of hoses parted during loading of 350,000 dwt tanker. Up to 800 tonne crude oil spillage occurred.
[hose failure]

Lessons

[None Reported]

8188 16 October 1995

Source : LLOYDS LIST, 1995, OCT, 18.

Location : Invercargill, NEW ZEALAND

Injured : 0 **Dead** : 0

Abstract

Warehouse fire contained unknown chemicals. Believed to be arson.

[fire - consequence, warehousing, storage]

Lessons

[None Reported]

8200 11 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Manu St., Otahuhu, NEW ZEALAND

Injured : 50 Dead : 0

Abstract

Toxic fumes spread over the town and inhabitants urged to attend the hospital if feeling unwell. The explosion and fire occurred in a blender which was mixing azinphos-methyl, an insecticide which is an organic phosphate. Little water used to restrict runoff. 700 evacuated.
[fire - consequence, evacuation, gas / vapour release]

Lessons

[None Reported]

8227 09 October 1995

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

Location : Immingham, Humberside, UK

Injured : 3 Dead : 0

Abstract

A spillage from a leak of liquid ammonium nitrate through a drainage pipe on a 3500 tonnes static tank.

Lessons

[None Reported]

8466 05 October 1995

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

Location : Yorkshire, UK

Injured : 0 Dead : 0

Abstract

Sulphur trioxide escaped from low level temporary chimney during the start-up of the sulphuric acid plant following a biannual shutdown. Gas oil was being used in the burner to preheat the catalyst, and the combustion gases were being emitted through a temporary chimney just 20 ft high. At the same time the company decided to use the plant's oleum scrubbing tower to produce pure sulphur trioxide for sale. The tower was incapable of being isolated from the upstream section of the process, and some of the evaporated sulphur trioxide escaped to air via the temporary chimney. The company claimed that only a few kilograms had been released. The discharge continued for 2-3 hours and formed a mist.

[gas / vapour release]

Lessons

[None Reported]

8184 04 October 1995

Source : LLOYDS LIST, 1995, OCT, 5.

Location : Tobolsk area, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. Crude oil pipeline closed after spillage over 600 sq. metres.

Lessons

[None Reported]

8208 04 October 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, DEC.

Location : Tobolsk Area, Siberia, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. Major crude oil pipeline closed after being damaged. Crude oil spillage spread to an area of 600 sq. metres.
[damage to equipment]

Lessons

[None Reported]

8219 October 1995

Source : THE OBSERVER, 1995, OCT, 29,; GUARDIAN, 1995, OCT, 30.

Location : Koscise, SLOVAKIA

Injured : 170 Dead : 11

Abstract

11 killed after a gas pipeline containing carbon monoxide ruptured. Leak. Fatality.

Lessons

[None Reported]

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

Location : , HONG KONG

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Marine tanker rammed a jetty causing 20 tonne of crude oil spillage. No major pollution as leak was stopped and dispersant used.

[collision]

Lessons

[None Reported]

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

Location : Pusan, SOUTH KOREA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A 14 year old marine oil tanker carrying a full load of crude oil had been refloated after going onto rocks. The tanker was refloated but sank again while on tow causing pollution.

[sinking]

Lessons

[None Reported]

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

Location : Houston, Texas, USA

Injured : 0 **Dead** : 0

Abstract

A fire started when lightning struck a 168,000 bbl crude oil floating roof tank.

[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 4 Dead : 2

Abstract

An incident in a vertical sulphur converter vessel involving six contract maintenance personnel resulted in two fatalities and four injuries. The personnel were removing residual catalyst and refractory debris from the lower converter when the inner baffle failed under pressure. The failure of the inner baffle fatally injured one of the two workers in the lower converter and injured the other. A second fatality occurred when one man outside the manhole of the lower converter was blown from the working platform and fell to the ground. Two other workers outside the lower converter on the platform, were also injured. (A third worker reported injury the following day). The Refinery general alarm was sounded immediately after the incident and the advance call-out system activated. External emergency services were also notified. The injured inside the vessel were pulled out and lowered to grade level where emergency first aid was provided. Entry into the vessel for the other worker could not be immediately carried out due to low oxygen level and high hydrogen sulphide and sulphur dioxide concentrations. The three injured were transported to hospital.

The sulphur converter vessel involved was located in one of two sulphur recovery units. The vessel was lined with refractory and was divided into two converters by a steel wall, referred to as an inner baffle. The vessel was about 0.5 m I.D. and 9.1 m overall length, was fabricated in 1954 and had a name plate pressure rating of 65 psi. The vessel as a whole had been designed to withstand this pressure but the inner baffle was not.

An investigation found that the vessel O₂ and H₂S levels were tested on the morning of September 6 and found to be within permissible limits. An entry permit was issued for the removal of catalyst from both top and bottom converters and the task was completed by about 19:00 hrs. the same day. Another gas test at 19:10 hrs. for the job order to remove residual catalyst and refractory debris from under the screen grids of the lower converter indicated a H₂S concentration of 50 ppm. High H₂S continued to be detected in the top converter despite attempts at steam purging, air purging and nitrogen purging. A decision was then made to seal the upper converter and to introduce nitrogen into it from a utility header with a pressure of about 60 psig. An entry permit was issued for the lower converter. The nitrogen flow was initiated at about 01.45 hrs., September 7, and maintenance contractors began work in the lower converter at about 02.00 hrs. The job was carried out by a two man entry crew and a four man crew assisting the cleaning effort by handling the residual materials as they were removed from the lower converter. At about 02:35 hrs. the inner baffle which separated the lower converter from the upper converter failed under the differential pressure built up between the two converters, resulting in the above fatalities and injuries.

The following corrective actions were carried out after the incidents:

1. modified the internal baffle design of the replacement vessel.
2. reviewed Process Safety Information to identify the existence of any similar vessel designs so that future maintenance procedures can address any comparable over-pressure issues.
3. modified refinery policies such that any new or unique situations that arise during the course of operation or maintenance will require a high level of management participation prior to the implementation of any actions to address the said situations.
4. reviewed the Confined Space Entry procedure to determine if further practical improvements can be made, even though all regulatory requirements were met.

[high pressure, fall, explosion / pressure release, entry into confined space, fatality, design or procedure error, injury]

Lessons

All parts of a vessel must be designed to withstand the pressures that may be required during maintenance activities.

Departures from normal operational or maintenance practices must be subjected to a Management of Change review.

Rescue of trapped personnel in confined spaces should be included in the emergency procedures and rehearsed in drills.

8181 06 September 1995

Source : LLOYDS LIST, 1995, NOV,; HAZARDOUS CARGO BULLETIN, 1995, SEP, 15.

Location : Irving, Dallas, Texas, USA

Injured : 0 Dead : 0

Abstract

A fire occurred at water treatment chemicals plant. Chlorine release cloud drifted over suburb. Businesses, apartments and university evacuated.
[fire - consequence, gas / vapour release, evacuation, drains & sewers]

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]

1900 23 August 1995

Source : LLOYDS LIST, 1995, AUG, 25.

Location : Tengiz, KAZAKHSTAN

Injured : 6 **Dead :** 1

Abstract

Transportation. Explosion and fire at a crude oil pumping station. Fatality.
[fire - consequence]

Lessons

[None Reported]

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

Location : Kucove, ALBANIA

Injured : 0 **Dead** : 0

Abstract

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

[explosion, fire - consequence, storage]

Lessons

[None Reported]

1894 20 August 1995

Source : THE CHEMICAL ENGINEER, 1995, SEP, 14; LLOYDS LIST, 1995, AUG, 22.

Location : Preston, UK

Injured : 0 Dead : 0

Abstract

Explosion in a drum that contained waste from a distillation process and was a mixture of bromodiethyl carbonate, diethyl carbonate and ethyl bromoacetate. This caused a cloud to drift over the town from the chemical works.
[drums, gas / vapour release, evacuation]

Lessons

[None Reported]

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

Location : Huangpu, Guangzhou, CHINA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A 30,000 tonne marine oil tanker carrying crude oil rammed into a dock, causing an oil spillage which subsequently caught fire. The port discharges up to 200,000 tonnes of fuel oil per month.
[fire - consequence, collision]

Lessons

[None Reported]

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

Location : Huangpu, SINGAPORE

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Spillage of crude oil resulting from collision of marine tanker closed port for two days.

Lessons

[None Reported]

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

Location : Buffalo, New York, USA

Injured : 7 **Dead :** 1

Abstract

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

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

Lessons

[None Reported]

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

Location : Corpus Christi, Texas, USA

Injured : 0 **Dead** : 0

Abstract

The fire, which occurred in a vacuum unit of a refinery, caused the entire crude complex to be shut down for approx. 3 to 4 weeks. The fire itself burned for 3/4 hours. The vacuum tower that allows the crude unit to process heavier crude will remain down, and the refinery will shift to lighter crude.
[crude oil, fire - consequence, refining, separation equipment]

Lessons

[None Reported]

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

Location : Tashkent, UZBEKISTAN

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A train crashed causing spillage of 500 tonnes of crude oil. The incident started a forest fire and resulted in pollution of a river, lake and irrigation network.

[fire - consequence]

Lessons

[None Reported]

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

Location : Tyumen, Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

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

[storage tanks]

Lessons

[None Reported]

1897 August 1995

Source : LLOYDS LIST, 1995, AUG, 8.

Location : Corpus Christi, Texas, USA

Injured : 0 **Dead** : 0

Abstract

Fire forced closure of crude oil unit.

[fire - consequence, processing]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 128, 7-10.

Location : , FINLAND

Injured : 0 Dead : 0

Abstract

This incident occurred between August and September 1995.

15,000 litres of detergent leaked into sewers, passed through a water treatment plant and seriously polluted a 60 km stretch of river. Damage to the river was extensive and very large numbers of fish and surface life were killed, partly by asphyxiation but many of the fish showed signs of severe bleeding in the gills, probably caused by the high levels of ammonia and surfactants in the water.

[pollution, ecological damage]

Lessons

1. All plant modifications, however apparently trivial, must be subject to a change control procedure involving a safety review by qualified personnel.
 2. Because a substance is a common household item, it does not mean that it is not capable of causing widespread damage if released in sufficient quantity and at a sufficient concentration.
 3. Frequent small releases are often a sign of a big one waiting to happen.
 4. All organisations should have a disaster plan with lines of communication clearly defined.
-

1862 31 July 1995

Source : LLOYDS LIST, 1995, 1 AUG.

Location : Tokyo, JAPAN

Injured : 17 **Dead** : 0

Abstract

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

Lessons

[None Reported]

3828 28 July 1995

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

Location : Santa Fe Springs, California, USA

Injured : 19 **Dead** : 0

Abstract

A pump in a bleach manufacturing plant broke down, spilling liquid chlorine that developed into a release of a toxic cloud.

[gas / vapour release, pump failure]

Lessons

[None Reported]

1828 24 July 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, SEP.

Location : , SOUTH KOREA

Injured : 0 Dead : 1

Abstract

Marine transportation. A marine oil tanker was driven onto rocks by Typhoon Faye, causing a spillage of several hundred tonnes of crude oil. An oil slick 20 miles long was reported. The tanker was discharging a full cargo when the typhoon warning led to the vessel leaving port. Fatality.
[marine tanker, pollution]

Lessons

[None Reported]

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

Location : Westville, New Jersey, USA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Strong winds caused marine tanker to move away from terminal during unloading operations. Flexible hose parted and spillage of 130 tonnes of crude oil occurred into the river causing pollution.

Lessons

[None Reported]

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

Location : Nizhny Novgorod, RUSSIA

Injured : 0 **Dead** : 6

Abstract

A rail transportation incident. Collision of two trains caused 12 wagons to be derailed. Explosion of three rail tankers loaded with butadiene occurred and set light to others. Fatality.
[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A release of 2.4 tonnes of acetone "dope" occurred while the material was being charged to a tank. The material overflowed on to the floor and was recovered and properly disposed of as waste. There was no escape of material to the drains and there were no injuries.

The vessel was fitted with a high level alarm which when tested after the incident was working correctly. It was active on the panel at the time of the incident. [spill, material transfer]

Lessons

The incident was attributed to:

1. both the operator and the team leader being in places where the alarm was inaudible when it sounded.
 2. the alarm being cancelled by someone who failed to appreciate its significance.
 3. lack of clear understanding of respective responsibilities among the operating team.
-

7613 17 July 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, SEP.

Location : Nizhny Novgorod, RUSSIA

Injured : 0 **Dead** : 6

Abstract

A rail transportation incident. Collision between two trains caused 12 wagons to derail. Explosion of one of three rail tankers containing butadiene and ignited other rail wagons. Fatality.

[derailment - consequence]

Lessons

[None Reported]

1196415 July 1995

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

An overflow occurred on a tank containing bitumen and white spirit when water flowed into the tank. The maximum possible overflow for the tank was 4.5 tonnes containing 43% white spirit. It is not known why the water flowed into the tank.

It is thought that the majority of the material was retained on site but an unknown amount was lost into the nearby river causing a slick.

[spill, unidentified cause]

Lessons

3358 15 July 1995

Source : EUROPEAN CHEMICAL NEWS, 1995, JUL.

Location : Almwich, Anglesey, UK

Injured : 3 **Dead** : 0

Abstract

A fire occurred at a bromine plant causing a reduction in output and damage to three blow-out towers which were shut down at the time during a maintenance period. The towers contained rubber linings and PVC resin packing.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1765 14 July 1995

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

Location : Ponca City, Oklahoma, USA

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence]

Lessons

[None Reported]

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

A newly constructed delayed coker unit was started at a refinery in early May of 1995. In July of the same year, a major fire occurred which resulted in substantial equipment damage and unit downtime. There were no serious injuries but the total loss exceeded \$15 million (£8,955,224), (1995).

The design feed and process parameters of the unit were such that shot coke was expected (granular coke as opposed to a solid bed). Due to known difficulties with handling of shot coke, the design included an automated coke drum bottom head removal system. The intent here was to protect the operators from the hazards of removing the bottom head. The bottom de-heading device used hydraulics, high pressure nitrogen and a movable ramp ring to seal the coke drum head prior to the introduction of hydrocarbon. Hydraulic power is used as the motive force for moving the ramp ring and lock ring used to secure the bolts. Positioning the bolts and locking them into position with the lock ring is the first step in installing the head. Following that, high pressure nitrogen is used to tension the bolts and provide enough clearance so the ramp ring can be moved into position. Hydraulic power then rotates the ring until a mechanical seal has been achieved. The hydraulic and nitrogen systems are then powered down and the drum is ready for pressure testing prior to introducing hydrocarbons. The control panels for the device are located such that the operator is shielded but able to clearly see the bottom head area.

On the day of the incident the day shift operator installed the head on Drum No.1. He proceeded with pressure testing and air-freeing of the drum and then began hydrocarbon warm-up in preparation for a drum switch later that night. The investigation revealed that the ramp rings were never closed on the drum and that the seal was provided by the nitrogen pressure. The evening shift operator completed the switch into Drum No.1 and then in his routine check of the system discovered that the head was not properly installed. He then compounded the previous error by shutting down the nitrogen system prior to closing the ramp rings. The head subsequently opened up and there was an immediate fire. The investigation concluded that the human error was the primary cause for the event. It was clear that not all of the operators fully understood how the deheading device worked and thus were unable to troubleshoot the device. It was also clear that while the procedure for operating the device was very clear, not much was said about what was going on as the different steps were occurring. It was also concluded that the safeguards to minimize the potential for operator error were inadequate given the consequences of such an event. The equipment design did not include any inherent protection against the head being mistakenly opened while the drum was in service. Additionally, the cross checking procedures in place at the time were deemed inadequate.

[fire - consequence, damage to equipment, operator error, design or procedure error, competency lacking, drums, processing, injury]

Lessons

Operators should have fully understood how the drum's de-heading device operated.

Adequate safeguards should have been in place to minimize the potential for operator error through the following:

- 1.inherent equipment design.
- 2.cross/double checking arrangements.

1855 05 July 1995

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

Location : Songkhla, THAILAND

Injured : 0 **Dead** : 1

Abstract

Marine transportation. 2 million litres of benzene were destroyed in an explosion in engine room and fire when marine tanker was offloading at this storage facility. Fatality.

[fire - consequence]

Lessons

[None Reported]

3534 04 July 1995

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

Location : Chengdu, CHINA

Injured : 19 **Dead** : 3

Abstract

An explosion in a steel chlorine cylinder led to numerous injuries and 3 fatalities.

[fatality, injury]

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.
-

2643 29 June 1995

Source : LLOYDS LIST, 1995, JUN, 30,; HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Clevedon, Avon, UK

Injured : 0 **Dead** : 0

Abstract

An explosion occurred when road tanker was unloading at chemical factory on industrial estate. Debris hurled into adjacent buildings site.
[unknown chemicals]

Lessons

[None Reported]

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]

Source : HAZARDOUS CARGO BULLETIN, 1995, SEP.

Location : Astara, IRAN

Injured : 200 **Dead** : 3

Abstract

A marine transportation incident. Release of chlorine from container at sea port. Fatality.

[leak]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A crude oil spill occurred at a jetty on a refinery. During an unloading operation, the marine loading arms' isolating ball valves were closed and the arms disconnected from the manifold of the ship. As a result, approximately 20 tonnes of oil was spilled, some of it finding its way into the water. It was found that tradesmen had changed the printed circuit cards in the control box without having sufficient knowledge of the Marine Loading Arm Control System.

[environmental, refining,]

Lessons

Technical, detailed knowledge by tradesmen of refinery equipment can be much less than assumed and may lead to unwanted situations. Routine, e.g., annual reading and attesting to by signature of refinery safety regulations, operating instructions, maintenance regulations, etc. by those concerned is necessary.

2721 16 June 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Saskatchewan, CANADA

Injured : 0 **Dead** : 0

Abstract

Transportation. Rupture of 860 mm diameter Line 3 of 4 pipeline caused spillage of 2,600 tonnes of crude oil to a farm field. Flow shut off within 4 minutes.

Lessons

[None Reported]

Source : LLOYDS LIST, 1995, JUN, 17,.; HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Anzhero-Sudzhensk, Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Fire at pumping station of pipeline ignited 20,000 tonnes of crude oil.

[fire - consequence]

Lessons

[None Reported]

2587 15 June 1995

Source : LLOYDS LIST, 1995, 15 JUN.; HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Kawahigashi, JAPAN

Injured : 4 **Dead** : 1

Abstract

Explosion at pharmaceutical plant causing release of some chlorine which hindered access to plant. Leak. Fatality.

Lessons

[None Reported]

Source : LLOYDS LIST, 1995, 20 JUN.; HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Qua Iboe, NIGERIA

Injured : 0 **Dead** : 0

Abstract

A rupture occurred on a 42 inch diameter, loading pipeline on a terminal, causing shut down of the loading operations.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A fire occurred on a mixer handling cellulose acetate and acetone. The cellulose acetate was in the form of waste produced during the process and was being recovered by adding to the acetone prior to charging fresh flake. This requires removal of the man lids on the charging chute. It is carried out under a positive pressure of inert gas and with vapour extraction. The fire was extinguished by refitting the man-lids and suffocating it.

The waste is in bale form and passes over a wetted earth-bonded roller prior to addition via the earth-bonded chute.

[fire - consequence, mixing]

Lessons

The investigation concluded that:

1. The cause of the incident was static discharge from inadequately discharged waste and oxygen from air entrained in the waste.
2. Under the then current operating procedure, avoidance of localised pockets of flammable vapour in the mixer could not be guaranteed.
3. The systems for discharge of static electricity were inadequate.

The main recommendations were:-

1. Improve the wetting of the waste as it enters the system in the short term.
 2. Investigate an automatic waste addition system in the medium term.
-

Source : HAZARDOUS CARGO BULLETIN, 1995, AUG.

Location : Deir Ez Zor, SYRIA

Injured : 0 **Dead** : 0

Abstract

A fire started at crude oil well after escape of oil and gas. Five workers unaccounted for. Control problems since early May being countered by drilling three relief wells.

[fire - consequence]

Lessons

[None Reported]

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

Location : Zhuhai, Guangdong, CHINA

Injured : 20 **Dead** : 2

Abstract

Explosion when equipment was being inspected killing two engineers and twenty others. The explosion started a fire which spread to other floors in the building housing the affected equipment and involved unknown chemicals stored in the building. Fatality.
[inspection, fire - consequence, damage to equipment]

Lessons

[None Reported]

2907 01 June 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, SEP.

Location : Junction 2 of M621, near Leeds, UK

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. A road tanker overturned causing small spillage of aniline.

Lessons

[None Reported]

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

Location : Botany Bay, AUSTRALIA

Injured : 0 **Dead :** 0

Abstract

The release of liquid butane occurred when it was trapped behind a faulty valve during a maintenance shutdown.

[leak, valve failure]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Near Chita, Siberia, RUSSIA

Injured : 0 **Dead** : 3

Abstract

A rail transportation incident. A freight train collided with mechanical road digger near a station. 10 of 35 rail tanker wagons with crude oil derailed and caught fire. Fatality.

[derailment, fire - consequence, collision]

Lessons

[None Reported]

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

Location : Chalmette, Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

Fire on one of two crude oil units at this refinery caused by a spillage of 200 gallons. Production reduced for 1 day.

[fire - consequence, refining]

Lessons

[None Reported]

8113 24 April 1995

Source : LLOYDS LIST, 1995, APR, 27

Location : Megion Region, Western Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. A tractor ploughed into a pipeline causing its rupture and the spillage of 250 cum (cubic metres) of crude oil into the nearby river.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Recife, BRAZIL

Injured : 0 **Dead** : 5

Abstract

An explosion occurred at a black powder factory causing concrete walls to be thrown 450 metres.

[processing, fatality, (gunpowder)]

Lessons

[None Reported]

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 : CHEMICAL HAZARDS IN INDUSTRY, 1995, JUN.

Location : Corpus Christi, Texas, USA

Injured : 20 **Dead** : 0

Abstract

A marine transportation incident. Two marine barge tankers were in collision when loaded with vinyl chloride and cumene. Traces of vapour release were detected four miles from the incident and 2700 people evacuated.

[collision, gas / vapour release, evacuation]

Lessons

[None Reported]

8095 20 April 1995

Source : DAILY TELEGRAPH, 1995, APR, 21.

Location : Watford, Northants, UK

Injured : 31 Dead : 0

Abstract

A road transportation incident. Fifteen gallons of benzyl mercaptan leaked from a road tanker carrying drums containing the chemical. Thirty one people were taken to hospital for treatment and residents living within 10 miles of the release were advised to keep indoors.
[drums]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Corpus Christi, Texas, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A marine barge loaded with vinyl chloride monomer (VCM) collided with a barge loaded with cumene. Small spillage of cumene. Locals evacuated.

[collision, evacuation]

Lessons

[None Reported]

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

Location : Houston, Texas, USA

Injured : 0 **Dead** : 0

Abstract

Fire on a fired heater feed loop at this refinery shut one of the four crude oil distillation units for 14 days.

[fire - consequence, refining]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A small explosion occurred in a transfer pipe on a chemical plant. The pipe concerned transferred product by air blowing from a vacuum drier to a silo via a cyclone.

The operator heard a dull "pop" and a line joint opened up releasing a small amount of flake material. In addition to the release there was over-stressing of a length of pipework and charring of the paintwork on the pipe.

The cause had not been established at the time the report was written. The plant was shut down pending establishment of the cause and was expected to be out of service for more than 24 hours.

[material transfer, damage to equipment, plant shutdown, unknown chemicals]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 0 Dead : 0

Abstract

A release of about 6,500 lbs (as 100%) of 50% caustic soda occurred on a rayon plant. The material leaked on to the ground from the soda connection point to the sewers feeding the waste water treatment plant. The connection was isolated and blanked pending repair or replacement of the line. A contractor was called in to pump the free liquid to the waste water treatment plant and to excavate the contaminated earth.

There were no injuries or external environmental consequences but because of the size of the spills they were reported to the appropriate local, State and national bodies.

[spill, material transfer, mechanical equipment failure]

Lessons

[None Reported]

8112 19 April 1995

Source : LLOYDS LIST, 1995, APR, 26.; HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Near Megion, Tyumen Region, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Corrosion in pipeline caused a spillage of 1,000 tonnes of crude oil covering an area of 30 hectares.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A release of benzene occurred at an unmanned pump station on a chemical plant. The release was estimated at 3.9 tonne of which about 2.8 tonne was recovered. No damage occurred and personnel exposure was extremely limited.

The leak was contained in a silled pump station and ran directly to effluent drain. Local drains were free of benzene shortly after the leak was discovered but benzene levels in the site effluent system failed to fall as expected. This was attributed to accumulation in several manway shafts. The release resulted in the effluent consent limit being exceeded for a very short period of time. This was reported as being acceptable to the regulatory body.

[spill, normal operations]

Lessons

[None Reported]

Source : ICHEME

Location : , USA

Injured : 0 Dead : 0

Abstract

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

[pump failure, material transfer]

Lessons

[None Reported]

8115 06 April 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, JUN.

Location : Northwich, Norfolk, UK

Injured : 0 **Dead** : 0

Abstract

Spillage of 2 of 18 five litre containers of butoxy ethanol acetate and butyl glycol acetate during unloading at parcel station.

Lessons

[None Reported]

Source : BEDFORDSHIRE TIMES AND CITIZEN, 1995, NOV 9.

Location : Great Barford, Bedfordshire, UK

Injured : 0 **Dead** : 0

Abstract

Pollution of river by 40 gallons of ammonium nitrate fertiliser killing 300 fish over a 750 metre stretch. The cause was attributed to a leak from a fibreglass tank which had to be emptied before a repair could be made. The company was fined £1000 (1995) with £631(1995) costs.
[ecological damage]

Lessons

[None Reported]

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

Location : Wilmington, Los Angeles, USA

Injured : 4 **Dead :** 0

Abstract

Internal tank explosion which ruptured a 90,000 bbl asphalt by-product tank apparently due to build up of flammable atmosphere inside tank. The tank was 85% full of vacuum bottoms, coker feed at the time of incident. Fire continued to the following day and caused smoke inhalation difficulties to 4 operators.
[fire - consequence, processing]

Lessons

[None Reported]

8104 28 March 1995

Source : LLOYDS LIST, 1995, APR, 5.; HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Brass River, NIGERIA

Injured : 0 **Dead** : 0

Abstract

Oil pipeline ruptured near production facility. 85,000 tonnes of crude oil spillage over 2 weeks. Sabotage by local community blamed but local community claiming \$32 million (1995) compensation.

Lessons

[None Reported]

8519 25 March 1995

Source : LLOYDS LIST, 1995, MAR, 28.

Location : Texas, USA

Injured : 0 Dead : 0

Abstract

Transportation. Pipeline ruptured causing spillage of 100 barrels of crude oil.

Lessons

[None Reported]

8560 23 March 1995

Source : THE GUARDIAN, 1995, MAR, 13,; HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : , INDIA

Injured : 0 Dead : 110

Abstract

A road transportation incident. An accident occurred on a highway when fire engulfed a road tanker, bus and tractor trailer carrying wedding guests.

Substance involved: benzene.

[fire - consequence, fatality]

Lessons

[None Reported]

8102 17 March 1995

Source : HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Leak from a pipeline supplying a refinery caused spillage of 1000 tonnes of crude oil over area of 19,500 sq. m. and onto a frozen river. 27 mile section shut down.

Lessons

[None Reported]

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

Location : Wilmington, Los Angeles, USA

Injured : 5 **Dead :** 0

Abstract

Acid spillage overflowed into a water treatment drain causing the release of hydrogen sulphide gas which escaped through a faulty vent.
[overflow, gas / vapour release, drains & sewers]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, MAY.

Location : Minneapolis, Minnesota, USA

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence, warehousing, evacuation]

Lessons

[None Reported]

8512 26 February 1995

Source : NEWSGRID

Location : Minneapolis, USA

Injured : 0 Dead : 0

Abstract

Chlorine was being released to atmosphere from a fire at a chemical supply company.

[fire/explosion, gas / vapour release]

Lessons

[None Reported]

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

Location : El Carmen, Norte de Santander, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Another explosion occurred on a 220,000 bbl/day crude oil pipeline at kilometre 465 section.

Lessons

[None Reported]

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

Location : Ghent, BELGIUM

Injured : 0 Dead : 0

Abstract

Local officials put into action the first steps of a disaster plan following a chlorine gas release. The fire brigade contained the gas cloud within the battery limits, while specialists from a third party company plugged the leak.

[gas / vapour release]

Lessons

[None Reported]

8510 15 February 1995

Source : LLOYDS LIST, 1995, FEB, 17.

Location : Essen, GERMANY

Injured : 0 **Dead** : 0

Abstract

Explosion in plant producing organically modified siloxen.
[processing, unknown chemicals]

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 : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

During commissioning of a distillation column, operation of the ESD system resulted in pressurisation and failure of a bursting disc. Repeated reset and initiation of the ESD resulted in flooding of the column. This flooding resulted in the discharge of about 2 tonne of 5% aqueous acetone into the bund when the bursting disc opened.

A bursting disc was provided, as it was believed at the time that no suitable relief valve was available. The column normal operating pressure was 3.5 psig and the design pressure was 5 psig.

[bursting disc failure, spill, overpressurisation]

Lessons

The investigation concluded that: -

1. The installation of the level switch that initiated the ESD should be reviewed. It appeared that the switch spuriously indicated low level when the effluent pump was started.
2. The location of the bursting disc and its vent line should be reviewed to consider whether it is acceptable to allow an uncontrolled release of a flammable vapour and liquid into an accessible bund.
3. The operating procedures should be reviewed with particular emphasis on restarting the column after an ESD.

Subsequently the possibility of rating the column for a higher design pressure (8 psig versus 5 psig) and installing relief valves was considered.

Source : HAZARDOUS CARGO BULLETIN, 1995, APR.

Location : Ghent, BELGIUM

Injured : 0 **Dead** : 0

Abstract

A rail transportation incident. Leakage of 30-40 kg of chlorine from rail tanker on site. Road and canal traffic halted. Spill.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

During discharging of a load of acetone from a tanker, the driver sat in the cab to have a cup of tea. The operator checked the discharge operation every 10 minutes (discharge normally takes 45 minutes). When the the tanker was empty, the discharge pump automatically shut down and the operator closed all the isolation valves, removed the wheel chocks and the earthing clip. The operator then opened the compound gates.

The operator stated that he then opened the cab door, told the driver that the tanker was discharged and only needed disconnecting. The operator stated that he noticed that the driver's eyes were closed but when he spoke the driver sat up and said "OK". The operator went to the rear of the tanker to wait for the driver to disconnect the hose but the driver started the engine and the tanker drove off.

The connecting hose stretched and broke before the driver realised that he had driven away without disconnecting it.

[unloading, road tanker, driver error, operation inadequate, spill]

Lessons

A review of the operating procedure for tanker discharging showed that disconnection of the hose had been omitted from the steps. The procedure also clearly stated that the driver should have carried out the opening and closing of the tanker discharge valve.

The available documents did not contain any recommendations but it is clear that the above deficiencies in the procedures and their applications would require to be addressed.

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

Location : Komi, RUSSIA

Injured : 0 Dead : 0

Abstract

Transportation. A 720 mm break in a pipeline resulted in a spill of about 300 tonnes of crude oil covering 1.5 hectares. Second incident this year.

Lessons

[None Reported]

Source : HSE NEWS RELEASE.

Location : , UK

Injured : 0 Dead : 0

Abstract

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

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

[radioactive, storage tanks]

Lessons

[None Reported]

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

Location : Convencion, Norte de Santander Province, COLOMBIA

Injured : 0 **Dead :** 0

Abstract

Transportation. Spillage of 7,500 bbl of crude oil following the blowing up of a 220,000 barrels per day pipeline. Repairs expected to take 2 days.
[sabotage]

Lessons

[None Reported]

8141 16 January 1995

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

Location : Melbourne, AUSTRALIA

Injured : 0 Dead : 0

Abstract

A fire arising from leak of crude oil from a nipple on crude distillation unit which failed following excessive pressure caused reduction by a third of refinery output.

[fire - consequence, processing, overpressurisation, high pressure]

Lessons

[None Reported]

8493 15 January 1995

Source : LLOYDS LIST, 1995, JAN, 21.

Location : Melbourne, AUSTRALIA

Injured : 0 Dead : 0

Abstract

A marine transportation incident. 3000 litres of benzene was spilt from chemical tanker during cargo operations.

[spill]

Lessons

[None Reported]

8127 12 January 1995

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

Location : Off New Orleans, Louisiana, USA

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 1 Dead : 0

Abstract

Improper alignment of valve. Workers began heating a tank containing an acid solution used to de-scale heat exchangers. The tank was unintentionally filled to 100 percent and, when an operator was in the process of removing the inspection port, the pressure in the tank forced the port off the tank and the operator was sprayed with the acid solution. Extreme pressure had built up under the inspection port, and the steam supply by-pass valve to the heating coil was not aligned. The basic cause was the improper installation of by-pass valve, which increased the amount of steam going to the coil.

[installation inadequate]

Lessons

When working with high energy sources, such as steam, ensure that extreme care is exercised, repairs double checked, and that system valves are correctly identified/labelled.

Source : ICHEME

Location : ,

Injured : 1 Dead : 0

Abstract

Asphalt release from blowing tower at a refining company.

An operations technician was burned by hot asphalt, released from a lifted rupture disc located at the top of the asphalt blowing drum. Overpressure in the blowing drum caused the rupture disc to lift and asphalt to be released. The basic cause was that the blown asphalt unit was operated outside designed operating parameters. In addition there was a lack of knowledge and inadequate written procedures which permitted abnormal operation and led to the malfunctioning of instrumentation and mechanical equipment.

[overpressurisation, instrumentation failure, mechanical equipment failure, design or procedure error, spill, refining, burns]

Lessons

Operators of asphalt (bitumen) blowing units need to have sufficient understanding of the chemistry of the process to appreciate what can result from changes in blowing air and the limitations of instrumentation.

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 : Grozny, Chechnya, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Serious damage to refinery due to war conditions with risk of fire spreading to 5,000 tonne ammonia storage tanks.

[fire - consequence, damage to equipment, refining, civil war]

Lessons

[None Reported]

6794 24 December 1994

Source : BBC NEWS, 1994, 24 DEC.

Location : Stockton-on-tees, UK

Injured : 0 Dead : 0

Abstract

A road transportation incident. Acid spillage from a road tanker in car park.

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]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1995, JAN.

Location : Vratsa, BULGARIA

Injured : 0 **Dead** : 0

Abstract

All production lines were halted following an explosion within the air installation of an ammonia unit. The cause is under investigation.

[processing]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, FEB.

Location : Louisiana, UK

Injured : 0 **Dead** : 0

Abstract

A river transportation incident. A towed tank river barge struck steel mooring dolphin. 150,000 litres of crude oil leaked to lower part of the river from gash in single hull.

[spill, collision]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, FEB.

Location : North Atlantic,

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Collision between tanker and bulk container. Small fire on tanker, 8 crew missing and emergency discharge of 130,000 tonnes of crude oil.

[fire - consequence, spill]

Lessons

[None Reported]

6793 21 December 1994

Source : LLOYDS LIST, 1994, 30 DEC.

Location : Bomadi, NIGERIA

Injured : 0 Dead : 0

Abstract

Spillage of crude oil from two pumping stations.

Lessons

[None Reported]

1196219 December 1994

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A gasket failure occurred on a pipeline supplying acetone to a plant, releasing approximately 300 kilos of liquid into the workplace. The spill was contained and residual liquors collected for safe disposal.

Lessons

[None Reported]

6788 14 December 1994

Source : LLOYDS LIST, 1994, 31 DEC.

Location : , TURKEY

Injured : 0 Dead : 0

Abstract

Bomb explosion damaged crude oil pipeline.

[sabotage]

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]

6784 06 December 1994

Source : LLOYDS LIST, 1994, 8 DEC.

Location : Jose Ignacio Terminal, URUGUAY

Injured : 0 Dead : 0

Abstract

Spillage of light crude oil during unloading from a marine tanker at a terminal.

Lessons

[None Reported]

6786 06 December 1994

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

Location : Samson; Alabama, USA

Injured : 0 **Dead** : 0

Abstract

Fire at plastics plant caused evacuation of 3000 people. Liquid blowing agent left in mixer, where it suffered a decomposition, overheated and burned.
[overheating, fire - consequence, processing]

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN, 1995, JAN.

Location : , BELGIUM

Injured : 0 Dead : 0

Abstract

A river transportation incident. Collision between tank lighter loaded with 2,200 tonnes benzene penetrated hull of vehicle carrier. Side water ingress and run aground to prevent sinking.

[ship ran aground]

Lessons

[None Reported]

6765 16 November 1994

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

Location : Cucuta, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

4000 bbl of crude oil spilled into a river after bombing of a pipeline.

[terrorism]

Lessons

[None Reported]

6766 16 November 1994

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

Location : St Croix, VIRGIN ISLANDS

Injured : 0 **Dead** : 0

Abstract

A blown pump seal caused a fire. Substance crude oil.

[seal failure, fire - consequence]

Lessons

[None Reported]

6762 12 November 1994

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

Location : Tarim Basin; Xinjiang Province, CHINA

Injured : 0 **Dead** : 0

Abstract

Fire in an oil well extinguished after 38 days of fire fighting. Substance crude oil.

[fire - consequence]

Lessons

[None Reported]

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

A fire occurred in a carbon absorber following maintenance. Only minor damage was sustained and there were no injuries. Processing staff noticed that an isolation spade had been left in a pipeline preventing normal steaming of a newly fitted highly activated carbon bed following maintenance work. The operator noticed that system pipework was extremely hot indicating a flow of hot acetone onto the highly activated carbon even though the line isolation valve was shut. He assumed the valve was passing and filled the lute in this line to form a seal. He left the plant to cool overnight. The plant was monitored and found to be normal the next morning when the spade was removed and the plant steamed and dried prior to starting processing. Within 20 minutes a high exhaust temperature was detected and the operator activated the internal water drench system to cool the bed. The bed was cooled and the absorber opened to reveal that a fire had affected the lower part of the absorber bed. Further investigation suggested that the very short exposure of a highly activated bed to hot acetone vapour was sufficient to generate enough heat of adsorption to initiate a fire. Leaving the bed overnight to smoulder contributed to the fire.

[fire - consequence, damage to equipment, design or procedure error, high temperature]

Lessons

1. Newly charged activated carbon beds must be steamed immediately after installation.
2. Carbon should be charged to beds using water conveying. This reduces the fire risk as well as improving occupational health exposure potential.
3. Double isolation valves are preferable to a single valve and lute system.

6755 06 November 1994

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

Location : Alagoas, BRAZIL

Injured : 0 Dead : 5

Abstract

Explosion caused a 2 week plant shutdown of this alcohol /ethanol distillery. Fatality.
[processing]

Lessons

[None Reported]

6751 02 November 1994

Source : LOYDS LIST, 1994, 5 NOV.

Location : Karachi, PAKISTAN

Injured : 0 Dead : 0

Abstract

Crude oil pipeline ruptured, causing a spill, when workers were digging close to it and hit it with a pick axe of a digger.
[drilling/digging/ploughing vehicles]

Lessons

[None Reported]

6747 31 October 1994

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

Location : Trebister Ness; Shetlands, UK

Injured : 0 **Dead** : 0

Abstract

Fish factory grounded, broke in two, fuel oil spilt and ammonia from refrigeration unit released.

[marine transportation, ship ran aground, spill, gas / vapour release]

Lessons

[None Reported]

6738 21 October 1994

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

Location : Montreal, CANADA

Injured : 1 Dead : 1

Abstract

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

Lessons

[None Reported]

6732 17 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 6 DEC.

Location : Off Kainan City; Wakayama, JAPAN

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A marine tanker was in collision with another tanker causing a hole below waterline, a spill of crude oil and severe pollution

Lessons

[None Reported]

6729 17 October 1994

Source : BBC NEWS, 1994, 18 OCT.

Location : Teeside, UK

Injured : 0 Dead : 0

Abstract

Spillage of chemicals at a terminal.

[unknown chemicals]

Lessons

[None Reported]

6728 15 October 1994

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

Location : Deer Park; Texas, USA

Injured : 33 **Dead** : 0

Abstract

This plant had been shutdown for annual maintenance 3 days prior to a release of acetone cyanohydrin.

[spill]

Lessons

[None Reported]

6726 14 October 1994

Source : LLOYDS LIST, 1994, 17 OCT.

Location : , OFF NORTHERN PORTUGAL

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A spill of 2000 tonnes of crude oil occurred when a marine tanker holed on rocks. 80000 tonnes transferred to another tanker.

[ship ran aground]

Lessons

[None Reported]

6725 12 October 1994

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

Location : Tarim Basin, CHINA

Injured : 0 **Dead** : 0

Abstract

Fire at oil well burned for 38 days. Substance crude oil.

[fire - consequence]

Lessons

[None Reported]

6714 02 October 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 6 DEC.

Location : Leixoes, PORTUGAL

Injured : 0 Dead : 0

Abstract

A marine transportation incident. A marine tanker struck rocks puncturing a tank and causing spillage of crude oil. Oil transferred to another tanker.

Lessons

[None Reported]

6711 October 1994

Source : LLOYDS LIST, 1994, 25 OCT., 27 OCT., 28 OCT., 5 DEC., & 27 DEC.

Location : Usinsk Area, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Major pipeline ruptured, due to corrosion, causing a spill of crude oil over 14400 sq m area. 120 000 tonnes of oil spilt over tundra causing river pollution.

Lessons

[None Reported]

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 12 OCT.

Location : Toledo, USA

Injured : 0 Dead : 0

Abstract

A spill of 63000 gallons of asphalt occurred when transferring from barge to inland storage tank. A weld had split in the underground pipeline contaminating ground and drains and then a river. 4200 gallons (other report 24000 gallons) solidified in river bed.
[material transfer, weld failure]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A smell of chlorine from a bleach plant was detected within the adjacent site. There was some uncertainty about the exact sequence of events. It is believed that routine sampling of the chlorine stream with a syringe led to a very small leak of chlorine into a drain line. This triggered a chlorine detector and led to shutdown of an electrolytic cell. Coincidentally there was a problem with a circuit breaker, which delayed the restart of the plant. On restarting there was a transient high chlorine flow to a reaction vessel that was not fully neutralised. The pH record showed a fall from the normal pH 8 to pH 5. This led to free chlorine being released in a bleach tank, which is only enclosed with a loose fitting lid.

[operation inadequate, gas / vapour release, start-up, design inadequate]

Lessons

The investigation recommended improving the tank ventilation to prevent a recurrence.

Immediate provision of an extract fan was not a complete solution.

A plant HAZOP study was scheduled after a previous incident and it was recommended that the current incident was included in the study.

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

Location : Wigan, UK

Injured : 0 Dead : 0

Abstract

About 1 tonne of ammonia was released from a chicken processing plant. Led to the evacuation of people.

[gas / vapour release]

Lessons

[None Reported]

6701 19 September 1994

Source : THE CHEMICAL ENGINEER, 1994, 27 OCT.

Location : Jarrow, UK

Injured : 0 Dead : 0

Abstract

A spill of 3 tonnes of butyl acrylate occurred into a river due to an operator opening the wrong valve.

[operator error]

Lessons

[None Reported]

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

Location : Eastham; Wirral, UK

Injured : 0 **Dead** : 0

Abstract

Second leak of chloroform in 8 years caused by faulty seal.

[seal failure, spill]

Lessons

[None Reported]

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

Location : Usink; Komi, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Series of leaks in badly corroded pipeline led to a spill of crude oil and pollution.

[corrosion]

Lessons

[None Reported]

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

Location : Aguazul Casanare, COLUMBIA

Injured : 0 **Dead** : 0

Abstract

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

[terrorism, fire - consequence]

Lessons

[None Reported]

6690 07 September 1994

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

Location : River Test, UK

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Up to 2 tonnes of crude oil spilled from a marine tanker.

Lessons

[None Reported]

6686 05 September 1994

Source : LLOYDS LIST, 1994, 9 SEP.

Location : North Sea, NORWAY

Injured : 0 Dead : 0

Abstract

Oil leaks reported from cracked crude oil pipeline.

[spill]

Lessons

[None Reported]

6679 28 August 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, OCT.; LLOYDS LIST, 1994, 30 AUG.

Location : Pugachev, RUSSIA

Injured : 0 Dead : 0

Abstract

A rupture of a 41 inch crude oil pipeline caused 1000 ton of oil to be sprayed into a ravine and field.

[spill]

Lessons

[None Reported]

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

Location : Grangemouth, UK

Injured : 0 Dead : 0

Abstract

At 05.00 hrs. on April 8, 1994, a leak on the main fractionator column of this crude distillation unit at a refinery resulted in a fire and shutdown of the unit. At the time of the incident the unit was in the process of starting up after a short shutdown. Feed had previously been removed from the unit at 02.00 hrs. on April 5 and the unit put on warm circulation. This was to repair leaking tubes in the kero/stabilizer feed exchangers. Since the shut-down was as the result of a conscious decision to carry out maintenance work, temperatures were reduced relatively slowly when the unit was taken off-stream. Similarly, during the start-up process temperatures were brought up again relatively slowly. At the time of the incident the unit had just been streamed, with base stripping steam in commission, and the fired heater almost up to normal operating temperature.

Taken from data in the PI computer system, it appears that conditions in the column were steady before the incident. The only difficulty reported by the operator was difficulty picking up flow on the bottom pump-around, which was confirmed by PI data which showed irregular flow through the flow controller. Two peaks of large flow (for this stage of the start-up) were indicated at 05.10 and 05.13 hrs., close to the time of the incident. At 05.10 hrs. the temperature of the pump-around was 15 degrees C, rising to 50 degrees C over the next few minutes. The majority of the material entering the column at this time would have been around 15 degrees C. The temperature of that section of the column was 267 degrees C. Operators reported that irregular flow from the bottom pump-around is not unusual.

A few minutes before the incident, when checking the repaired kero exchangers, an operator noticed a cloud of vapour coming from the direction the main fractionator. Initially he thought it was a steam leak, but on investigation, suspected it was hydrocarbon vapour. As he moved to further investigate, the vapour ignited. The operator immediately informed the operator, who activated the plant Emergency Shutdown System (ESD), and contacted the fire service.

The seat of the fire was at the location of nozzles N7, 8, 15, and 15A, located at platform 9 of the column.

An inquiry found that the operators were following normal start-up procedures; and that, from log books, it appears that the correct sequence of actions was followed. The PIB (Plant Inspection Branch) report indicates that the vapour leak probably came initially from the 6 inch blanked nozzle N8, as indicated by fire markings on the column, supported by the fact that the flange showed significant leakage when tested subsequent to the incident, with the column under a nitrogen blanket. Another flange, N7, also showed slight leakage; but this could have been caused by radiant heat from the fire at the N8 flange. PIB confirm that the materials used for the flange joints were suitable for the duty, and that the gaskets and bolts appeared to have been correctly fitted.

During inspection of the main fractionator column, the inquiry team noticed that redundant HGO pipework was not adequately supported; e.g., one of the HGO lines which terminates at a block valve at platform 8 (the level below the fire) was lashed with wire to the platform above and further supported by a block of wood resting on platform 8. It is believed that the fire caused the lashing to relax; and the additional weight of the pipework on to platform 8 caused, or contributed to, the platform distortion which occurred.

[fire - consequence, flange, nozzle, material of construction failure, leak, gas / vapour release, start-up]

Lessons

Recommendations:

1. Operating procedures for the unit start-up should be amended, to minimize fluctuations of flow during the initial introduction of cold material from the bottom pump-around system.
2. Refinery guidelines should be issued regarding routine checking of flanges (particularly those at high level) during normal operation and unit start-ups. Checks to be recorded.
3. The refinery should review their present capability to deal with high level fires and the risk represented, and determine whether facilities should be upgraded.
4. Redundant HGO pipework on the unit should be properly supported.

Lessons:

The incident also demonstrated the difficulties in fighting fires located at an elevated location on processing units, with the need for pre-planning on simulated fire situations to assess adequacy of fire fighting equipment, fixed and mobile.

Processing plant operating procedures should be the subject of regular review to ensure that thermal shocks to equipment are minimized at every point in procedures.

Redundant equipment/pipework on plant is best removed completely; if not, it must be adequately supported.

Operator routine walks through plants should include checking for flange leaks, especially during condition changes, also during dramatic weather condition changes; e.g., heavy rain may produce thermal stress on hot flanges sufficient to cause relaxation.

6675 22 August 1994

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

Location : , BASS STRAITS

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Tank container with ammonia washed overboard.

Lessons

[None Reported]

6671 19 August 1994

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

Location : Houston; Texas, USA

Injured : 0 **Dead** : 0

Abstract

A runaway reaction led to a ruptured bursting disc and venting of about 2 tonnes of cyclopentadiene and fish oil. The vapour cloud ignited but was extinguished by plant personnel.

[fire - consequence]

Lessons

[None Reported]

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

Location : Deer Park, USA

Injured : 4 **Dead** : 0

Abstract

Power supply failure caused the release of 2 tonnes of vinyl chloride monomer (VCM) and 35 kg of chlorine. Vapours dispersed within the fence lines.
[gas / vapour release, processing]

Lessons

[None Reported]

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

Location : Cheyene; Wyoming, USA

Injured : 0 **Dead** : 0

Abstract

A failure on a crude oil pump led to oil spray and fire.

[fire - consequence, pump failure, processing]

Lessons

[None Reported]

6658 08 August 1994

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

Location : Balmoral Platform; North Sea, UK

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak of 500 kg of (CS₂) from a flange in a pump house into a water filled containment sump over a period of time. Detector systems alarmed and the leak was contained. The area was hosed down following the leak and a pipe fitter stripped down the pipe upstream of a CS₂ metering station, once the system had been isolated. A 1 inch flange gasket was found to be in very poor condition and replaced. Production restarted but within a matter of hours a second meter station flange developed a similar leak. The system was cleaned down and all flanges in the metering station pipework had new gaskets installed as a precaution. Subsequent investigation showed that the meter station filters had been replaced 6 days before the incident, which involves replacing the gaskets. The correct gasket was specified for the duty. Further investigate showed that the suppliers supplied acid specification gaskets instead of acidit gaskets. These were of a lower specification not suitable for CS₂ duties. This fault was not picked up by the site prior to fitting.

[gasket failure, spill, installation inadequate, maintenance]

Lessons

Improvement required in goods inwards procedures to confirm that correct materials have been supplied as ordered.

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A fire broke out on a crude oil distillation unit at a refinery. A release of crude oil had occurred during maintenance work on a desalter, and the oil is thought to have ignited from an adjacent furnace.

The site emergency services were quickly at the scene and the fire was extinguished by 15:55 hours. There were no injuries sustained. Damage was confined to cabling and instrumentation, the unit being shut down with an estimated start-up date of early August.

During previous shifts the relief valves (RV) on the desalter unit were being prepared for on-line testing. The desalter is fitted with two 100 percent capacity RVs, one of which is in service at a time. The procedure on the 28th required changeover of the in-service RV and verification of the integrity of both the RV isolation valves and the balanced bellows unit integral to each RV. The equipment is located on an elevated platform at about 50 feet above grade. The RVs are designed to handle hot crude feed relief from the desalters (operating conditions approximately 9.5 barg and 140 degrees C) to the unit main fractionator column. In the process of isolation valve integrity checks, a hose was fitted to a three quarter inch drain point and led to a drain at ground level.

During the work an isolation valve was opened while the drain valve was 25 percent open, and the desalter began to discharge liquid to drain. Because the exit point of the hose was not visible from the platform, the discharge was not detected by those involved. The liquid discharge formed a pool and a flammable vapour cloud developed. The vapour cloud ignited, with a flash fire, followed by a pool fire. Calculations based on pool size and the distance from the release point to the lower flammable limit of the cloud indicated that the most likely source of ignition was from the crude oil charge furnace. The hose burned back to the drain point on the elevated platform resulting, in a torch fire at the drain point, it was, however, fortunate that the torch was directed into space and did not impinge on equipment.

The ground fire was extinguished within 12 minutes. The strategy adopted towards the torch fire was to cool adjacent equipment and remove the feed to the fire. This was accomplished, and the fire extinguished within 22 minutes.

[fire - consequence, hot surface, spill, damage to equipment, design or procedure error]

Lessons

The following recommendations were made:

1. It is essential that when equipment/plant of any type is opened up, i.e., containment broken, that adequate measures are taken to prevent unwanted release of contents from associated parts of the system.
2. Measures to include not only adequate work procedures, but also monitoring of site conditions throughout the work by "responsible" personnel.
3. When draining vessels to open drains the outlet point from drain hoses should be within view of those involved in the operation.

6647 28 July 1994

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

Location : Grangemouth; Stirlingshire, UK

Injured : 0 **Dead** : 0

Abstract

Fire in the crude distillation unit at a refinery caused a plant shutdown for 10 days. Substance crude oil.

Lessons

[None Reported]

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

Location : Inchon; Seoul, SOUTH KOREA

Injured : 16 **Dead** : 5

Abstract

An explosion was caused by a furnace overheating. Fire extinguished in 1 hour. Substance involved butane. Fatality.
[processing]

Lessons

[None Reported]

6635 17 July 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, SEP.; LLOYDS LIST, 1994, 21 JUL.

Location : Rio Blanco; Vera Cruz, MEXICO

Injured : 25 **Dead** : 0

Abstract

A road transportation incident. A road tanker truck was in collision with a passenger train at a crossing and led to spillage of 5283 gallons of caustic soda.
[sodium hydroxide, injury]

Lessons

[None Reported]

8438 16 July 1994

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]

Source : ICHEME

Location : , UK

Injured : 3 Dead : 0

Abstract

An incident occurred during night shift on a bleach plant. The process involved production of chlorine and caustic soda by electrolysis of brine and then reaction of these products to form sodium hypochlorite solution.

A strong smell of chlorine was detected in the control room of an adjacent plant. The operator at the bleach plant was contacted and asked to investigate. No immediate problem was found but after about 50 minutes the shift manager from the adjacent plant located a release of chlorine from an absorber in the bleach plant. The shift manager recommended that the bleach plant be shut down and that an engineer be called out to investigate. He then left the bleach plant assuming that the plant would be immediately shut down.

The chlorine smell at the control room of the adjacent plant seemed to be reducing but did not disappear. A BA (breathing apparatus) set was left in the control room as a precaution. More than an hour later, the fumes became so strong that the control room operator had to wear BA and other personnel had to leave.

The shift charge engineer went to the bleach plant and, from discussion with the engineer who had been called in to investigate, learned that the plant had not been shut down. The plant was finally shut down almost two hours after the first recommendation for shut down.

Investigation showed that the cause of the release was undetected opening of a bursting disc allowing chlorine to pass through an absorber to a vent.

Release of chlorine through the bursting disc should have been detected by an installed instrument and a caustic soda flow started to the absorber to remove the chlorine.

Subsequent investigation was not clear whether the bursting disc had opened due to over pressure or due to corrosion. The bursting disc was constructed of teflon coated graphite. In the event of damage to the coating chlorine would penetrate and cause progressive deterioration of the disc.

The chlorine detector downstream of the bursting disc was saturated with water and inoperative. The chlorine detector was located in a stagnant pipe.

[chlorine gas, normal operations, gas / vapour release, plant shutdown, bursting disc failure]

Lessons

As a result of the incident investigation the immediate response to prevent a recurrence was to maintain a continuous flow of caustic soda through the absorber. This would ensure that any chlorine release through the bursting disc would be scrubbed out before the gas was vented. It was intended that this mode of operation would be used until there was confidence that chlorine would be detected. The chlorine detector was relocated and a trial of alternative detectors was initiated.

The bursting disc was to be replaced after three months and the disc removed would be sent to the manufacturer for examination to determine whether there was any deterioration.

The greatest concern from the investigation was the failure to immediately shut down the plant when the chlorine release was detected. There were a number of contributory factors to the decision by the operator and engineer not to shut down. These included: -

1. Failure of chlorine detectors indicated that there was no chlorine release from the bursting disc.
2. No local smell of chlorine or indication of leak on bleach plant.
3. Different ownership of bleach plant and adjacent plant leading to lack of clarity of responsibility and authority.

The main recommendation to address this latter problem was an instruction to the bleach plant personnel to immediately shut down the plant if chlorine was detected on the plant or on any adjacent plant.

Source : OIL AND GAS JOURNAL, 1995, JUL, 10.

Location : Komi, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Transportation. Persistent leaks in the 32 mile pipeline of crude oil into the creeks and rivers has been aggravated by rains. About 580,000 bbl of oil has been spilt. The failure of the 20 year old pipeline was likely caused by poor foundations, inadequate pressure control, substandard water crossings and progressive internal corrosion.

[pipeline failure, pollution]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A fire occurred at a crude unit desalter at a refinery. During maintenance work on a desalter, there was a release of crude oil and a subsequent fire. There was damage to equipment and product loss. After investigation it was found that the isolation valve was open while the drain valve was 25 percent open, the discharge of liquid could not be seen and was, therefore, not detected.
[fire - consequence, spill, refining]

Lessons

It is essential that when equipment/plant of any type is opened up, i.e., containment broken, that adequate measures are taken to prevent unwanted release of contents from associated parts of the system.

6602 24 June 1994

Source : LLOYDS LIST, 1994, 29 JUN.

Location : Acajutla, EL SALVADOR

Injured : 0 **Dead** : 0

Abstract

Crude oil spill off pacific coast near refinery from 24 inch pipeline while it was being used.

Lessons

[None Reported]

6599 23 June 1994

Source : LLOYDS LIST, 1994, 28 JUN.

Location : Tianjin, CHINA

Injured : 5 **Dead** : 10

Abstract

Explosion at aluminium factory. Fatality.
[processing]

Lessons

[None Reported]

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

Location : Saldanha Bay; Cape Town, SOUTH AFRICA

Injured : 0 **Dead** : 36

Abstract

A marine transportation incident. A marine tanker of crude oil sank causing a spill and pollution. Fatality.

[sinking]

Lessons

[None Reported]

Source : ICHEME

Location : ,

Injured : 1 Dead : 0

Abstract

Maintenance work was being carried out on a benzene reactor product heat exchanger tube bundle. The tube bundle for a similar heat exchanger had already been lifted out without difficulty. However, the tube bundle on this heat exchanger would not pull out, so two 50 ton hydraulic jacks of different makes and styles were used between the exchanger shell and the jacking frame to try to jack the bundle out of the shell. The craftsmen had been given verbal directions on how to carry out the work and were reminded to exercise caution during jacking. The craftsmen had noticed some of the bolt threads were worn and had added extra locking nuts to the bolts. One of the four stud bolts suddenly sheared, hitting one of the workers in the chest. He had a notebook and newspaper in the top pocket of his overall which absorbed much of the impact. The injury was minor. Following a study it was determined that:

1. The jacking operation overloaded the bolts such that one of them failed.
2. This type of failure had not been anticipated.
3. The strength of the stud bolts had been assumed to be adequate.
4. The workers were more aware of the hazards associated with lifting than with using the jacks.
5. The worker who was hit was standing in a high risk area, with the potential for a serious injury.
6. The jacks gave no indication of the load being exerted by them. As one jack was easier to operate than the other the load exerted was probably unequal.
7. If the load had subsequently lifted out, there was the potential for either jack to fall and injure personnel.
8. Jacks had been used before for similar operations.

[material of construction failure, injury]

Lessons

The lessons learnt were as follows:

1. Everyone using jacking equipment should be aware of the possible failure modes and place themselves in a position of safety.
 2. In such operations either a protective shield should be put in place or an exclusion zone set up.
 3. Equipment used in jacking operations throughout the factory should be designed and certified for a specific maximum safe working load.
 4. Each pulling or jacking operation should have a specific engineering instruction and personnel should be aware of the maximum permitted load.
 5. A safe method of checking the movement of the tube bundle is required.
-

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

Location : Off Kithira Islands, GREECE

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A marine tanker with 4200 tonnes of caustic soda grounded. No spillage. Near miss.
[sodium hydroxide, ship ran aground]

Lessons

[None Reported]

Source : CHEMICAL ENGINEERING NEWS, 1994, 4 JUL.

Location : Kenvil; New Jersey, USA

Injured : 4 **Dead** : 0

Abstract

Explosion in plant when mixing nitrocellulose, acetone and other components.

Lessons

[None Reported]

6573 30 May 1994

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

Location : Tsing Yi, HONG KONG

Injured : 0 **Dead** : 1

Abstract

Container with 22 tonnes of shampoo fell onto cab of truck carrying ammonia sulphur cylinders. Fatality.

[transportation]

Lessons

[None Reported]

6571 28 May 1994

Source : LLOYDS LIST, 1994, 31 MAY.

Location : Draugen; North Sea, NORWAY

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

6567 27 May 1994

Source : LLOYDS LIST, 1994, 30 MAY., 3 JUN., 17 JUN., & 2 DEC.; EUROPEAN CHEMICAL NEWS, 1994, 6 JUN.; CHEMICAL WEEK, 1994, 1 JUN, 22 JUN, & 29 JUN.; CHEMISTRY IN BRITAIN, 1995, FEB.

Location : Belpre; Ohio, USA

Injured : 0 **Dead** : 3

Abstract

Explosion and fire in a styrene butadiene block polymers resins plant near 3 tanks containing up to 5000 tonnes of styrene. Some people evacuated. Fire lasted for 10 hours. Plant remained closed. 316 tonnes of styrene, 127 tonnes of cyclohexane and 12 tonnes of ethylene dibromide released. It is suspected that there was a disproportionate amount of butadiene in the reactor where it was added to other chemicals. This may have started a reaction which caused a pressure build up in the reactor leading to vessel failure and explosion. Company agreed to pay \$3.02 m (1994). Fatality.

[high pressure, chemicals added incorrectly, unwanted chemical reaction, reaction vessel]

Lessons

[None Reported]

6561 22 May 1994

Source : LLOYDS LIST, 1994, 24 MAY.

Location : Valdez; Alaska, USA

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. 8000 gallons of crude oil spilled from the wing tank of a marine tanker.

Lessons

[None Reported]

6556 17 May 1994

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

Location : Aspatria; Cumbria, UK

Injured : 0 **Dead** : 0

Abstract

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

[overflow, sodium hydroxide]

Lessons

[None Reported]

6555 15 May 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUL.; LLOYDS LIST, 1994, 25 MAY.

Location : Sao Sebastiao, BRAZIL

Injured : 0 **Dead** : 0

Abstract

Spillage of crude oil from a pipeline caused pollution of several beaches. 2700 tonnes leaked.

Lessons

[None Reported]

6554 14 May 1994

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

Location : , ENGLISH CHANNEL

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. 3 of 8 containers of chemicals lost overboard after collision.

[spill, unknown chemicals]

Lessons

[None Reported]

6552 12 May 1994

Source : HAZARDOUS CARGO BULLETIN, 1994, 12 MAY.

Location : Queretaro, MEXICO

Injured : 0 Dead : 0

Abstract

A rail transportation incident. Collision between 2 freight trains hauling wheat and acid. Acid tankers remained intact.

Lessons

[None Reported]

6546 09 May 1994

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

Location : Ossett; West Yorkshire, UK

Injured : 12 **Dead** : 1

Abstract

A worker became unconscious and died from fumes when steam cleaning a valve at a transport depot. Substance involved, p-chlorocresol. Fatality [asphyxiation].

Lessons

[None Reported]

6543 09 May 1994

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

Location : Mekong River, VIETNAM

Injured : 3 **Dead** : 0

Abstract

A marine transportation incident. Collision between 2 marine vessels caused a spill of 200 tonnes of crude oil.

Lessons

[None Reported]

6541 08 May 1994

Source : CHEMICAL WEEK, 1994, 18 MAY.; HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, JUL.

Location : Texas City; Texas, USA

Injured : 0 **Dead** : 0

Abstract

Leak of ammonia during start-up. Leak controlled.

[gas / vapour release]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 120, 9-10.

Location : ,

Injured : 0 Dead : 0

Abstract

Combustion in the vapour space of a 1300 litre chlorination kettle resulted in a burst rupture disc and release of black smoke outside the production building. Another combustion occurred about 15 minutes later just after the feeds to the reactor had been shut off. There were no injuries or equipment damage and no material release other than the smoke. The combustion resulted from a mixture of chlorine gas and ethyl acetate vapour in the head space of the kettle. Several factors contributed to the incident:

1. Operators had changed a procedure, shutting off a pump rather than the flush valve, without considering this to be a change that required a safety review. The valve was considered difficult to operate but no one had requested that it be repaired. Although the operating instructions are initialled after each step, which should help ensure consistent practice, the timing for closing the valve was not spelled out correctly.
2. The operator who started the chlorination did not completely check the positions of all the valves. He physically checked the reactant valve and that convinced him that his partner had completed the set-up procedure. Only then did he look at the flush valve to check its position.
3. There were indications of lack of reaction, for example a slow exotherm, but the operator thought there was a cooling problem. Similar symptoms had occurred recently due to a cooling problem. The reactant feed was indicated only by a mass meter on the reactor vessel. No additional independent check of the feed to the vessel was required by the operating instructions. The mass meter indicated the right feed rate but, in this case, for the wrong material. The chlorine feed did have an independent check procedure. Cross checks should be fundamental for any feed system. During the early project stage hazard studies plant and research technical personnel did not recognise the possibility that chlorine/solvent combustion could occur if the reactant was not present. Therefore specific precautions were not considered at the time. A separate major hazard assessment for chlorine release had been made, but the reaction vessel was not included in the analysis because chlorine was to have been consumed at that point. Prior HAZOPS covered different solvent systems. [fire - consequence, operator error, processing]

Lessons

The following corrective actions were taken:

1. The existing site management of change procedures were reviewed with all operators, emphasising what constitutes change. The trainers focused on presenting the management of change concepts in language that was meaningful to the operators. The procedures for check-out of equipment prior to start-up were also reviewed.
2. A fundamental review of the process determined that the ethyl acetate flush procedure could be eliminated altogether. The line was blanked.
3. A reactant weight-loss cross check and lack of reaction checks, based on colour change and exotherm rate were added to the operating instructions.
4. A HAZOP was held for the chlorination process. Major recommendations included a better inerting procedure (although oxygen did not appear to be involved). Also feed control and interlocks based on reactant feed were considered inherently safer than those based on chlorine feed.

6535 05 May 1994

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

Location : Swansea; Wales, UK

Injured : 1 **Dead** : 0

Abstract

Fire swept through factory making foam sponges. Fumes from 6 types of chemicals above factory.

[fire - consequence, processing, unknown chemicals]

Lessons

[None Reported]

6534 05 May 1994

Source : LLOYDS LIST, 1994, 20 MAY., & 25 MAY.

Location : Cano Limon, COLUMBIA

Injured : 3 **Dead** : 0

Abstract

Fire in crude oil pipeline pumping station.

[fire - consequence]

Lessons

[None Reported]

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

Location : Mossoro, BRAZIL

Injured : 0 **Dead** : 3

Abstract

Contract workers employed at oil field fell into a tank containing acid. Fatality.

[fall]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A leak of benzene occurred at a jetty after a ship had been loaded with the material. There were no injuries but in the course of the investigation traffic on a public road was halted for a period. The quantity lost was estimated at less than 10 gallons. Initial estimates based on instrument reconciliation however, put the leak at 20 tonnes. While investigating the suggested 20 tonne spillage, site personnel discovered some hydrocarbons on mudflats near the outfall to the river. These were subsequently found not to be associated with the benzene spill. A small pool of liquid under a flange on the benzene loading line was also discovered.

The leak was caused by pressurisation of the line. This was because a valve between the thermal relief valve and its discharge to the storage tank was closed. The calculated discrepancy was caused by an error in a level instrument on a tank that had not previously been used for benzene.

The hydrocarbon on the mud flats had accumulated over a long period. An expanding plug left in a drain after maintenance work had been preventing contaminated water from flowing to the correct route. As a result the material overflowed into the river directly.

The joint was re-made and pressure tested and the line returned to service.

The internal enquiry recommended:-

1. Improving procedures for returning relief valves and other safety devices to service after maintenance.
2. Reviewing the drainage systems in the jetty tank farm area to ensure proper hydrocarbon containment.
3. A review of procedures for contacting external parties in the event of an emergency.

[loading, overpressurisation, design or procedure error]

Lessons

1. Maintenance procedures for safety items were inadequate.
 2. Drainage systems in a tank farm area should be reviewed.
 3. Off-site emergency contact procedures should be reviewed.
-

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

Dock transfer line ruptures. During transfer of product at a product loading dock, a 16 inch crude oil line ruptured. There was damage to equipment, product loss, environmental damage, release to soil and water, cost of clean-up. Product expansion caused the pipeline to rupture. The basic cause was inadequate communications, including lack of written procedures. In addition the operator lacked facility knowledge.

[human causes]

Lessons

Well written procedures as well as knowledgeable operators are critical to safe conduct of any task.

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A FCC (Fluid Catalytic Cracker) bottoms pump fire. While maintenance work was being carried out on the already isolated bottoms reflux pump, there was a release of catalyst and fractionator bottoms which formed a cloud. There was no check made to assure the system was depressured. Catalyst had plugged the discharge valve seat, preventing complete closure of the discharge block valve. The cause was due to the Lock Out/Tag Out system being unclear as to whether isolation and depressuring should be verified before the release of equipment to maintenance, and the location of pumps encouraged catalyst laydown in piping. Fatality.

[fire - consequence, spill, design or procedure error, gas / vapour release, isolation inadequate]

Lessons

In isolating, as well as de-isolating, adequate checks are essential before opening flangers or removing end blanks, to ensure that pressure has not built up by leakage through the valves.

Source : ICHEME

Location : ,

Injured : 0 Dead : 0

Abstract

A release of crude oil causes shutdown of a crude distillation unit at a refinery. Spill.

The incident occurred when a loss of lubricating oil pressure caused the turbine driven desalted crude oil pump to shut down. Pressure build up and unsuccessful attempts to start/re-start pumps led to mechanical equipment failure of the relief valve's bellows and failure of adjoining piping. It was found that carbon steel tubing, which transmits the lubricating oil system pressure failed. The cause was found to be lack of preventive maintenance and inspection schedules for tubing. In addition pump modifications conflicted with its design and the pump was not tested before being returned to service.

Losses: production loss \$1.7 million (1994), local claims \$10,000 (1994), equipment damage \$160,000 (1994).

[process causes, design or procedure error, maintenance inadequate, refining, mechanical equipment failure, maintenance inadequate]

Lessons

Start-up and change-over switching arrangements for parallel pumps need to be routinely tested and available to operators. Modification to switching arrangements need to be agreed by all concerned and documented.

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.
-

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

Location : Apapa,

Injured : 0 Dead : 0

Abstract

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

[fire - consequence]

Lessons

[None Reported]

Source : LOSS PREVENTION BULLETIN, 124, 9-10.

Location : ,

Injured : 1 Dead : 0

Abstract

Attempts were made to remove the yoke and regulator from an empty chlorine cylinder. About 9 kg of chlorine gas was released. Because of the location of the release, 900 employees were evacuated from the facility in approximately 9 minutes, 40 employees were exposed to the chlorine gas, 20 employees were transported to the regional hospital and the operator who removed the yoke was hospitalised overnight. No permanent injuries were reported.

[evacuation, gas / vapour release, injury]

Lessons

1. Where highly hazardous chemicals must be used, the need to ensure comprehensive safety management systems are in place to prevent and deal effectively with accidents.
 2. Emergency response plans need to be completed and fully exercised for toxic gas emergencies to identify and eliminate weaknesses and deficiencies.
-

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

Location : Hampton; Virginia, USA

Injured : 0 **Dead** : 0

Abstract

A river transportation incident. Fire on river barge with containers containing unknown chemicals. Fire out after 2 days.
[fire - consequence]

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]

6500 09 April 1994

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

Location : Off Valparaiso, CHILE

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. A container ship lost 10 containers in rough seas, 3 contained 54 tonnes of cyanide salt.

[weather effects, spill]

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]

6495 06 April 1994

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

Location : Oberhausen, GERMANY

Injured : 0 **Dead** : 0

Abstract

A mixture of carbon dioxide and hydrogen escaping from a synthetic gas plant caused a fire. Fire extinguished in half an hour.

[fire - consequence, processing]

Lessons

[None Reported]

6496 06 April 1994

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

Location : Belaya River; Bashkortostan, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Crude oil spilled from pipeline into river.

Lessons

[None Reported]

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

Location : , NORTH SEA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Heavy weather caused water ingress in no.1 hold of a cargo ship with ammonium nitrate in plastic bags. Vessel sank. Crew rescued.

[weather effects, spill, sinking]

Lessons

[None Reported]

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1994, FEB.

Location : La Esmeralda; Arauquita; Arauca, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

A crude oil pipeline was bombed for 13th time.
sabotage, explosion]

Lessons

[None Reported]

6484 30 March 1994

Source : LLOYDS LIST, 1994, 16 APR., & 18 APR.

Location : Amazon Jungle, PERU

Injured : 0 **Dead** : 0

Abstract

A spill of 3500 cum of crude oil occurred from a 24 inch pipeline. Cause of rupture was turbulent waters in the river that eroded earth around the pipeline.
[earth movement]

Lessons

[None Reported]

6483 30 March 1994

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

Location : Lianshan, CHINA

Injured : 0 **Dead** : 0

Abstract

A road transportation incident. A road truck fell into a river and 2 tonnes of arsenic spilled into the water. Concentration in water recorded as 0.03 mg/l.

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

Drums containing CS₂ (carbon disulphide) were being loaded onto a freight container by a forklift truck. When the driver removed the forks from the one pallet (holding four drums) he found a leak of CS₂. It is thought that the trucks forks had pierced the bottom of a drum. To stop the leak, the driver placed the forks back into the hole and then moved the pallet to a nearby pool of water. When he removed the forks again the CS₂ leaked and caught fire. The fire was controlled and extinguished.

[loading, fire - consequence, leak, human causes]

Lessons

[None Reported]

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

Location : , ARABIAN SEA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Explosion and fire on marine tanker loaded with 64,500 tonnes of crude oil on board. Cargo intact but superstructure burnt out.

[fire - consequence]

Lessons

[None Reported]

6473 19 March 1994

Source : SEDGWICK LOSS CONTROL NEWSLETTER, 1994.

Location : Taft; Los Angeles, USA

Injured : 0 **Dead** : 0

Abstract

Explosion in chloralkali plant reduced production of chlorine and caustic soda.
[processing]

Lessons

[None Reported]

6470 18 March 1994

Source : EUROPEAN CHEMICAL NEWS, 1994, 28 MAR.; CHEMICAL WEEK, 1994, 20 APR.

Location : Frankfurt, GERMANY

Injured : 0 **Dead** : 0

Abstract

An explosion occurred at this plant producing hydrochlorofluorocarbon substitute. Explosion occurred during maintenance shutdown possibly when air entered a storage container and 1.5 tonnes was released.

[gas / vapour release]

Lessons

[None Reported]

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

Location : Novyy Urengoy; Siberia, RUSSIA

Injured : 0 **Dead** : 0

Abstract

Fire at gas condensate wellhead took 7 days to extinguish.

[fire - consequence]

Lessons

[None Reported]

6467 17 March 1994

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

Location : Lalang, INDONESIA

Injured : 0 **Dead** : 0

Abstract

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

[fire - consequence]

Lessons

[None Reported]

6464 15 March 1994

Source : LLOYDS LIST, 1994, 1 APR.

Location : Newark Bay, USA

Injured : 0 **Dead** : 0

Abstract

A caustic solution was being transferred from a marine tanker when it started listing and then started leaking as material came out of the tank vents.
[spill, material transfer, caustic soda]

Lessons

[None Reported]

6460 14 March 1994

Source : THE GUARDIAN, 1994, 15 MAR.; HAZARDOUS CARGO BULLETIN, 1994, APR., 80.

Location : Bosporus, TURKEY

Injured : 0 **Dead** : 0

Abstract

A marine transportation incident. Collision of marine tanker of crude oil with freighter led to explosion and fire.

[fire - consequence]

Lessons

[None Reported]

Source : ICHEME

Location : , UK

Injured : 0 Dead : 0

Abstract

A batch reaction was being processed when 'exotherm' of the batch occurred. Vapour escaped, via a bursting disc located at ground level, onto a site roadway.

A monomer mixture was being added to a batch reactor, under normal conditions, when it was noticed that a tundish, which had been used for a separate addition to the reactor, was filling with monomer. This indicated that a valve was passing.

The operators decided to stop the monomer mix addition and to let the tundish contents flow into the reactor before re-commencing the monomer mix addition.

Some three minutes after re-commencing monomer mix addition, the feed temperature was seen to drop rapidly. This indicated that a large volume of monomer mix had been added quickly to the reactor. Feed flow to the reactor was stopped and cooling of the reactor was started. On checking the monomer mix feed tank it was seen that a large quantity of the mix had been discharged.

The building was evacuated and the reactor contents exothermed. A bursting disc ruptured and a vapour cloud was emitted onto the roadway.

The fire alarm was sounded as was a 'crash cooling' alarm. The reactor was sprayed with cooling water by the site fire team. The reactor was brought under control.

London Fire Brigade arrived at site and declared the incident to be a major chemical incident, cordoning off the area. As a result, the police and a total of eleven fire appliances were present at the site and a fireboat was moored close by.

Contractor personnel were late arriving at the evacuation point, one contractor watching the incident instead of evacuating. A tanker driver initially evacuated but returned to his tanker without permission. The head count at the main gate found one member of staff to be missing. A search was initiated.

Drain outlets to the main sewer were checked and found to be clear of contamination.

On investigation it was identified that a two-way valve, key to the routing of the feed from the monomer mix feed tank to the reactor, could allow flow down both addition routes simultaneously. This occurred when the valve 'was in the midway position between the left and the right'. Additionally another route isolation valve was left open in error. Hence the large quantity of feed to the reactor.

[unwanted chemical reaction, gas / vapour release, reactors and reaction equipment, bursting disc failure, evacuation, unknown chemicals]

Lessons

A number of actions were raised to prevent reoccurrence and to ensure emergency procedures were followed. These included:

1. Re-routing the bursting disc discharge to a safe area.
 2. Redesign of the feed route pipework and valving arrangement.
 3. Only trained operators would be allowed to operate the reactor.
 4. Review of the control of contract personnel.
-

6450 05 March 1994

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

Location : , AEGEAN SEA

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Engine breakdown in heavy weather caused vessel to sink with cargo of ammonium nitrate, leading to a spill.
[sinking, weather effects]

Lessons

[None Reported]

Source : OCCUPATIONAL SAFETY OBSERVER, JUNE 1994.

Location : ,

Injured : 0 Dead : 0

Abstract

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

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

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

The two safety issues identified were:

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

[permit to work system inadequate, evacuation]

Lessons

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

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

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

Location : North Sea, UK

Injured : 0 **Dead** : 0

Abstract

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

Lessons

[None Reported]

Source : LLOYDS LIST, 1994, 4 MAR.

Location : , ALASKA

Injured : 0 Dead : 0

Abstract

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

Lessons

[None Reported]

6437 25 February 1994

Source : LLOYDS LIST, 1994, 26 FEB.

Location : Delmenhorst, GERMANY

Injured : 0 Dead : 0

Abstract

Fire in manufacturing unit where linoleum cement is made from linseed oil and balsamic resin.

[fire - consequence, processing]

Lessons

[None Reported]

Source : CHEMICALS IN BRITAIN, 1995, AUG.

Location : London, UK

Injured : 1 Dead : 0

Abstract

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

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

Lessons

Carry out risk assessment on laboratory experimentation.

6429 20 February 1994

Source : LLOYDS LIST, 1994, 22 FEB.

Location : Karachi, PAKISTAN

Injured : 0 Dead : 0

Abstract

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

[fire - consequence]

Lessons

[None Reported]

6428 19 February 1994

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

Location : Wood River; St Louis, USA

Injured : 1 Dead : 1

Abstract

A short release of ammonia occurred as 2 workers were connecting a pipeline hose to an empty barge at a terminal. There was no requirement to wear breathing apparatus. Fatality.

[gas / vapour release, material transfer]

Lessons

[None Reported]

6427 18 February 1994

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

Location : Ludwigshaven, GERMANY

Injured : 0 **Dead** : 0

Abstract

Small fire during routine plant maintenance. Substance involved benzene.

[fire - consequence]

Lessons

[None Reported]

6421 14 February 1994

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

Location : Ndola, ZAMBIA

Injured : 0 Dead : 0

Abstract

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

[fire - consequence, storage]

Lessons

[None Reported]

6422 14 February 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, APR.; LLOYDS LIST, 1994, 16 FEB.

Location : Bath Island; Karachi, PAKISTAN

Injured : 0 Dead : 0

Abstract

A rail transportation incident. Derailment of rail tankers of crude oil led to a fire.

[fire - consequence]

Lessons

[None Reported]

6417 10 February 1994

Source : HAZARDOUS CARGO BULLETIN INCIDENT LOG, 1994, APR.; LLOYDS LIST, 1994, 11 FEB.

Location : Tambov, RUSSIA

Injured : 0 **Dead** : 0

Abstract

A crude oil pipeline burst causing a large oil slick. 3000 tonnes of oil escaped before it was stopped. Spill covered 17 acres.

Lessons

[None Reported]

6401 February 1994

Source : THE CHEMICAL ENGINEER, 1994, 28 APR.

Location : Wem; Shropshire, UK

Injured : 0 Dead : 0

Abstract

During commissioning a pilot plant for recovering solvents was in the start-up stages and testing of pipework was being carried out when there was a spill of chemicals into a river. Water supplies affected. Substances involved; xylene, butyl butanoate, 2-methyl-3-hydroxy-propanoic acid, 2,4,4-trimethyl pentyl ester, dichlorobenzene, 2-ethyl-4methyl-1,3-dioxolane.

[pollution]

Lessons

[None Reported]

6400 31 January 1994

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

Location : Cizre, TURKEY

Injured : 0 **Dead** : 0

Abstract

Sabotage occurred to a major crude oil pipeline close to the town. 50000 barrels of oil was spilled.

Lessons

[None Reported]

6390 24 January 1994

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

Location : , SOUTH CHINA SEA

Injured : 0 **Dead :** 12

Abstract

A marine transportation incident. Explosion in cargo tank of crude oil marine tanker carrying 23000 tonnes. Vessel split in two. Fatality.

Lessons

[None Reported]

6386 18 January 1994

Source : LLOYDS LIST, 1994, 11 FEB.

Location : Cushing; Oklahoma, USA

Injured : 0 Dead : 0

Abstract

The support rigging of a crude oil pipeline collapsed allowing the pipeline to crash into river bank bending the structure. The pipeline was undergoing maintenance at the time to replace anchoring apparatus connecting the lines support towers to a suspension bridge which traverses the river. Repair to take 14 days. No spillage reported.
[damage to equipment]

Lessons

[None Reported]

6384 18 January 1994

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

Location : Cesar, COLOMBIA

Injured : 0 **Dead** : 0

Abstract

Crude oil pipeline sabotaged and around 5000 barrels of oil were spilled and subsequently ignited.

[fire - consequence]

Lessons

[None Reported]

6383 17 January 1994

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

Location : Los Angeles; California, USA

Injured : 1 **Dead** : 0

Abstract

Four breaks occurred in a 10 inch crude oil pipeline system causing a spill leading to pollution and property damage following an earthquake. The pipeline was not in operation at the time but company spending \$20 million (1994) on clean up. Pipeline may not be used again.

Lessons

[None Reported]

6369 06 January 1994

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

Location : Off Faro, PORTUGAL

Injured : 0 Dead : 0

Abstract

A marine transportation incident. Power loss and water ingress in engine room on LNG/LPG carrier. Vessel sank with 2900 tonnes of butane in 4 tanks.
[sinking]

Lessons

[None Reported]
