

Source : CNN.COM NEWS, DECEMBER 17, 2000, (<http://www.cnn.com>).

Location : Oshkosh, Wisconsin, USA

Injured : 4      Dead : 0

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**Abstract**

A rail transportation incident. A fire occurred onboard and box car containing sodium hydrosulphite. Nearby residents were evacuated.

Sodium hydrosulphite is highly flammable that can heat and ignite in the presence of moisture and air.

Four people were affected by fumes.

[fire - consequence, gas / vapour release]

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**Lessons**

[None Reported]

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1322114 December 2000

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

**Location** : Woodlawn, Ohio, USA

**Injured** : 0      **Dead** : 0

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**Abstract**

One hundred and fifty people were evacuated when a hydrochloric acid spilled during preparations for offloading. The incident occurred when a flange on a road tanker broke spilling several hundred gallons of acid. Fortunately no one was injured in the incident.

[evacuation, unloading, flange failure]

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**Lessons**

[None Reported]

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1020912 December 2000

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

**Location :** Hansville, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A safety disc on a vessel ruptured releasing a cloud of hydrochloric acid. Fortunately no one was injured in the incident. An investigation into the build up of pressure within the vessel is underway.

[overpressurisation, bursting disc failure, gas / vapour release]

**Lessons**

[None Reported]

1321205 December 2000

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

Location : Calcutta, INDIA

Injured : 100+ Dead : 2

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**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]

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**Lessons**

[None Reported]

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

Location : Bristol, UK

Injured : 0      Dead : 0

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**Abstract**

A rail transportation incident. An empty coal train derailed on its way from a power station spilling red diesel fuel onto nearby wetlands injuring many birds. No one was injured in the incident although it is reported that the driver was in shock. An investigation is underway to find the cause of the derailment.

[derailment - consequence, freight train, spill, environmental]

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**Lessons**

[None Reported]

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**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 8, 2000, (<http://www.chemsafety.gov>), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perform statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

**Location :** Boston, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

An unknown quantity of hydrochloric acid spilled in to storm drains. The solution was made up of 70 percent water and 30 percent acid. Fortunately no one was injured in the incident.

**Lessons**

[None Reported]

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

**Location :** Sonora, Texas, USA

**Injured :** 6      **Dead :** 0

**Abstract**

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

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

**Lessons**

[None Reported]

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

**Location :** , USA

**Injured :** 11    **Dead :** 0

**Abstract**

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

**Lessons**

[None Reported]



13192November 2000

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

Location : , BRAZIL

Injured : 0      Dead : 0

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**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]

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**Lessons**

[None Reported]

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**Source :** BBC NEWS, 31 OCTOBER, 2000, 1 NOVEMBER, 2000, (<http://www.bbc.co.uk>).; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 31 OCTOBER, 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 :** English Channel, Off Alderney,

**Injured :** 0      **Dead :** 0

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**Abstract**

A marine transportation incident. A marine tanker containing mainly styrene, a colourless, clear, odourless toxic liquid, sank in gale force winds after running aground. Other materials onboard included isopropanol, alcohol and methyl ethyl ketone. Fourteen crewmembers were winched to safety onboard a helicopter. It has been reported that styrene had been seen leaking from the vessel as it sank.

Styrene is a carcinogenic, is slightly soluble in water and very corrosive. There are concerns that the spillage may cause environmental and ecological damage to sea life and nearby coastlines.

[sinking, spill, strong winds, ship ran aground]

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**Lessons**

[None Reported]

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

**Location :** Alberta, CANADA

**Injured :** 12    **Dead :** 0

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**Abstract**

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

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

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

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

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**Lessons**

[None Reported]

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**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

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**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]

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**Lessons**

[None Reported]

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

**Location :** Allentown, USA

**Injured :** 0      **Dead :** 0

**Abstract**

An acid spill occurred at a chemical company causing a vapour cloud. Fortunately no evacuation was forced as the spill was cleaned up quickly. The acid involved was muriatic acid.  
[gas / vapour release]

**Lessons**

[None Reported]

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

**Location :** Richmond, USA

**Injured :** 0      **Dead :** 1

**Abstract**

An explosion and fire occurred at a plastic recycling plant killing a worker and forcing the evacuation of nearby businesses and residents as toxic fumes were released to atmosphere.

Damage to the building is estimated to be \$2 million (2000).

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

**Lessons**

[None Reported]

**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

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**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]

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**Lessons**

[None Reported]

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

**Location** : Kentucky, USA

**Injured** : 0      **Dead** : 0

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**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.

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**Lessons**

[None Reported]

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

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**Location :** Monticello, New York, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred at a flooring company forcing the evacuation of the surrounding area. The fire released clouds of yellow acrid smoke. The fire fighters doused nearby buildings to reduce the chances of the fire spreading.

Air samples were taken and runoff water checked for contamination and toxins.

[fire - consequence, gas / vapour release]

**Lessons**

[None Reported]

**Source :** CHEMICAL WEEK, OCTOBER 11, 2000.

**Location :** Conda, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

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

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**Lessons**

[None Reported]

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

**Location** : West Chester, Ohio, USA

**Injured** : 4      **Dead** : 0

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**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]

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**Lessons**

[None Reported]

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1319803 October 2000

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

Location : , SINGAPORE OFFSHORE

Injured : 0      Dead : 0

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Stratford, USA

**Injured :** 16    **Dead :** 0

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**Abstract**

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

[gas / vapour release, human causes]

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**Lessons**

[None Reported]

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13182October 2000

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

Location : Shanxi, CHINA

Injured : 0      Dead : 0

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**Abstract**

A road transportation incident. A road tanker carrying sodium cyanide plunged into a river. An emergency barrier was immediately set up to contain the cyanide that had spilled into the river. Chemicals were poured into the river to neutralise the cyanide. No one is reported to have been injured or killed in the incident.

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**Lessons**

[None Reported]

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13153October 2000

Source : THE ENGINEER, 20 OCTOBER 2000, P7.

Location : , UK

Injured : 0      Dead : 0

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**Abstract**

Radioactive iodine was released from a nuclear power station. It was reported that the release was apparently within the authorised discharge level. An investigation into the incident is underway. Checks on milk and grass in the area are being carried out.

A split fuel can in the plant's pressurised water reactor is thought to have caused the iodine to leak into the coolant circuit. The iodine was then drawn off as a gas and vented through the authorised route.

[gas / vapour release, reactors and reaction equipment]

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**Lessons**

[None Reported]

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13209October 2000

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

**Location** : South Carolina, USA

**Injured** : 0      **Dead** : 0

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Indianapolis, USA

**Injured :** 40    **Dead :** 0

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**Abstract**

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

The spill was contained and the area decontaminated.

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

[people]

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**Lessons**

[None Reported]

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

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**Location :** New York, USA

**Injured :** 11    **Dead :** 0

**Abstract**

Eleven workers were overcome when exposed to a release of dimethoate. The incident occurred as the workers were heating the chemical, usually the chemical is heated to approximately 150 degrees but in this case the chemical was heated to around 220 degrees.

Exposure to dimethoate can cause muscle spasms, nausea and headaches.

[operation inadequate, gas / vapour release, injury]

**Lessons**

[None Reported]

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

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**Location :** Bowling Green, USA

**Injured :** 40+ **Dead :** 0

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**Abstract**

An unknown amount of sulphuric acid mixed with an amniotic shield conditioner spilled at a plastics coating plant injuring at least forty people and leading to the building being evacuated. The forty workers injured in the incident were treated for the effects of fumes. Clean-up of the plant is now underway.

[evacuation, gas / vapour release, injury, unidentified cause]

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**Lessons**

[None Reported]

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

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**Location :** Sydney, AUSTRALIA

**Injured :** 20+ **Dead :** 0

**Abstract**

A major gas leak occurred at an airport affecting at least twenty people and forcing the evacuation of the building. The type of gas is unknown.

[people, gas / vapour release]

**Lessons**

[None Reported]

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

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**Location :** Salamanca, MEXICO

**Injured :** 170 **Dead :** 0

---

**Abstract**

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

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

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

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

---

**Lessons**

[None Reported]

---

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

Location : , NIGERIA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

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**Location :** West Deptford, USA

**Injured :** 3      **Dead :** 0

---

**Abstract**

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

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

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

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

---

**Lessons**

[None Reported]

---



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

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**Location :** Milwaukee, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire occurred involving a chemical used as sanitation in water treatment. The chemical caught fire and released toxic fumes and smoke into the atmosphere.

Forty workers were evacuated.

The fire was quickly extinguished by fire fighters. No one was injured in the incident.

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

**Lessons**

[None Reported]

Source : ALTAVISTA, 5 SEPTEMBER, 2000, (<http://www.altavista.com>).

Location : Lefkandi, GREECE

Injured : 4      Dead : 1

---

**Abstract**

A bulk cargo ship broke in half during loading operations resulting in the immediate sinking of the ship. One person was killed and four others injured in the incident.

An estimated 200 to 500 tonnes of fuel was on board.

A large scale clean up is underway to mop up the spilled fuel oil from the tanker. It is thought that local environmental damage will occur as a result of the spill.

[marine transport, fatality, injury]

---

**Lessons**

[None Reported]

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Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

Location : Oregon, USA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**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]

---

1303820 August 2000

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]

---

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

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**Location :** Las Vegas, USA

**Injured :** 14    **Dead :** 0

---

**Abstract**

A pallet containing 300 gallons of muriatic acid tipped over and spilled approximately 150 gallons into a street. The acid ran down the gutter. Fourteen people were affected by fumes.

[gas / vapour release, people]

---

**Lessons**

[None Reported]

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

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**Location :** Texas City, USA

**Injured :** 0      **Dead :** 0

**Abstract**

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

[fire - consequence, gas / vapour release]

**Lessons**

[None Reported]

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

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**Location :** Terre Haute, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A leak of hydrochloric acid occurred at a steam plant power facility. The leak was discovered during routine checks of the equipment at the facility. Hydrochloric acid is an extremely toxic substance used in water treatment facilities. The acid is used to produce steam for the heating and to clean the system. Hydrochloric acid can cause nausea, difficulty in breathing, brain damage and death. The water supply has been tested, and no chemical leaked into the sewer system.

[inspection, spill, power plant]

---

**Lessons**

[None Reported]

---



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

Location : , IRAN

Injured : 0      Dead : 0

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**Abstract**

Approximately one and a half million fish have been killed due to a spill in rivers of southern Iran. It is not known what chemical has been spilt in the river. An estimated \$4.6 million (2000) worth of damage has been caused.

[environmental, ecological damage, spill]

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**Lessons**

[None Reported]

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

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**Location :** Honolulu, USA

**Injured :** 1      **Dead :** 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

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

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**Location :** Richmond, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

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

[gas / vapour release]

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**Lessons**

[None Reported]

---

1296008 August 2000

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

Location : Florida, USA

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

[environmental, ecological damage, leak]

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**Lessons**

[None Reported]

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

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**Location :** Guelph, Ontario, CANADA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire and explosion occurred at a factory releasing corrosive gases. Several nearby companies and residents were forced to evacuate. The cause of the incident is not known.

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

---

**Lessons**

[None Reported]

---

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

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**Location :** Temple, Texas, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire occurred at a warehouse causing serious damage and the evacuation of the surrounding area due to hazardous smoke being emitted. The fire destroyed several power transformers leaving nearby businesses without power.

An estimated forty million gallons of runoff spilled into a nearby creek and was reported to have killed a number of fish.

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

---

**Lessons**

[None Reported]

---

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

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**Location :** Pheonix, USA

**Injured :** 5      **Dead :** 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

Location : , GERMANY

Injured : 1      Dead : 0

---

**Abstract**

A road transportation incident. A road tanker containing 30m<sup>3</sup> of diesel overturned when a tyre blew out causing a diesel spill, which then caught fire. Fortunately the driver managed to escape but received burns.  
[fire - consequence, injury]

---

**Lessons**

[None Reported]

---



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

Location : River Tagus, SPAIN

Injured : 0      Dead : 0

---

**Abstract**

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

[environmental]

---

**Lessons**

[None Reported]

---

**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

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**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]

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**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]

1292229 July 2000

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

Location : , BRAZIL

Injured : 0      Dead : 0

---

**Abstract**

Approximately 1,000 litres of toxic fuel additive leaked from a pipeline into a nearby watercourse.

The company was alerted when nearby residents complained of nausea and a strong chemical smell.

An investigation into the leak found a small hole in the pipe.

The company was fined up to \$560,000 (2000).

This incident occurred just two weeks after the same company spilt approximately four million litres of crude oil into one of the country's main rivers.

[spill, environmental]

---

**Lessons**

[None Reported]

---

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

**Location** : New York, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A road transportation incident. A road tanker trailer separated from it's tractor unit causing approximately 190 litres of gasoline to spill onto the highway.

---

**Lessons**

[None Reported]

---

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

**Location** : Sydney, AUSTRALIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

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**Lessons**

[None Reported]

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

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**Location :** Chicago, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

Firefighters were able to quickly contain the leak.

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

[gas / vapour release, evacuation]

---

**Lessons**

[None Reported]

---

1283916 July 2000

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

Location : Curitiba, BRAZIL

Injured : 0      Dead : 0

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**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]

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1284216 July 2000

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

Location : Montreal, CANADA

Injured : 0      Dead : 0

---

#### Abstract

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

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

Fortunately no injuries occurred in the incident.

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

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

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

---

#### Lessons

[None Reported]

---

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

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**Location :** Montvale, USA

**Injured :** 1      **Dead :** 0

**Abstract**

A road transportation incident. A tank truck was in collision with a road vehicle causing the release of 1,500 gallons of gasoline to be spilled. The spill caused soil contamination. Gas fumes overcame one fire fighter.

A quick response prevented the gasoline from entering the sewer system.

[gas / vapour release, injury]

**Lessons**

[None Reported]

**Source :** HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.

**Location :** , GERMANY

**Injured :** 0      **Dead :** 0

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**Abstract**

A road transportation incident. A truck carrying 130 drums of di-n-butylamine collided with an articulated lorry causing sixty-four drums to fall, three of which fell into a 60m valley and six leaked onto the road.

[collision, spill]

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**Lessons**

[None Reported]

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

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**Location :** Tooele, USA

**Injured :** 6      **Dead :** 0

---

**Abstract**

Six workers were injured at a chemical weapons depot whilst cleaning a line containing sulphuric acid when a spillage occurred. All six were treated for burns and inhalation of fumes.

[injury]

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**Lessons**

[None Reported]

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Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.

Location : Texas, USA

Injured : 0      Dead : 0

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**Abstract**

A river transportation incident. A tank barge containing petroleum distillate collided with a moored construction barge causing approximately 70m<sup>3</sup> of the distillate to spill into the water.

[river barge, collision]

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**Lessons**

[None Reported]

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

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**Location :** Bayport, Texas, USA

**Injured :** 2      **Dead :** 0

**Abstract**

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

Two people were injured in the incident.

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

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

**Lessons**

[None Reported]

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

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**Location :** Columbia, USA

**Injured :** 3      **Dead :** 0

**Abstract**

A worker was covered with formaldehyde solution whilst loading the chemical on a shelf with a skip loader when the formaldehyde box hit the side of the shelf and broke the containers in side.

Three people were affected by the incident and all involved were decontaminated.

Formaldehyde is used generally as a disinfectant, germicide and preservative.

In large doses, the fumes can become overwhelm and cause eye irritation, coughing, upper respiratory problems, headaches, stuffy nose, nausea and fatigue.  
[operation inadequate, contamination, people, spill, injury]

**Lessons**

[None Reported]

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

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**Location :** Dover, USA

**Injured :** 4      **Dead :** 0

**Abstract**

Fumes were released when an operator inadvertently mixed two chemicals together forcing the evacuation of a printing company. Four people were affected by the release.

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

**Lessons**

[None Reported]

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

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**Location :** Missoula, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

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

[evacuation, laboratory work, gas / vapour release]

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**Lessons**

[None Reported]

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**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

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**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]

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1271423 June 2000

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

Location : , SOUTH AFRICA - OFFSHORE

Injured : 0      Dead : 0

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**Abstract**

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

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

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**Lessons**

[None Reported]

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

Location : Miami, USA

Injured : 0      Dead : 0

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**Abstract**

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

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

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

[human causes]

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**Lessons**

[None Reported]

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

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**Location :** New Waverly, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

Nearby residents were evacuated as a precaution.

An investigation into the incident is being carried out.

[derailment, evacuation]

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**Lessons**

[None Reported]

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

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**Location :** South Elgin, USA

**Injured :** 2      **Dead :** 0

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**Abstract**

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

The spill affected approximately 400 square feet.

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

Nearby buildings were evacuated as a precaution.

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

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**Lessons**

[None Reported]

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**Source** : BBC NEWS, 12 JUNE, 2000, (<http://www.bbc.co.uk>)

**Location** : Lancashire, UK

**Injured** : 0      **Dead** : 0

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**Abstract**

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

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**Lessons**

[None Reported]

---

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

**Location** : Scotland, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A high-pressure steam pipe fractured releasing steam at a petrochemicals complex. Eight fire engines attended the scene whilst engineers isolated the leak. The fractured occurred due to pipe failure.  
[mechanical equipment failure, gas / vapour release]

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**Lessons**

[None Reported]

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

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**Location :** Choropampa, PERU

**Injured :** 8      **Dead :** 0

**Abstract**

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

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

The cause of the spill is being investigated.

**Lessons**

[None Reported]

**Source :** CHEMICAL 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 30, 2000, (<http://www.chemsafety.gov>)

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**Location :** Taizihe, Liaoning Province, CHINA

**Injured :** 17+ **Dead :** 1

**Abstract**

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

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

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

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

**Lessons**

[None Reported]



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

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

A hazardous chemical leak occurred at a plastics company forcing the evacuation of 150 people from the building and nearby businesses.

Approximately 75 gallons of 2-ethyl-2-oxoline, a highly flammable chemical used in the production of plastics that can cause respiratory and skin irritation, leaked on to the floor. The material has a flash point of 84 degrees C.

The incident occurred as employees were transferring the chemical from one tank to another when a valve stuck open. Due to the tank having a retention base around it, the leak was contained.

The chemical was absorbed with a product called vermiculite and transferred to other drums.

Fumes affected two employees.

[processing, gas / vapour release, material transfer, valve failure, injury]

**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]

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**Lessons**

[None Reported]

---

1252420 May 2000

Source : CNN.COM, U.S. NEWS, MAY 25, 2000, (<http://www.cnn.com>).

Location : Houston, USA

Injured : 0      Dead : 0

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**Abstract**

Approximately 2 million gallons of sewage spilled into a tributary of a nearby creek causing concern for possible contamination of drinking water supplies. The incident occurred when an inspection failed to detect a disabled pump causing sewage to flow out into the tributary. The problem was discovered a day later.

Approximately 65 percent of the nearby city's water supply comes from surface water and approximately 25 percent comes from the nearby creek.

It was reported that the sewage should take about two weeks to reach water supply intake valves in the creek.

The sewage could contain deadly bacteria such as salmonella and shigella and viruses such as hepatitis A, and numerous other harmful microbes.

[design or procedure error]

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**Lessons**

[None Reported]

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

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**Location :** Owensville, USA

**Injured :** 0      **Dead :** 0

**Abstract**

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

[fire - consequence, spill]

**Lessons**

[None Reported]

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]

---

6021 16 May 2000

Source : BBC NEWS, 16 MAY, 2000, (<http://www.bbc.co.uk>)

Location : East Sussex, UK

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



1124012 May 2000

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

**Location** : Twin City, USA

**Injured** : 12    **Dead** : 1

---

**Abstract**

A worker was killed when approximately 20 gallons of hydrofluoric acid spilled at a chemical plant.

Twelve other people were injured in the incident.

[fatality, injury]

---

**Lessons**

[None Reported]

---

1284109 May 2000

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

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**Location :** Louisville, Kentucky, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A fire occurred in a distillery at a brewery causing thousands of gallons of bourbon to spill into a nearby river killing more than 227,000 fish.

The spill created an oxygen-depleted cloud.

The company is to pay \$499,739 (2000) to replace the fish stock.

The Natural Resource and Environmental Protection Cabinet is considering fining the company over \$1 million (2000).

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

---

**Lessons**

[None Reported]

---

1290105 May 2000

**Source** : HAZARDOUS CARGO BULLETIN, JULY 2000,; IRISH TIMES.

**Location** : Westport, IRELAND

**Injured** : 0      **Dead** : 0

---

**Abstract**

The walls of a slurry tank collapsed spilling approximately 110m<sup>3</sup> of slurry into a nearby river and lake. It is reported that 300 dead fish have been cleared from the area.

[spill, environmental, material of construction failure]

---

**Lessons**

[None Reported]

---

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

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**Location :** Tooele, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A leak of a harmful nerve-agent occurred due to a feed chute jam on an incinerator. The incinerator was shut down to investigate the source of the leak.

[plant shutdown, mechanical equipment failure, gas / vapour release]

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**Lessons**

[None Reported]

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1290001 May 2000

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

Location : Merseyside, UK

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

**Location** : Lahore, PAKISTAN

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire and explosion occurred in the storage area of a foam factory resulting in loss of power and heavy smoke being released.

[fire - consequence, gas / vapour release, plant / property / equipment]

---

**Lessons**

[None Reported]

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

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**Location :** Charlotte, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A chemical leak occurred at a water treatment plant killing over 5,000 fish. A leak of sodium hydroxide occurred from a tank used in the wastewater treatment process at the plant.

The chemical leaked into a concrete containment area filled with rainwater. When a utility worker pumped out the area, the sodium hydroxide in the rainwater spilled from the ground into a nearby storm drain that empties out into a nearby creek.

[ecological damage, design or procedure error]

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**Lessons**

[None Reported]

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

Location : Danville, Kentucky, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. A fire and explosion occurred on a freight train carrying toxic chemicals forcing the evacuation of nearby residents.

The car was carrying 148,000 pounds of sodium dithionite, a flammable product that can produce irritating, corrosive or toxic gasses. The chemical is also known as sodium hydrosulfate.

The car with the chemical still burning was moved approximately one mile south of the city.

No injuries were reported.

[fire - consequence, gas / vapour release]

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**Lessons**

[None Reported]

---

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

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**Location :** Aberdeen, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A gas leak occurred at a hospital forcing the evacuation of more than 100 people from the building. Two hospital workers found the ethylene oxide leak; they contained the leak to the first floor room where it occurred.

It is thought that the leak may have been triggered by a brief power outage.

No one was reported injured in the incident.

Ethylene oxide is used to clean medical equipment.

Ethylene oxide can cause nausea, as well as blisters and burns to the skin.

[gas / vapour release]

**Lessons**

[None Reported]

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

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**Location :** Seligman, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A rail transportation incident. A freight train derailed causing six cars containing hazardous materials, vinyl acetate and ethanol, to overturn. Two of the overturned cars were reported to be leaking.

No one was injured in the incident.

[derailment, spill, materials - hazardous]

**Lessons**

[None Reported]

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

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**Location :** Fayette County, USA

**Injured :** 0      **Dead :** 0

**Abstract**

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

Nearby residents were evacuated as a precaution.

[spill, evacuation, near miss]

**Lessons**

[None Reported]

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

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**Location :** San Jose, USA

**Injured :** 17    **Dead :** 0

---

**Abstract**

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

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

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**Lessons**

[None Reported]

---

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

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**Location :** Grand Rapids, USA

**Injured :** 2      **Dead :** 0

**Abstract**

Approximately 20,000 gallons of petroleum products including hydraulic oils, starting fluids, automobile carburettor cleaners and racing fuel was spilled during a fire at a warehouse.

55-gallons drums and cases of petroleum products fuelled the fire.

Property damaged was estimated at \$1 million (2000). Two fire fighters were treated for smoke inhalation.

[environmental, warehousing, fire - consequence, injury, damage to equipment]

**Lessons**

[None Reported]

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

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**Location :** Egelston Township, USA

**Injured :** 10    **Dead :** 0

---

**Abstract**

An explosion occurred in a wastewater collection system injuring ten people. A large cloud of dust was released after the explosion; it is not known whether any chemicals were released.

Severe damage occurred to equipment.

[gas / vapour release, people, damage to equipment, injury]

---

**Lessons**

[None Reported]

---



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

**Location** : Louisiana, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

[spill, environmental]

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**Lessons**

[None Reported]

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**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]

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**Lessons**

[None Reported]

---

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

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**Location :** Scarborough, Ontario, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A fire and explosion occurred at a chemical plant forcing the evacuation of at least 60 residents living nearby. Large plumes of toxic smoke could be seen billowing out from the plant and being blown away from residential areas out towards a nearby lake.

Water run off is being tested for pollutants and air-monitoring tests are being set up.

The plant uses a variety of chemicals, solvents and raw materials, asphalt, varsol and linseed oil. The most harmful chemical kept on site is hexane, which can produce toxic gases when it is burned.

[fire - consequence, gas / vapour release, toxic fumes]

**Lessons**

[None Reported]

**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]

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**Lessons**

[None Reported]

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

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**Location :** Prince George's County, USA

**Injured :** 0      **Dead :** 0

**Abstract**

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

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

[ecological damage, environmental]

**Lessons**

[None Reported]

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

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**Location :** Port Royal, USA

**Injured :** 7      **Dead :** 0

**Abstract**

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

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

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

[gas / vapour release, chemical, injury]

**Lessons**

[None Reported]

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

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**Location :** Monroe, Los Angeles, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

Approximately 10,000 gallons of gasoline spilled during material transfer from a barge into a storage tank.

No one was injured in the incident but about 100 nearby residents were evacuated as a precaution.

The spill was contained with foam, but clean up was delayed due to thunderstorms, which refilled the contaminant pit with rainwater. A powerful pump was brought in the next day to finish clean up.

[storage tanks, transport, evacuation]

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**Lessons**

[None Reported]

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

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**Location :** Naples, Florida, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A road transportation incident. Sulphuric acid was spilled during a routine delivery at a water treatment plant. Rain water from a storm the night before made it difficult to determine the exact amount of acid spilled. It is thought to be approximately 65 gallons.

Sulphuric acid reacts violently when mixed with water, severely irritates the eyes, respiratory tract and skin.

Sulphuric acid has several industrial purposes, including: pulp and paper manufacturing; copper, steel and metal fabrication; fertiliser, chemical, textile, explosive and paint manufacturing; soap and detergent production; water treatment and petroleum product refinement.

[unloading]

**Lessons**

[None Reported]

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

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**Location :** Calgary, Alberta, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A factory was evacuated after a road tanker spilled 150 litres of sodium hydroxide into a sewer system during unloading operations.

A leak occurred in the tanker causing the spill.

Sodium hydroxide has corrosive effects; contact on skin and toxic if fumes are inhaled.

[evacuation]

**Lessons**

[None Reported]

1276627 March 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; CHEM. WEEKBL. 29 MAR 2000, (DUTCH WEBSITE: <http://chemischweekblad.nl/>).

Location : , GERMANY

Injured : 6      Dead : 0

---

**Abstract**

A rail transportation incident. An unknown amount of vinylbenzene (styrene), leaked from a freight wagon that was coupled to a train waiting at a station. The following day a leak of ethyl acrylate occurred. Six people were affected by the release of styrene fumes including the driver of the train. All passengers were evacuated.

No injuries occurred from the spill of ethyl acrylate.

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

---

**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]

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**Lessons**

[None Reported]

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Canton, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

Approximately 360 gallons of gasoline spilled into an lake when a fuel pipe ruptured. Approximately 20 people were evacuated as a precaution.

[material of construction failure, evacuation]

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**Lessons**

[None Reported]

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Farmington, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

Two drums of highly toxic trichloroethylene were found dumped by the side of a reservoir. One of the drums was found to be leaking.

The area surrounding the drums was cordoned off.

Trichloroethylene is a colourless liquid known as TCE and is used by many industries.

An investigation is being carried out.

[spill, human causes]

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**Lessons**

[None Reported]

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**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]

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**Lessons**

[None Reported]

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

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**Location :** North Powder, Oregon, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A rail transportation incident. Approximately 1000 gallons of fuel spilled from one or more tank cars when a freight train derailed. Clean-up operations are underway.

The incident caused damage to about a quarter-mile of track.

[derailment, damage to equipment]

**Lessons**

[None Reported]

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

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**Location :** Port Moresby, PAPUA NEW GUINEA

**Injured :** 0      **Dead :** 0

---

**Abstract**

An air transportation incident. Two one tonne boxes containing sodium cyanide pellets were being transported by helicopter when they were accidentally dropped from a sling.

It is thought around 100 and 150 kilos of the cyanide has been dissolved by rain and spilled into a nearby river.

Approximately 70% of a one tonne pallet has been recovered, the remaining cyanide will be neutralised with ferrous sulphate.

An investigation into the incident is being carried out.

[spill, pollution]

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**Lessons**

[None Reported]

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

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**Location** : Corunna, Ontario, CANADA

**Injured** : 21    **Dead** : 0

---

**Abstract**

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

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

[gas / vapour release, flameout, injury]

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**Lessons**

[None Reported]

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

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**Location :** Hollywood, Florida, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. Nearby businesses and roads were evacuated when four cars of a train derailed and overturned.

One car containing hydrogen peroxide poured thousands of gallons onto the surrounding area, another poured limestone and a petroleum compound spilled from a third car.

Cleanup operations are underway.

[evacuation, derailment]

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**Lessons**

[None Reported]

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

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**Location :** Iron Mountain, USA

**Injured :** 0      **Dead :** 0

**Abstract**

A store holding fertilisers and plant chemicals was destroyed in a fire. Nearby residents and businesses were evacuated due to toxic smoke released by the fire.

An investigation into the fire is being carried out.

[storage, storage equipment, fire - consequence, gas / vapour release, toxic fumes]

**Lessons**

[None Reported]

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

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**Location** : Corunna, Ontario, CANADA**Injured** : 21    **Dead** : 0**Abstract**

A flare went out on a refinery releasing gasses into the atmosphere. Twenty-one people were taken to hospital suffering affects of the released gas.

Two hundred workers in a nearby building complained of nausea and sore throats after a strong sulphur smell was reported.

[gas / vapour release, flameout, people]

**Lessons**

[None Reported]

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

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**Location :** New Brunswick, CANADA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

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

[unwanted chemical reaction, storage]

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**Lessons**

[None Reported]

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

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**Location :** Austin, Texas, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A road transportation incident. An 18-wheeler carrying chemicals overturned on a highway. The truck was carrying three drums of sulphuric acid and two drums of a cleaning agent when the incident occurred.

One of the 330-gallon drums of sulphuric acid was punctured in the incident causing half of its contents to spill into a storm drain, which runs into a nearby creek.

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**Lessons**

[None Reported]

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1228911 March 2000

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

Location : , OFF SHORE - SWEDEN

Injured : 0      Dead : 0

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**Abstract**

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

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**Lessons**

[None Reported]

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1226010 March 2000

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

Location : Baia Mare, ROMANIA

Injured : 0      Dead : 0

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**Abstract**

Approximately 20 tonnes of tailings and residues of heavy metals zinc, lead, iron spilled into a river after a dam broke at a lead and zinc mine.

The incident occurred after heavy rain.

A team of experts is carrying out an investigation into the incident.

[environmental, ecological damage, material of construction failure, weather effects]

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**Lessons**

[None Reported]

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1224208 March 2000

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

**Location** : Cheshire, UK

**Injured** : 7      **Dead** : 0

---

**Abstract**

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

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

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

A report stated seven minor casualties.

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

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**Lessons**

[None Reported]

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

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**Location** : Rayong Province, THAILAND**Injured** : 92    **Dead** : 1**Abstract**

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

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

[gas / vapour release, fatality, injury]

**Lessons**

[None Reported]

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

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**Location :** Millsboro, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

[diesel fuel, excavation, spill]

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**Lessons**

[None Reported]

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

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**Location :** Morral, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

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**Lessons**

[None Reported]

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

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**Location :** Clifton, USA**Injured :** 1      **Dead :** 0**Abstract**

A chemical reaction occurred inside a 5-gallon container creating fumes forcing workers to be evacuated. One person was injured in the incident.

The incident occurred whilst a worker was mixing epoxy sealant for use on a floor being laid.

An investigation into the cause of the chemical reaction is being carried out.

[unwanted chemical reaction, gas / vapour release, injury, evacuation]

**Lessons**

[None Reported]



12768 March 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.; OCCUPATIONAL HAZARDS, APR 2000, 62(4), 24.

Location : Westchester, USA

Injured : 0      Dead : 0

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**Abstract**

A small crack was discovered in a tube on a nuclear plant that caused a small amount of radioactive steam to enter the atmosphere. Radioactive water leaked from the cracked reactor and contaminated clean water used to drive turbines.

The crack was discovered using a remote-controlled device with attached video camera.

The plant will remain out of service for several weeks.

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

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**Lessons**

[None Reported]

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

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**Location :** Bellefonte, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A 300-gallon barrel of sulphuric acid fell off a forklift truck, releasing approximately 75 to 100 gallons of the chemical into a storm sewer leading directly into a stream.

The spill impacted a mile-long stretch of the waterway.

The company contained some of the spill by adding lime to the acid in order to neutralize it.

[ecological damage, container, design or procedure error, spill, transportation]

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**Lessons**

[None Reported]

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

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**Location :** Gulgong, AUSTRALIA

**Injured :** 3      **Dead :** 0

---

**Abstract**

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

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

[excavation damage, evacuation, injury]

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**Lessons**

[None Reported]

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

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**Location :** , USA**Injured :** 30    **Dead :** 0**Abstract**

A chemical reaction occurred when a contractor driving a road tanker poured a chemical into the wrong tank causing chlorine vapour to be formed. Approximately 30 people were taken to hospital for treatment for eye, throat and nose irritation. Workers were evacuated in the incident. The incident occurred when the driver pumped sodium hypochlorite, bleach used for odour control, into the tank with a residue of ferric chloride, another odour control chemical.

An investigation into the incident is being carried out.

[unwanted chemical reaction, evacuation, injury, gas / vapour release, human causes, unloading]

**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

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**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]

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**Lessons**

[None Reported]

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

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**Location :** , USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A road transportation incident. Approximately 20 pounds of trimethylamine was released when a relief valve on a truck opened.

A county warning siren sounded after being activated by the leak.

Triethylamines have a strong, pungent odour and can be smelt at a concentration as low as a half-part per billion.

[gas / vapour release, mechanical equipment failure]

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**Lessons**

[None Reported]

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

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**Location :** Savannah, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A road transportation incident. A truck carrying plastic containers containing 41,000 pounds of ferric chloride buckled under the weight. Three containers ruptured as a result and it is thought that they started to leak from the top. A hazardous response team used granulated absorbent material to soak up diesel fuel that spilled and a baby pool was used to catch diesel fuel still leaking.

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**Lessons**

[None Reported]

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

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**Location :** Florida, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A road transportation incident. A tractor-trailer collided with a gasoline tanker causing a spill of approximately 1,000 gallons of volatile fuel onto the road and surrounding area.

Hazardous materials teams used foam to soak up the fuel spill and used a 40 by 40 foot diked area to prevent the fuel from running into the surrounding fragile environment.

[collision]

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**Lessons**

[None Reported]

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

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**Location :** Vicksburg, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A road transportation incident. A tanker truck carrying approximately 4,700 gallons of formaldehyde overturned forcing the evacuation of nearby residents. The incident occurred when a tire blew out causing the vehicle to veer sharply. Approximately five gallons of the toxic chemical, which can cause asphyxiation and death, was spilled.

**Lessons**

[None Reported]

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

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**Location :** British Columbia, CANADA

**Injured :** 0      **Dead :** 0

**Abstract**

A marine transportation and road transportation incident. A semi-trailer tanker aboard a cargo ferry ruptured a tank and spilled its contents of gasoline onto the deck and into the sea.

The dispersment of the gasoline was a priority as concentrated vapours become explosive.

**Lessons**

[None Reported]

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

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**Location :** Oklahoma City, USA

**Injured :** 0      **Dead :** 0

**Abstract**

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

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

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

[ecological damage, pollution, demolition]

**Lessons**

[None Reported]

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

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**Location :** Texas, USA

**Injured :** 85    **Dead :** 0

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**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 pneumonia and pulmonary edema.

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

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

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**Lessons**

[None Reported]

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1220515 February 2000

Source : CNN.COM, U.S. NEWS, FEBRUARY 16, 2000, (<http://www.cnn.com>).

Location : New York, USA

Injured : 0      Dead : 0

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**Abstract**

A radioactive leak occurred at a power plant. The incident occurred when a small leak was detected in a steam generator at the plant's containment building, a sealed concrete building that holds the reactor at the nuclear power plant. Approximately 1 cubic foot of gas escaped.

The leak was immediately isolated and the plant shut down.

An investigation into the incident found that the leak occurred in a tube used to carry hot, radioactive, high-pressure water to a pool of cool, non-radioactive water. Steam produced when the hot water hits the cool water, turns a turbine and generates electricity.

The plant will remain closed for maintenance.

[gas / vapour release, plant shutdown, processing]

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**Lessons**

[None Reported]

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

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**Location :** Lexington, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A chemical spill occurred at a sewer plant causing the plant to be shutdown.

The waste from the spill contains industrial solvents, which overpowered the plant and leaked into nearby waterways, killing hundreds of fish and made drinking water unsafe.

[plant shutdown, environmental, ecological damage]

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**Lessons**

[None Reported]

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**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

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Nova Scotia, CANADA

**Injured :** 0      **Dead :** 0

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**Abstract**

A road transportation and marine transportation incident. A truck carrying approximately 26 tonnes of sodium hydrosulphide started to leak whilst on board a freighter ferry.

The leak was discovered when an employee of the freighter ferry detected fumes.

A small spill was later found in the top of one of nine containers of the chemical in the truck. The spill was quickly cleaned up and the all clear given.

Sodium hydrosulphide is used in papermaking and normally presents minimal risk when properly packaged. However, its fumes are toxic and it can explode and burn in extreme temperatures.

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**Lessons**

[None Reported]

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

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**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

A gas leak occurred on an 8-inch pipe causing a gas cloud to seep into a residential area.

[gas / vapour release]

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**Lessons**

[None Reported]

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

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**Location :** , FRANCE

**Injured :** 17    **Dead :** 0

---

**Abstract**

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

Fourteen workers and three fire fighters were affected.

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

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**Lessons**

[None Reported]

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

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**Location :** , USA

**Injured :** 0     **Dead :** 0

---

**Abstract**

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

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

[spill]

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**Lessons**

[None Reported]

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

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**Location :** , USA

**Injured :** 0      **Dead :** 0

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**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]

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**Lessons**

[None Reported]

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

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**Location :** Hong Kong, CHINA

**Injured :** 0      **Dead :** 0

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**Abstract**

A marine transportation incident. Approximately 15 tonnes of styrene leaked into underground drains after a tanker overturned.

The chemical spilled into waters surrounding a bird-watching area.

[shipping incidents]

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**Lessons**

[None Reported]

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

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**Location :** Mineapolis, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

A hydrochloric acid spill occurred at a printing plant. Approximately 1,000 gallons of the acid spilled in the plant forcing the evacuation of the entire building.

A 1-inch pipe is thought to have broken on a 4,700-gallon tank, spilling the acid. The spill was contained in the building.

The buildings air system was shut down to keep vapours from being emitted from ducts.

Hydrochloric acid is considered poisonous if inhaled as vapours or absorbed through the skin.

[mechanical equipment failure, normal operations]

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**Lessons**

[None Reported]

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

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**Location :** Texas, USA

**Injured :** 0      **Dead :** 0

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**Abstract**

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

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

Clean-up efforts are underway.

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

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

[contamination]

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**Lessons**

[None Reported]

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**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, JANUARY 28, 2000, (<http://www.chemsafety.gov>).

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

A road transportation incident. A road tanker carrying 11,900 gallons of gasoline overturned causing a spillage. The tanker was punctured on the right side causing the fuel to empty into nearby catch basins feeding into a nearby river. The driver was uninjured in the incident.

Clean-up operations were carried out to contain the spill and foam was applied to prevent a fire.

Nearby towns were forced to draw water from alternate sources as a precaution.

**Lessons**

[None Reported]

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

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

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

[spill, evacuation]

**Lessons**

[None Reported]

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

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**Location :** Platte City, USA

**Injured :** -      **Dead :** 10

**Abstract**

A road transportation incident. A truck jack-knifed triggering a 24-vehicle pile-up, killing 10 people.

An unexpected covering of ice and snow had covered the highway.

One tractor-trailer involved in the crash, caught fire upon impact. It took over an hour to contain the blaze, which was fuelled by hydrochloric acid leaking from one of the other trucks involved.

[burns, fire - consequence, fatality, collision, spill, weather effects]

**Lessons**

[None Reported]

**Source :** CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, MARCH 20 2000,  
(<http://www.chemsafety.gov>).

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**Location :** Los Alamos, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

Approximately 500 to 1,000 gallons of waste water thought to be contaminated with high explosives was accidentally released from holding tanks onto 200 square feet of soil surrounding the tanks.

An investigation into the incident found that the water did not contain concentrations of explosives residue.

Analysis of the water found it contained trace amounts of solvents and other chemicals.

[spill, contamination]

---

**Lessons**

[None Reported]

---

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

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**Location :** , USA

**Injured :** 0    **Dead :** 0

---

**Abstract**

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

[weather effects]

---

**Lessons**

[None Reported]

---

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

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**Location :** Guanabara Bay, BRAZIL

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

[spill]

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**Lessons**

[None Reported]

---



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

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**Location :** St Paul, USA

**Injured :** 12    **Dead :** 0

---

**Abstract**

Fumes affected twelve people when tetrahydrofuran leaked at a chemicals company. The workers affected experienced respiratory problems and were taken to hospital for treatment.

Workers were evacuated as hazardous material teams cleaned up the leak and ventilated the building.

Tetrahydrofuran is a colourless, mobile liquid that reacts with heat, flames, other sources of ignition, and light and air. Acute exposure to the eyes and skin can cause extreme irritation and burning.

Inhalation may lead to headache, nausea, vomiting, dizziness, narcosis and respiratory failure.

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

---

**Lessons**

[None Reported]

---

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

Location : Wales, UK

Injured : 0      Dead : 0

---

**Abstract**

A firelighter manufacturer's tank overflowed. The resulting discharge spilled into the surface water drains and an interceptor into a nearby watercourse. The company was fined £7,000 and £150 costs (2000).

[pollution]

---

**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 :** 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 :** 0      **Dead :** 0**Abstract**

An 8-inch gas pipeline ruptured creating a large crater on a highway forcing its closure. The release of gas from the pipeline rupture did not ignite.

Several nearby homes were evacuated, there were no reports of any injuries.

[gas / vapour release, evacuation, near miss]

**Lessons**

[None Reported]

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

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**Location :** , USA

**Injured :** 0     **Dead :** 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARBO BULLETIN, JUNE 2000.

Location : Ohio, USA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

Source : CHEMICAL WEEK, FEBRUARY 2, 2000. (<http://www.chemweek.com>).

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Residents from a village situated near a chemical site were evacuated after concentrations of hexachlorobutadiene (HCBd), a suspect carcinogen, were detected in the air outside their homes.

HCBd is thought to have reached the houses from two nearby landfill sites where the product had been dumped between the 1920's and 1970's.

[evacuation, toxic, gas / vapour release, human causes]

---

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

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**Location :** Dalian, CHINA

**Injured :** 11    **Dead :** 4

**Abstract**

A hydrogen sulphide leak occurred at a chemical plant killing four and injuring approximately eleven people. Workers were immediately evacuated. Passers-by reported a foul smell emanating from the plant.

It is not known what caused the leak.

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

**Lessons**

[None Reported]

8093 12 December 1999

Source : BBC NEWS, 20 DECEMBER, 1999, (<http://www.bbc.co.uk>).

Location : , BAY OF BISCAY

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. A marine tanker containing more than 20,000 tonnes of diesel oil, split in two. More than 10 million litres of oil was spilled causing severe environmental damage. The sunken wreckage still contains approximately 23 million litres. So far approximately 100,000 birds have been killed. 'An ecological catastrophe'.

[sinking]

---

**Lessons**

[None Reported]

---

1210910 December 1999

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

Location : Devon, UK

Injured : 16    Dead : 0

---

**Abstract**

More than 500 people were evacuated from their homes after a fire broke out at a plastics factory.

A cloud of toxic smoke and fumes from the fire drifted into nearby residential areas.

People evacuated were allowed to return home nearly two days after the incident.

Sixteen people, including police and fire fighters, were treated for minor breathing problems, fortunately no-one was seriously injured.

The cause of the fire is not yet known.

[fire - consequence, evacuation, gas / vapour release, injury, toxic fumes]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , THAILAND

Injured : 13    Dead : 8

---

**Abstract**

A fire occurred on a tank farm at a refinery killing eight people and injuring thirteen others.

The incident occurred when a gasoline tank overflowed releasing vapours, which entered several nearby buildings.

Two operators went to investigate and it is thought that the vehicle they were driving ignited the vapours causing a number of explosions, starting fire on a tank containing 1.5 million litres gasoline which quickly spread to four other larger tanks.

A large quantity of foam was used in extinguishing the fire.

An investigation into the incident is underway.

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

---

**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]

---

9685 19 November 1999

Source : CNN.COM, U.S. NEWS, NOVEMBER 19, 1999, (<http://www.cnn.com>).

Location : Northwest Iowa, USA

Injured : 1+    Dead : 2

---

**Abstract**

A rail transportation incident. A freight train collided with an empty grain train, killing a conductor and the driver of a van that was parked by the tracks. Six of the freight cars derailed and four others overturned. A fire occurred from a diesel spill from the engine but was quickly extinguished.

The grain train was parked on the main tracks when the freight train collided with it at the junction with a side track.

An investigation is being carried out as to why the freight train didn't go on to the side track.

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

---

**Lessons**

[None Reported]

---

**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]

---



1270311 November 1999

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

Location : North Carolina, USA

Injured : 0      Dead : 0

---

**Abstract**

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

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

[loss of control, driver error]

---

**Lessons**

[None Reported]

---

1176210 November 1999

**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 15, 1999, (<http://www.cnn.com>)

Location : California, USA

Injured : 29    Dead : 0

---

**Abstract**

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

An investigation into the incident is being carried out.

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

[gas / vapour release, evacuation, poisoning]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. A cargo ship carrying bananas and pineapples collided with a tower causing a 26m gash in its side and five tonnes of lubricating oil to spill into the sea. The vessel also held approximately 440 tonnes of heavy fuel oil and 70 tonnes of diesel. It was not thought that the ship was in danger of sinking.

[container ship, collision]

---

**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**

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11953October 1999

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

**Location** : Kent, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A marine transportation incident. A large spillage of diesel oil polluted a lake, a stream and drainage systems. The oil leaked from an oil tanker.  
[pollution]

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, JANUARY 2000.

**Location** : Damper, AUSTRALIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

Approximately 60 m<sup>3</sup> of diesel oil spilt from storage tanks onboard a production platform. The spill dispersed quickly.  
[spill, offshore]

---

**Lessons**

[None Reported]

---



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

Location : New Jersey, North Carolina, USA

Injured : -      Dead : -

---

**Abstract**

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

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

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

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

[toxic chemical]

---

**Lessons**

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

---

Source : 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]

---

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

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

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

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

[heavy seas, spill, ecological damage]

---

**Lessons**

[None Reported]

---

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

**Location** : Humboldt Bay, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 31    Dead : 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

**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]

---

1164819 August 1999

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

Location : , UK

Injured : 2      Dead : 2

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---



1164515 August 1999

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

---

1262608 August 1999

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

Location : Surrey, UK

Injured : 0      Dead : 0

---

#### Abstract

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

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

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

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

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

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

---

#### Lessons

[None Reported]

---

---

**Abstract**

A rail transportation incident. A chemical tanker of a freight train derailed spilling flammable liquid for about eight hours before clean-up crews contained the leak. All but six cars that jumped the tracks were empty. The cars that derailed contained talc, liquefied petroleum gas, petroleum distillates and plastic pellets.

The leaking car carried approximately 18,000 gallons of petroleum distillates, it was not immediately known how much had been spilled.

A small grass fire started after the derailment but was quickly extinguished.

The cause of the derailment was being investigated.

[derailment - consequence, fire - consequence, spill, kerosene]

---

**Lessons**

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

---

1175803 August 1999

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]

---

1262726 July 1999

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

**Location** : Surrey, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

Approximately 18,000 litres of sewage effluent discharged into a ditch from portable toilets. The discharge came from a manhole in a park that connects to the rainwater drainage system that drained into the ditch, which connects to a river.

The company apparently thought they were discharging into a foulwater sewer system, which would not have resulted in the pollution of controlled waters.

Unfortunately it was a rainwater drain, discharging directly to the river, resulting in serious pollution. Fortunately no fish were killed in the incident due to prompt action.

The company was fined £6,000 and costs of £1,103.

[human causes, pollution, spill, drains & sewers, waste]

---

**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]

---



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

**Location :** , SWEDEN

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A passenger/ro-ro ferry spilt approximately 3,000 l fuel at port during bunkering. Fire crews contained the spill with booms.  
[spill]

---

**Lessons**

[None Reported]

---

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

**Location** : California, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Two freight trains collided head on at low speed. Over 37,000 l of diesel was spilled when more than a dozen engines and cars derailed.

[derailment - consequence, collision]

---

**Lessons**

[None Reported]

---

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

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

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

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

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

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

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

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

**Lessons**

[None Reported]

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

**Location** : Cornwall, UK

**Injured** : 1      **Dead** : 0

---

**Abstract**

A road transportation incident. A road tanker overturned spilling approximately 5,000 litres of red diesel fuel into a nearby stream. The driver of the tanker was seriously injured in the incident and an investigation is being carried out into the caused of the incident. The company of the vehicle was fined £250 and costs of £255 (2000).

[injury]

---

**Lessons**

All vehicles for transporting fuel must be properly maintained at all times to guard against pollution of the environment.

---

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

**Location :** , SINGAPORE

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A bulk carrier sank after colliding with a tanker in ballast. Damage occurred to the tanker. Bunkers leaked potash fertiliser from the bulk carrier. None toxic.

[sinking, collision, damage to equipment, spill]

---

**Lessons**

[None Reported]

---

12079 July 1999

**Source** : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999.

**Location** : Texas, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

[gas / vapour release, refining]

---

**Lessons**

[None Reported]

---

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

**Location** : Washington, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A marine transportation incident. A bulk carrier spilt 750 l fuel oil while loading from a bulk barge. Skimmers and booms failed to stop the slick from moving up-river.

[spill, pollution]

---

**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** : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

**Location** : Massachusetts, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Thousands of gallons of latex spilled into a river when several cars of a train derailed. The cause of the incident is thought to have been due to hot weather buckling the rails.

[derailment - consequence]

---

**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 :** , GALAPAGOS ISLANDS

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A cargo ship ran aground while docking at a port. Some diesel fuel was spilt. Divers checked for leaks before lightering fuel to barges.

[ship ran aground, spill]

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.

Location : , PAKISTAN

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

**Location** : 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]

---

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

**Location** : Illinois, USA

**Injured** : 2      **Dead** : 0

---

**Abstract**

Two workers were hospitalised after being affected by fumes after sulphuric acid and bleach had been mixed to clean drains.  
[cleaning, gas / vapour release]

---

**Lessons**

[None Reported]

---

1210424 June 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; ENDS REP., SEP 1999(296), 16-17.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A paper producer was fined £17,500 (1999) and ordered to pay costs of £37,445 (1999), for polluting three rivers causing the death of approximately 10,000 fish.

A white liquid was discovered entering a culvert under the mill. A stock record proved that there had been a spillage to drain of cationic flocculant.  
[ecological damage, pollution, leak, milling, spill, environmental]

---

**Lessons**

[None Reported]

---



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

**Location :** Devon, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

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

[drains & sewers, pollution, spill]

---

**Lessons**

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

---

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

**Location** : Pennsylvania, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A fire occurred in a sulphur extraction unit at a refinery after power failure. A plume of smoke was released.

[fire - consequence, power supply failure, gas / vapour release, refining, separation equipment]

---

**Lessons**

[None Reported]

---

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

**Location :** , UNITED ARAB EMIRATES

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

[human causes, spill, pollution, cleaning]

---

**Lessons**

[None Reported]

---

**Source** : 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]

---

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

**Location :** Washington, USA

**Injured :** 0      **Dead :** 3

---

**Abstract**

A leak occurred on a pipeline releasing vapours over a nearby creek. The vapours ignited causing a fireball which killed three people. Approximately 1,100 m3 of gasoline was spilt into the creek.

[gas / vapour release, explosion, fire - consequence, fatality, spill]

---

**Lessons**

[None Reported]

---

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

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**Location :** Bellingham, USA

**Injured :** 0      **Dead :** 3

---

**Abstract**

Approximately 277,000 gallons of fuel spilled from a ruptured pipeline killing three people. Nearby residents were evacuated and other parts of the area were asked to conserve water after a pump station was damaged in the fire and explosion.

The pipeline was later tested. During the first test the pipeline ruptured and spilled 10,000 gallons of water.

Further testing was carried out and all defects were found and repaired.

It is thought that the company will apparently be fined an estimated \$3.05 million (2000), the largest fine ever sought against a pipeline operator.

[fire - consequence, evacuation, fatality, material of construction failure]

---

**Lessons**

[None Reported]

---

1210308 June 1999

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

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

---

**Lessons**

[None Reported]

---



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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

An old cast sewage pipe became blocked by debris causing it to overflow into two ponds. A large number of fish was affected by the discharge. The system had not been monitored as it is on a steep incline and was expected to be self-cleaning. The company was fined £5,000 and costs of £715 (2000).

[drains & sewers, waste, design or procedure error, ecological damage, spill, pollution]

---

**Lessons**

[None Reportd]

---

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

**Location** : Pambala, AUSTRALIA

**Injured** : 1      **Dead** : 0

---

**Abstract**

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

[fire - consequence]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Sewage was reported to be coming up from a manhole and was running down the road and into a highway drainage system.

A small spring-fed spring was inspected and found to smell of sewage. Also a large number of fresh water shrimps were found to be in distress on the surface.

Samples of the water were taken and three times the fatal dose of ammonia was found.

An inspection of the sewage pumping station found that neither the duty pump of the standby pump was working leading to an overflow of effluent.

An investigation found that one of the pumps had not been working since five weeks earlier and that the shaft had been dismantled.

The main pump had shut down due to a technical fault and had attempted to bring the missing pump on line, leading to the failure of the station.

The company was fined £4,500 and costs of £600 (2000).

[drains & sewers, mechanical equipment failure, design or procedure error, waste, spill, pollution, environmental]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

12611 June 1999

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

**Location :** Cornwall, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A company was fined £2,000 and costs of £255 when oil and chemicals were found to be discharging from the company's drainage system into the sea.

The waste consisted of chemicals that can be harmful to the environment and require specialist removal.

Although the drainage system was fitted with an oil interceptor, designed to prevent harmful material escaping, it was clear that it was not successfully stopping the release of pollutants.

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

---

**Lessons**

[None Reported]

---

11247 June 1999

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

**Location :** , NIGERIA

**Injured :** 0      **Dead :** 15

---

**Abstract**

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

More than one hundred thousand litres of oil spilled out.

[fatality, burns, deliberate acts]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

An underground slurry system had been run over night during which it failed and caused slurry to spill into a nearby watercourse.

Approximately 260 cubic metres of slurry was discharged from the system, polluting about 1km stretch of river.

The company was fined £1,000 and costs of £600 (2000).

[drains & sewers, mechanical equipment failure, design or procedure error, pollution, waste]

---

**Lessons**

[None Reported]

---

12599May 1999

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

**Location :** Wales, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

Sewage was discharged into a stream from a sewage pumping station. An investigation found that the nearby stream was contaminated with sewage fungus for 200 metres downstream and that the cause of discharge was due to the pumping station malfunctioning.

The company was fined £5,000 and £750 costs (2000).

[mechanical equipment failure, drains & sewers, pollution, waste]

---

**Lessons**

[None Reported]

---



11876May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

**Location :** , NETHERLANDS

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A lighter carrying 2,050 tonnes of kerosene ran aground. The vessel was refloated and was found to be leaking from its cargo tanks.

[spill, ship ran aground]

---

**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.

---

12610 April 1999

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

Location : Devon, UK

Injured : 0      Dead : 0

---

**Abstract**

Raw sewage spilled into a drainage ditch from a pumping station. The incident occurred when the standby pump had been moved for repair and had not been replaced. The remaining pump had become air locked, and with no back up, sewage began to overflow and spill into the ditch.

A failure of the company's warning system meant the problem had been left undetected.

The company was fined £5,000 and costs of £300 (2000).

[drains & sewers, maintenance inadequate, waste, pollution, design or procedure error]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL ENGINEERING IN AUSTRALIA, JUNE-AUGUST 1999.

**Location :** , AUSTRALIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

An acid plant and plant smelter were put out of action when a blower taking the off-gasses from the smelter to the acid plant failed causing severe damage to the blower, the blower building and some equipment surrounding the area.

The failure of the sulphur dioxide blower appears to have been caused by failure of the liners in the mist precipitators during start-up, giving off combustible gases.

[mechanical equipment failure, damage to equipment, gas / vapour release, gas - flammable]

---

**Lessons**

[None Reported]

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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]

---

1291925 March 1999

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

During blind replacement a flange was cracked open releasing LPG, the contractors attempted to close it but this was not possible due to icing.

A steam lance was used to warm up the flange so that it could be closed but this was unsuccessful.

The emergency services were called to assist in the dispersion of the gas cloud.

Measures were taken to remove the source of the LPG including checking of all isolation valves. Finally the pump was started to transfer the butane to the gasoline bleeding system. The leak stopped.

[gas / vapour release, operation inadequate, maintenance]

---

**Lessons**

[None Reported]

---



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

Location : Kent, UK

Injured : 0      Dead : 0

---

**Abstract**

A company was fined £8,000 and costs of £600 (2000) when it was found that one of their tanks was leaking oil, which spilled into a surface water system and entered a lake.

Engine and gearbox waste oil had passed by filters into a number of pump units which transferred the oil to the holding tank outside. The holding tank was full and needed emptying. Indications that the holding tank was full and needed emptying was supplied by the pumps in the workshop but they were not working.

The tank was not visible, it was possible for it to leak and not trigger off the disposal pumps.

[environmental, ecological damage, leak, design or procedure error]

---

**Lessons**

[None Reported]

---

129925 March 1999

**Source** : LOSS PREVENTION BULLETIN, 147, 27,; REUTERS NEWS.

**Location** : California, USA

**Injured** : -      **Dead** : 0

---

**Abstract**

An explosion occurred on a hydrocracking unit at a refinery sending towering flames and thick black smoke billowing into the atmosphere.

The explosion occurred in the isomax unit, which processes heavy fuels into gasoline and jet fuel.

Nearby residents were warned to stay inside their homes as fire fighters struggled to control the fire.

[hydrocracker, fire - consequence, processing, gas / vapour release]

---

**Lessons**

[None Reported]

---

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

Location : Illinois, USA

Injured : 3      Dead : 0

---

**Abstract**

A rail transportation incident. A train hauling auto parts collided with a freight train at an intersection, flinging boxcars off the tracks. Fortunately the crew on the trains suffered only minor injuries.

Police began to evacuate the nearby town but stopped after it was determined that no hazardous materials had been spilled and that there was no danger of an explosion from spilled diesel.

However, there was concern that fuel spilled into the nearby creek would reach the nearby river, a source of drinking water for 80,000 people in the area.

A supply of sand was used to dam the creek and contain the spilled oil.

Apparently both trains were moving considerably slower than the 50 miles per hour limit allowed at the intersection at the time of the incident. Investigations are under way as to the cause of the incident.

[collision, derailment - consequence, evacuation, near miss, injury]

---

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

Location : , UK

Injured : 3      Dead : 0

---

**Abstract**

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

The building was evacuated as a result.

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

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

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

---

**Lessons**

[None Reported]

---

**1054317 February 1999**

**Source :** BBC NEWS, FEB 19, 1999,  
(<http://www.bbc.co.uk>).

**Location :** Teesside, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A chemical leak occurred at a chemical plant when hydrochloric acid leaked from a pipe into a stone drain and then onto a nearby marshland, polluting 70,000 square metres of marshland.

The area was diluted with sea water to minimise the effect of the pollution.

[drains & sewers, pollution]

---

**Lessons**

[None Reported]

---

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

Location : Oregon, USA

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. A 640 foot cargo ship carrying 400,000 gallons of fuel dragged anchor while waiting out a storm to pick up a load of woodchips. The cargo ship subsequently ran aground.

After constant battering by the pounding surf the ship began to leak.

Plans to pull the whole ship off the beach were scrapped, instead it was decided to burn the fuel oil to prevent anymore spillage.

Attempts to burn off the fuel were partially successful, but disaster struck when the ship broke in half, spilling 70,000 gallons.

[ship ran aground, pollution, weather effects]

---

**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.
-



10534February 1999

**Source :** BBC NEWS, FEB 9, 1999,  
(<http://www.bbc.co.uk>).

**Location :** , UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

Ground water contaminated with tritium leak into a stream via a drainage system at an atomic weapons plant.  
[spill, contamination]

---

**Lessons**

There is no safe level of radioactivity. Tritium as a substance is difficult to control as it is an element of hydrogen and therefore, easily gets into the body and blood system.

---

1261625 January 1999

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

**Location** : Hampshire, UK

**Injured** : 0      **Dead** : 0

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**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

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]

---

1260522 January 1999

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

**Location** : North Wales, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A six-kilometre stretch of a river was affected by pollution due to the release of slate dust. The company was fined £2,400 and costs of £180 (2000).

[leak, solids processing]

---

**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]

---

1188013 January 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A company was fined on several occasions, the first occurred on 13 January 1999, when an uncontrolled chemical reaction caused a fire at a chemical plant. The company was fined £15,000 (1999).

The second incident occurred on 20 January 1999, a gas release incident. The company was fined £10,000 (1999).

The third incident occurred when special waste, mixed in a skip, reacted to produce a cloud of steam and formaldehyde causing environmental pollution and harm to human health. The company was fined £15,000 (1999). Employees from an adjacent company suffered breathing difficulties and eye irritation.

[unwanted chemical reaction, fire - consequence, gas / vapour release, people]

---

**Lessons**

[None Reported]

---

1260608 January 1999

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

**Location** : Colwyn Bay, North Wales, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

Diesel spilled from a surface water outfall into the sea. The company was fined £4,000 and costs of £150 (2000).

[pollution]

---

**Lessons**

[None Reported]

---

1262406 January 1999

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A blocked sewer caused sewage to re-route itself through an old uncapped connection into a surface water system.

The company was fined £7,000 and costs of £700 (2000).

[flow restriction, waste, spill, drains & sewers]

---

**Lessons**

[None Reported]

---



11012January 1999

**Source** : CHEMICAL HAZARDS IN INDUSTRY, MAY 1999, ISSN 0265-5271.; CHEMPRESS, 19 FEB, 1999, 33(4), 4(DUTCH).

**Location** : Ludwigshafen, GERMANY

**Injured** : 0      **Dead** : 0

---

**Abstract**

Around 100 kg of the red pigment rhodamine was discharged into a nearby river from a purification installation. This substance is soluble in water and at certain concentrations is poisonous to aquatic life but in this case toxicity can be ruled out due to the high degree of dilution of the rhodamine.

[spill, chemical]

---

**Lessons**

[None Reported]

---

128871999

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

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

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

[fire - consequence, overpressurisation, oil - hot]

---

**Lessons**

[None Reported]

---

114981999

**Source :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

**Location :** , GERMANY

**Injured :** 39    **Dead :** 0

---

**Abstract**

Thirty nine employees were treated for eye irritation after a liquid spill of a mixture containing mainly propin acid ethyl ester from a residue container. The spill was caused by pressure build-up.

[high pressure, people]

---

**Lessons**

[None Reported]

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128601999

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

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

A monomer charge pump casing ruptured at the joint whilst out of service and unattended on a vinyl chloride monomer (VCM) tank farm. A release of liquid and vapour occurred and explosively ignited.

Many of the possible causes include, accidental starting of the pump when liquid filled and valved off, or the decomposition of instable compounds, or internal vapour/air ignition, the probable one was considered to be a combination of overpressurisation due to liquid VCM expansion in a completely full and leak tight system coupled with a weakened case joint due to over-tightened replacement mild steel studs in weakened holes where high tensile stud should have been fitted.

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

---

**Lessons**

The following recommendations were made:

1. Regular maintenance and corrosion inspections to be carried out.
  2. Improvements to operational practice, plant management and Hazop were suggested.
-

122291999

**Source** : CHEMICAL HAZARDS IN INDUSRTY, JANUARY 2000,; J. OCCUP. HEALTH SAFT. AUG. N. Z., OCT 1999, 15(5), 406.

**Location** : , AUSTRALIA

**Injured** : 0      **Dead** : 0

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**Abstract**

Approximately 10,000 litres of LPG escaped to atmosphere when the driver of a road tanker drove off without disconnecting the filling hose. Fortunately the gas did not ignite. Nearby residents were evacuated as a precaution.

After an investigation the company was fined A\$2500 (1999), for the storage tank not meeting the Australian Standard AS 1596-1989.

[gas / vapour release, human causes, evacuation, loading, storage tanks]

---

**Lessons**

[None Reported]

---

128881999

Source : ICHEME

Location : , NETHERLANDS

Injured : 0      Dead : 0

---

**Abstract**

An uncontrolled release of approximately 10,000m<sup>3</sup> of wet gas occurred from a pig receiver at a drying facility due to the inadvertent opening of the pig receiver inlet valve.

This occurred due to a malfunctioning motorised actuator that opened the receiver's isolation valve when the hinged door was not totally secure.

[gas / vapour release, mechanical equipment failure, design or procedure error]

---

**Lessons**

[None Reported]

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110331999

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

[pollution, ecological damage, material transfer]

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**Lessons**

[None Reported]

---

124341999

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

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#### Abstract

An explosion occurred in an acid relief neutraliser vessel of an HF alkylation plant. The explosion blew off the top section of the vessel rupturing process and flare lines, the section landed in a pipe bridge some 40 metres away causing damaged to process and utility lines. Fire broke out at both locations.

Amongst the severed lines was the reboiler return line of the main fractionator, causing this column to depressurise into the fire. The failure of utility lines in the pipe track led to the loss of fuel gas, instrument air pressure and cooling water, which in turn led to a cascaded shutdown of the refinery.

No major injuries occurred in the explosion or in the fire fighting effort.

The situation was brought under control in 4 hours and all fires were extinguished in 6 hours. Approximately 5 tonnes of the HF (hydrofluoric acid) inventory was lost to the environment. This loss is thought to have come from the severed reboiler return line because the main fractionator lost pressure and reverse flow occurred in parts of the plant. The firewater absorbed the spilled HF.

Sodium bicarbonate was added to the out-fall canal and helped to control the pH of the effluent water. No damage to the environment has been recorded.

The damage to the equipment by the explosion and subsequent fires was considerable. The refinery was shutdown for 2 weeks and it took 3 months to repair and re-start the alkylation plant.

[damage to equipment, fire - consequence, plant shutdown, processing, mechanical equipment failure]

---

#### Lessons

[None Reported]

---



1080922 December 1998

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

Location : , CAMBODIA

Injured : 0      Dead : 2

---

**Abstract**

Fifty thousand people evacuated a resort after several thousand tonnes of imported toxic waste was dumped about six kilometres outside the city. The waste had been labelled cement material so residents brought sacks of the waste back to their houses using it to mix with cement and building materials.

The waste was later dumped in the streets near water supplies when people realised that the material could be dangerous.

Two people have died.

Authorities say the effects of the waste have been contained.

[evacuation, pollution, spill, human causes, people, fatality]

---

**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, 2 DECEMBER, 1999, (<http://www.chemsafety.gov>).

Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to 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 :** Landover, USA

**Injured :** 14    **Dead :** 0

**Abstract**

A small refrigerant leak developed at an ice plant, fourteen people were taken to hospital after being exposed to the hazardous material released.

A full investigation into the incident is underway.

[gas / vapour release, refrigeration unit, injury]

**Lessons**

[None Reported]

1260309 December 1998

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

Location : Wales, UK

Injured : 0      Dead : 0

---

#### Abstract

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

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

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

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

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

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

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

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

---

#### Lessons

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

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

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

10458December 1998

Source : BIRMINGHAM POST, 15 DECEMBER, 1998.

Location : Birmingham, UK

Injured : 0      Dead : 0

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**Abstract**

Firemen had to dam part of a river when a fuel spill threatened to cause an environmental disaster. More than 100 gallons of diesel poured out of a broken fuel pump at a bakery and started to run down nearby storm drains.

The fuel flooded on to the company's loading yard and covered an adjacent road before running into the drainage system and a nearby river.

Fire crews later joined by clean-up experts battled to contain the spill. The area was hosed down with detergent and a special lorry brought in to suck up the diesel.

Inflatable bungs were used to try to block the storm drains where they met the river.

Absorbent booms and pads, specially developed to deal with ocean oil spills, were laid across the river to suck up the fuel.

A driver failing to turn off a pump after filling up a lorry was to blame for the spill, confusion about how to close down the diesel system had added to the problem.

Water and wildlife suffered minimal damage.

[environmental, pump failure, loading, operation inadequate]

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**Lessons**

[None Reported]

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

**Location :** Erith, UK

**Injured :** -      **Dead :** 0

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**Abstract**

A series of errors and an illegal pump connection at a foul pumping station resulted untreated sewage and dangerous chemicals contaminating a surface pumping station. Approximately 5 million gallons of effluent pumped from the station into a nearby river.

A further failure of the pumps at the water pumping station resulted in effluent, which could no longer be pumped into the river, filling the wet-wells that then overflowed into the street, at pressure, via the road gullies. The effluent reached and flooded nearby houses in which residents were evacuated for a considerable amount of time, some not able to return at all due to the toxicity of the chemicals.

The company was fined £250,000 and costs of £12,847 (2000).

[pump failure, human causes, drains & sewers, waste, environmental, evacuation, spill, toxic chemical]

---

**Lessons**

[None Reported]

---

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

**Location** : Augusta, Georgia, USA

**Injured** : 46+ **Dead** : 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

1044414 November 1998

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

Location : , HONG KONG

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. Two oil tankers collided causing a major oil slick.

There are fears the spillage will pose a serious threat to marine life in the area, including the endangered white dolphin.

The diesel oil poured into an area near the mouth of a river. Both the tankers were carrying thousands of tonnes of oil. Two tanks on one vessel were badly damaged, each with a capacity of 1,000 tonnes of oil.

The oil formed a slick reported to be about 10km long and five metres to 50 metres wide.

[collision, spill, environmental, damage to equipment]

---

**Lessons**

[None Reported]

---



1260208 November 1998

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

Location : Wales, UK

Injured : 0      Dead : 0

---

**Abstract**

Sewage spilled into a nearby river from a fracture sewer pipe. The area in which the spill occurred is an important spawning area for salmon, sea trout and brown trout.

The company took several days to rectify the problem causing further release of sewage.

The company was fined £3,000 and costs of £1,027 (2000).

[pollution, ecological damage, waste, drains & sewers]

---

**Lessons**

[None Reported]

---

Source : BBC ONLINE NETWORK 1998.

Location : , OFFSHORE CHINA

Injured : 0      Dead : 0

---

**Abstract**

A marine transportation incident. Two oil tankers collided causing a major oil slick.

There are fears the spillage will pose a serious threat to marine life in the area, including the endangered white dolphin.

The diesel oil poured into an area near the mouth of a river. Both the tankers were carrying thousands of tonnes of oil. Two tanks on one vessel were badly damaged, each with a capacity of 1,000 tonnes of oil.

The oil formed a slick reported to be about 10km long and five metres to 50 metres wide.

[collision, damage to equipment, pollution]

---

**Lessons**

[None Reported]

---

1044225 October 1998

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

Location : Louisiana, USA

Injured : 2      Dead : 7

---

**Abstract**

An explosion occurred on a natural gas well killing seven workers and seriously injuring two. Flames shot 100 feet into the air as clouds of steam produced by salt water from the gas reservoir billowed over the well site in a clearing surrounded by pine forests.

Workers used bulldozers to dig a reservoir for the water runoff whilst fire crews prepared to cool off the well with water cannons to allow safe passage for workers to go in. Water was also poured onto drums of methanol, which is used for drilling, to try to keep those from exploding. The cause of the of the explosion is not known.

[gas / vapour release, fatality, injury]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Sewage was discharged from a wastewater treatment works killing fish in a nearby stream. Two days before the incident maintenance and repair work had been carried out at the site. Sometime shortly after this the electronic device controlling the flow to the treatment works failed and all the flow was directed to storm tanks and to the storm discharge point.

The company was fined £7,500 and costs of £660 (2000).

[ecological damage, pollution, leak, waste, drains & sewers, control failure, spill]

---

**Lessons**

[None Reported]

---

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

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**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]

---

1043806 October 1998

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

Location : Pennsylvania, USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. Approximately 200 people were evacuated when a train carrying hazardous chemicals derailed at the edge of a nearby national forest.

Toxic sulphuric and caustic sodium hydroxide leaked from two of the four tankers which overturned.

[evacuation, sulphuric hydroxide, derailment, spill]

---

**Lessons**

If inhaled, sulphuric acid can cause respiratory problems or skin, eye and ear irritation. In greater concentrations, exposure could be deadly.

---

11955October 1998

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

Location : , USA

Injured : 6      Dead : 0

---

**Abstract**

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

---

**Lessons**

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

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---



Source : LOSS PREVENTION BULLETIN 149, 24,; HEALTH & SAFETY PRACTITIONER, AUGUST 1999.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A release of hydrogen bromide to atmosphere occurred at a chemical plant. Nearby residents were affected by the release.

Operators at the site were alerted to the incident when a white mist of hydrogen bromide was observed in the process building, the process had already been stopped but approximately 5.4kg had been released to atmosphere.

The chemical company was fined £4,000 (1999) and ordered to pay costs of £5,000 (1999).

[gas / vapour release, people, processing]

---

**Lessons**

[None Reported]

---

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

Location : Wales, UK

Injured : 0      Dead : 0

---

**Abstract**

Sewage effluent was discharged into a river from a sewage treatment works. The incident occurred due to the works experiencing difficulties with their biological treatment process, resulting in considerable amounts of foam at the aeration tanks.

Foam covered approximately 30 metres downstream and 15 metres upstream; a dark plume could also be seen. The company was fined £1,500 and costs of £546 (2000).

[pollution, leak, drains & sewers, waste]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

[coupling failure, gas / vapour release]

---

**Lessons**

[None Reported]

---

**Source :** BBC NEWS, 23 SEP, 1998,  
(<http://www.bbc.co.uk>).

**Location :** , UK

**Injured :** 8      **Dead :** 0

---

**Abstract**

A road transportation incident. Eight people were treated at hospital in blood spill scare after more than 50 gallons of cows' blood leaked from a tanker onto a motorway.

Tests on the blood revealed no BSE contamination.

The remains of the tanker's cargo was transferred to another tanker and transported to an incinerator to be destroyed.

The cause of the incident is thought to have been valve failure.

[waste, road tanker]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Jet oil was seen to be shooting from a stationary tank in a continuous stream. The incident occurred due to valves on the tank being opened by vandals.

Approximately 150,000 litres of oil was released into the environment.

The valve designed to drain rainwater out and keep the bund at full capacity, had been left open and the oil was therefore able to run out and enter the ground.

The company was fined £10,000 and costs of £4,000 (2000).

[vandalism, spill]

---

**Lessons**

[None Reported]

---

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

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

[spill, ecological damage, vandalism]

---

**Lessons**

[None Reported]

---

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 :** CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.

**Location :** , UK

**Injured :** 2      **Dead :** 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

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.

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, ecological damage, sewer]

---

**Lessons**

[None Reported]

---

**Source :** ENVIRONMENT ACTION, OCTOBER/NOVEMBER 1999.

**Location :** Norfolk, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A company was fined £30,000 and costs of £3,228 (1999) for polluting a harbour with sewage effluent.

Sewage was found to be leaking from a manhole cover into the surrounding area.

[pollution, sewer]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

A fire occurred at a refinery when a crude splitter pump around line ruptured due to sulphidation corrosion. The rupture released hydrocarbons with a composition from naphtha to diesel. The pump around stream was released as a vapour with an ensuing fire jet ignited by autoignition. The fire caused subsequent ruptures in the main fractionator and other equipment.

No one was injured.

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

---

**Lessons**

[None Reported]

---

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]

---

10207August 1998

Source : REUTERS LIMITED, 1998.

Location : Cambridge, Massachusetts, USA

Injured : 1      Dead : 0

---

**Abstract**

A rail transportation incident. A rail car carrying 66,000 gallons of hydrochloric acid began leaking, releasing a vapour cloud of deadly fumes causing injury to one . A diluted form of highly corrosive acid, with a concentration of 28 percent, began leaking on to the rail bed and caused a small vapour cloud to form. One man working in the rail yard was taken to a local hospital. 100 to 150 people from two nearby light manufacturing buildings were evacuated and part of a six-lane highway was closed as hazardous materials units tried to patch the hole. An almost windless morning and heavy rains helped toward the quick shrinking of the vapour cloud.

[gas / vapour release, evacuation, injury]

---

**Lessons**

[None Reported]

---

12226 July 1998

**Source** : CHEMICAL HAZARDS IN INDUSRTY, FEBRUARY 2000.

**Location** : Oxfordshire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

An ink and varnish company was fined £10,000 (1999), for polluting a pond linked to a river with linseed oil.

An investigation into the incident found that the company's drainage system was full. A large volume of oil had collected in a bund protecting oil tanks.  
[pollution, human causes, processing]

---

**Lessons**

[None Reported]

---



11035July 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; ENDS REPORT, FEB 1999, (289), 54.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A company was fined £13,500 (1999) for the pollution of ground water from around 7000 litres of unleaded petrol which had leaked from a petrol station. The company was also found guilty for causing polluting matter to enter controlled waters. Fuel had escaped from underground piping. The leak detection system at the petrol station did not function. About 1000 litres of fuel has been recovered but it is not known what happened to the remaining 5000-6000 litres of petrol.

[pipeline, spill, gasoline]

---

**Lessons**

[None Reported]

---

12630July 1998

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Approximately 213,000 litres of fuel was lost over a period of eight months from an underground pipeline resulting in groundwater pollution.

Two companies involved were fined, one £125,000 and the other £125,000, both companies split costs of £25,000 (2000).

[human causes]

---

**Lessons**

[None Reported]

---

10208July 1998

Source : REUTERS LIMITED, 1998.

Location : North Carolina, USA

Injured : -      Dead : -

---

**Abstract**

Hundreds of thousands of fish have been killed along a lower part of the Neuse River in a major outbreak of the toxic *Pfiesteria* microbe. Heavy spring rains and a dry summer made conditions ripe for emergence of the deadly toxin. The outbreak has killed an estimated 500,000 fish over the past five days, and is an ominous sign for fishermen and boaters along the East Coast.

The *Pfiesteria* microbe has covered a seven-mile stretch of the Neuse River about 15 miles downstream from New Bern in coastal North Carolina. About half the fish caught in one section of the river had ulcerated lesions on their skin associated with an active *Pfiesteria* outbreak.

*Pfiesteria* in recent years has been linked to several major fish kills on East Coast waterways, where scientists say the microorganism thrives in nutrients generated by sewage, animal waste and fertilisers flushed into rivers and streams. It was first discovered swarming in a major fish kill on the nearby New River in May 1991, causes lesions and stupefies fish, and may have similar effects on people exposed to the toxin.

[hot weather, rain, ecological damage, leak]

---

**Lessons**

[None Reported]

---

12376 July 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; ENDS REPORT, DEC 1999, 1999(299),58.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A company was fined £7,500 (1999) and ordered to pay cost of £10,396 (1999) for polluting a watercourse.

The incident occurred when coolant escaped from a lagoon at its pipeworks through a faulty connection.

An on site security company were also fined for failing to inform relevant authorities.

[pollution, leak, mechanical equipment failure]

---

**Lessons**

[None Reported]

---

10399 July 1998

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

**Location** : Lake Issyk-kul, KYRGYZSTAN

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

[near miss, spill]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A plant used boron trifluoride (BF<sub>3</sub>) 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 BF<sub>3</sub> 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 BF<sub>3</sub> banded area from the main effluent system.
  4. Assess danger of toxic fumes being drawn into the control room ventilation system.
-

1261202 June 1998

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

**Location :** Somerset, UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

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

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

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

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A factory effluent consent breach occurred following an upset on an ethylene plant. The incident arose from commissioning problems on the plant, after the plant had been shutdown for maintenance work. Emulsified water was sent to the nearby river foreshore via the plant effluent outlet. The sample of the effluent at the foreshore showed the hydrocarbon content to be 62 ppm against a maximum consent limit for spot samples of 45 ppm.

The incident was caused by a short term loss of efficiency of the waste water stripper. The performance of the stripper was reduced for about two hours due to the base section being full of liquid.

[mechanical equipment failure, spill]

---

**Lessons**

1. Contingency plans for holding up any contaminated water should be developed prior to restarting the ethylene plant.
  2. The waste water stripper level instrumentation should be reviewed to assess if it is feasible to avoid false zeros.
  3. The stripper Operating Instructions should be reviewed to give guidance on the actions to be taken if the tower is not operating efficiently.
  4. This incident should be used as a learning event to provide refresher training to plant operators.
  5. The ethylene plant radio performance should be reviewed to improve the reliability of the system.
-



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

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**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** : HAZARDOUS CARGO BULLETIN, FEBRUARY 2000.

**Location** : Kalgoorie, AUSTRALIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A leak of sodium cyanide occurred from a tank container.

The incident occurred due to poor design and location of a pressure test nozzle, which led to the leakage of cyanide liquor from a tank container unloading liquid sodium cyanide.

The end frames of the container normally protect such nozzles but in this case the nozzle protruded over the top of the end frames. It is thought that the nozzle had been damaged when another tank container was lifted over this unit.

[spill, design inadequate]

---

**Lessons**

The owner of the tank container has subsequently redesigned the unit and all similar containers so that the pressure test nozzle does not protrude outside the body of the tank.

The company concerned has prohibited the practice of lifting containers over the top of tank containers.

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

[storage tanks, spill, design or procedure error]

---

**Lessons**

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

12767May 1998

**Source** : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; MADDEN, G. (SOUTH GLOSTERSHIRE ENVIRONMENTAL SERVICES, UK) ENVIRONMENTAL HEALTH JOURNAL, FEB 2000, 108(2), 46-48.

**Location** : Bristol, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

An underground fuel pipeline was damaged during planned maintenance work forcing two families to be moved out of their homes. Approximately 27,000 litres of kerosene were recovered following the incident. It is estimated that approximately 500-900 litres has been lost to ground. [evacuation, spill, excavation damage, damage to equipment]

---

**Lessons**

[None Reported]

---

10398May 1998

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

**Location** : Lake Issyk-kul, KYRGYZSTAN

**Injured** : 70+ **Dead** : -

---

**Abstract**

A road transportation incident. More than 70 people were taken to hospital with suspected cyanide poisoning, after nearly 2,000 kg of the chemical spilled into a river.

An emergency committee was set up to cope with the disaster as several hundred other people complained of feeling unwell. Around four thousand people were evacuated from the nearby village.

The sodium cyanide was being transported in cylinders to a gold mine when a truck carrying it crashed spilling its cargo.

The cyanide leaked into the river, which feeds the country's largest lake.

Sodium cyanide is used extensively in Central Asia as a separating agent in gold mines.

[evacuation, road incidents]

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**Lessons**

[None Reported]

---

1199214 April 1998

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

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

[storage tanks, operation inadequate]

---

**Lessons**

Company recommendations following the accident included the following:

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

---

1234830 March 1998

**Source** : NATIONAL TRANSPORTATION SAFETY BOARD, 1999, (<http://www.nts.gov>); ENVIRONMENTAL PREVENTION BULLETIN, 068.

**Location** : Sandy Springs, Georgia, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A pipeline rupture caused approximately 30,000 of gasoline of which 17,000 gallons were recovered.

The incident occurred on a 40-inch diameter steel pipeline, which ran through a landfill site.

An employee at the site detected the odour of gasoline flowing up through the ground in the vicinity of the site and immediately reported the leak to the pipeline owner. The pipeline was subsequently shutdown.

An investigation into the leak found that the pipeline had buckled and cracked.

It is thought that the stress damage was due to soil settlement underneath the pipe.

Clean-up costs exceeded \$3.2 (1998).

[material of construction failure, spill, design or procedure error]

---

**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]

---

1260117 March 1998

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

Location : Wales, UK

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source :** ICHEME

**Location :** , UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

An incident occurred involving a dope intermediate storage tank, when confusion between personnel caused the supply line to be closed whilst the pump continued to pump dope to the tank. Eventually the tank overflowed and approximately 250 kgs was spilt.

[storage tanks, spill, operation inadequate, material transfer]

---

**Lessons**

[None Reported]

---

9073 23 January 1998

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

Location : Kuala Lumpur, MALAYSIA

Injured : 0      Dead : 0

---

**Abstract**

A large fire occurred in a rubbish dump on the outskirts of a city causing a thick cloud of acrid smoke to cover the area.

No casualties were reported.

[fire - consequence, gas / vapour release]

---

**Lessons**

[None Reprted]

---

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

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

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

[spill, pollution]

---

**Lessons**

[None Reported]

---

**Source :** ICHEME

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

An actuator lever on a drain valve failed causing approximately 260 litres of highly flammable monomer to spill. The incident occurred when a 5 tonne charge of highly flammable monomer and catalyst was being loaded into a reactor in a low temperature resin plant.

[valve failure, loading, reactors and reaction equipment, mechanical equipment failure]

---

**Lessons**

[None Reported]

---

1039507 January 1998

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

**Location** : Off Coast, UNITED ARAB EMIRATES

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

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

[marine transport, environmental]

---

**Lessons**

[None Reported]

---

10396 January 1998

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

**Location** : Off coast, NIGERIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

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

[environmental]

---

**Lessons**

[None Reported]

---



123491998

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

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

Fortunately no fire or explosion occurred from the incident.

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

[near miss, gas / vapour release]

---

**Lessons**

[None Reported]

---

129451998

**Source** : CHEMICAL & ENGINEERING NEWS, JULY 24, 2000.

**Location** : New Jersey, USA

**Injured** : 9      **Dead** : 0

---

**Abstract**

An explosion occurred at a chemical plant injuring nine workers and releasing process chemicals into the surrounding area. The explosion occurred due to a runaway chemical reaction in a 2,000-gallon kettle being used to produce dye.

[gas / vapour release, runaway reaction, processing, injury]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

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

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

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

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

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

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

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

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

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

[isolation inadequate, design or procedure error]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

A large oil spill (approximately 175 m<sup>3</sup>) 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

---

106011998

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

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

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

[storage tanks, design or procedure error]

---

**Lessons**

[None Reported]

---

104001998

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

**Location** : Donana National Park, SPAIN

**Injured** : 0      **Dead** : 0

---

**Abstract**

Clean up of 20 million tonnes of toxic material left by a waste spill from a mine. The clean up began a week after a reservoir wall at a pyrite mine collapsed, sending highly acidic waters into the nearby rivers.

Makeshift dykes were constructed to divert the toxic flow away from the local national park, but surrounding marshlands suffered severe damage. Crops were ruined and thousands of birds and fish killed by contamination.

[environmental, ecological damage, external causes]

---

**Lessons**

[None Reported]

---

1040128 December 1997

**Source :** LOSS PREVENTION BULLETIN, 139, 23.; THE WESTERN MAIL, 29 DECEMBER 1997.; CEEFAX, 28 DECEMBER 1997, 9 JANUARY. THE CHEMICAL ENGINEER, 15 JANUARY 1998.

**Location :** , UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A rail transportation incident. Around 1000 people were evacuated from their homes following a derailment of a freight train wagon carrying sixty tonnes liquid vinyl chloride monomer (VCM). The wagon was the last of nine being taken to the docks, when it derailed while going over manually operated points and turned on its side.

Although the wagon survived the impact intact and there was no leak, forty-eight fire fighters and twenty one employees were required to provide the necessary support during the operation to pump out the wagon.

The residents within a 300 m radius were evacuated as a precaution, during the decanting procedure in case of leakage, which was due to the flammable nature of VCM could have easily ignited.

The cause of the incident was due to human error.

[evacuation, human causes, derailment - consequence, spill]

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , INDONESIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



Source : 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**

An incident occurred during unloading operations, xylene was being transferred from a road tanker to a bulk storage tank. Confusion concerning the capacity of a tank and the amount of material in it caused the tank to overflow.

The spilled material was contained in a bund, covered with foam and then pumped into 200 l drums.

[storage tanks, operation inadequate]

---

**Lessons**

[None Reported]

---

Source : COPYRIGHT 1996, THE DAILY IOWAN.

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. A railroad train derailed due to striking a truck on a crossing spilling almost 100 tonnes of . All three locomotives and eight of the train's 53 car jumped the tracks.

Warning lights on the crossing were working at the time of the derailment.

[derailment - consequence, collision]

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A process plant upset resulted in a smoky flare lasting 8 minutes. The smoke drifted across a local road, causing nuisance and potential hazards to drivers. Four external complaints were received, including one from the local police. The IPC limit was not exceeded by the incident. A seized non-return valve meant that the gas was vented to a different stack from normal, in addition, a steam control valve, which aids smokeless flaring had been removed in error, as it was assumed that the warm-up line would provide sufficient heating for smokeless venting.

[processing, gas / vapour release, valve failure]

---

**Lessons**

The lessons learnt covered the following areas:

1. Establishing ownership of the various sections of the system to ensure responsibility for maintenance, operation and modifications work.
  2. Review of the flare system design against best practice for smokeless flaring.
  3. Updating of operating and maintenance procedures for the flare system.
  4. Review of procedures to inform the Scottish EPA in the event of work which might effect smokeless flaring capabilities.
  5. A review of the radio system to ensure staff can be contacted effectively.
  6. Review of the plant operating procedures to minimise the potential for a similar process upset.
-

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , INDIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

A spillage of diesel occurred on one of two lines carrying petroleum products from ship to terminal.

The explosion occurred in the sewage and storm water drains around the area. Following the explosions, the line was shutdown and filled with water to locate the possible source of the leakage.

[unloading, pipework, marine transport, drains & sewers]

---

**Lessons**

[None Reported]

---

**Source :** LLOYDS LIST, 8 NOV, 1997.

**Location :** , INDIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

---

1120121 October 1997

Source : ICHEME

Location : , USA

Injured : 3      Dead : 0

#### Abstract

H<sub>2</sub>S (hydrogen sulphide) was released while a relief valve was being replaced. The pipe fitters working on the valve were wearing air supplied breathing apparatus and were not injured. However, other nearby workers were exposed to H<sub>2</sub>S, three of which were hospitalised overnight.

The incident occurred during schedule maintenance on a hydrodesulphurization and regeneration unit. Eight relief valves had been removed from various parts of the units and two had already been replaced prior to the incident. Battery limit blinds had been installed on the majority of key lines. As a result, turnaround personnel believed they could cover all maintenance work on a single work permit. Therefore, no specific work permits were prepared authorising the replacement of the relief valves. The relief valves were located in the line going into the 24 inch blowdown header to flare. The 24 inch blowdown valve had been open throughout the turnaround. The 8 inch valve in the line to the blowdown header was also open since it was inoperable and could not be closed. On the 21 October 1997, two contractor pipe fitters had removed the 6 inch and 8 inch blind flanges and began to replace the west side safety relief valve. During this sequence of work, H<sub>2</sub>S was released.

[gas / vapour release, flare line, flare system, blind/spade/slip plate, safety relief valve, isolation inadequate, maintenance procedure error, injury]

#### Lessons

The following recommendations were made:

1. A hazard analysis must be carried out before commencing any work involving opening a flare line.
2. Work on a live flare system requires special dispensation from a senior manager.
3. A detailed procedure covering isolation, draining and purging requirements must be prepared prior to maintenance work.
4. Detailed safety instructions for the opening of any pipeline must be included in the work permit.



**Source :** LOSS CONTROL NEWSLETTER

**Location :** , SINGAPORE

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. Two marine tankers collided spilling 29,000 tonne of fuel oil into the sea. 51 anti-pollution craft were involved in cleanup.  
[collision, pollution]

---

**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 : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

Effluent from a vinylidene chloride manufacture spilt into a canal.

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A filter press failed releasing approximately 3 tonnes of diacetate dope, containing acetone. The spilt dope was sprayed with water and collected in drums for re-use.

[mechanical equipment failure, spill]

---

**Lessons**

[None Reported]

---

8837 01 October 1997

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

**Location :** , ENGLISH CHANNEL

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , RUSSIA

**Injured :** 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 : ICHEME

Location : ,

Injured : 5      Dead : 2

---

**Abstract**

Severe damage occurred to a steam turbine when a compressor on ammonia plant refrigeration failed killing two people and injuring five others.

The failure of the turbine rotor resulted in the steam, let down from 97 bar superheated at 496 degrees C, mixed with lubricating oil. The release enveloped five employees in the area of the turbine and compressor.

An investigation concluded that the incident was a result of a combination of errors, which occurred in a sequence which provided the opportunity for the turbine failure.

[damage to equipment, fatality, mechanical equipment failure, gas / vapour release, injury]

---

**Lessons**

[None Reported]

---



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

**Location** : New York, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. Forty cars of a 95 car train, including a tank car carrying sulphuric acid derailed, the tank car leaked from the top dome.  
[derailment, spill, rail tanker]

---

**Lessons**

[None Reported]

---

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

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

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

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

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

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

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

**Lessons**

Both incidents had the following features in common:

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

---

**Source :** 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, NOV. LLOYDS LIST.

**Location** : Siberia, RUSSIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

Location : , NIGERIA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source :** ICHEME

**Location :** ,

**Injured :** 4      **Dead :** 0

---

**Abstract**

A plant was evacuated when a small leak of ethylene diamine occurred causing toxic fumes to be released. Three workers and a fire officer were injured.  
[evacuation, gas / vapour release, injury]

---

**Lessons**

[None Reported]

---

Source : LOSS CONTROL NEWSLETTER, 1997.

Location :

Injured : 0      Dead : 0

---

**Abstract**

Sulphuric acid vapour was released from a pinhole leak in a tower. The area was doused with a water curtain, which confined the leak to a small plant area.

[gas / vapour release, operational activities]

---

**Lessons**

[None Reported]

---

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location :

Injured : 0      Dead : 0

---

**Abstract**

A leak in a trichlorosilane pipe occurred in a silicone manufacturing plant causing 5600 lbs of hydrogen chloride to be released. It took about four hours to locate and contain the leak because of the location of the pipe.  
[processing, spill]

---

**Lessons**

[None Reported]

---



1261909 August 1997

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

Location : Portsmouth, UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

No booms or pollution prevention measures had been deployed.

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

[pollution, design or procedure error]

---

**Lessons**

[None Reported]

---

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

**Location :** , MALACCA STRAITS

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A marine tanker collided with a bulk carrier causing a No.2 port side tank the be holed and 150 tonnes of fuel oil spilt, consequential widespread pollution occurred.

[collision]

---

**Lessons**

[None Reported]

---

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

Location : , JAPAN

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source** : HAZARDOUS CARGO BULLETIN, 1997, SEP. IRISH TIMES.

**Location** : Mullagh, IRELAND

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

[fire - consequence, ecological damage, warehousing]

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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]

---

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]

---

8924 18 July 1997

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

Location : , VENEZUELA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

Fuel oil spill from failed pipe. A routine transfer of heavy fuel oil was initiated. This was to move product from one tank to the utilities bunker tank. The pumping rate was approximately 1500 bbls/hr and the system was checked prior to shift change by the area operator.

During routine surveillance (after shift change) the area operator noticed a quantity of product within the drainage ditches inside the bunded area. Further investigations identified a leak from pipework underneath a road crossing. The transfer was immediately stopped and the system isolated.

Using tank dips it was estimated the spill was approximately 1000 bbls.

The area is bunded and penstocks have been fitted to protect the refinery surface water system from contamination should an incident like this occur. The vulnerability, particularly with

the age of some of the pipework, had already been recognised. The protection system worked well and the spill was contained within the drainage system inside the bund. There was no

product escape into any other area. Initially, a bowser was organised to recover product. This was replaced by a steam driven pump to speed up the operation. All oil was recovered back into the fuel oil component tankage.

It has been concluded that the pipework failure occurred due to external corrosion and that initial construction specification offered inadequate protection for the local environment.

[material transfer, design or procedure error]

---

**Lessons**

[None Reported]

---

1163816 July 1997

Source : LLOYDS LIST, 19 JUL, 1997.

Location : , IRELAND

Injured : 0      Dead : 0

---

**Abstract**

Dense smoke drifted over a town when a fire caused people to be evacuated within 300 metres and 500 metres down wind. Contaminated water was contained.

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

---

**Lessons**

[None Reported]

---

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

**Location** : Gwynedd, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

Sixty residents were evacuated after a major petrol leak at a filling station. Properties within 200 m of the station were evacuated, due to the danger of flammable vapour from the estimated 1,500 gallons of petrol that may have leaked underground.

[evacuation, gas / vapour release, gasoline]

---

**Lessons**

[None Reported]

---

8922 11 July 1997

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

**Location :** , UNITED ARAB EMIRATES

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A barge carrying 5,000 tonnes of diesel hit breakwater after towrope snapped, 2,500 tonnes spilled.

---

**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]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A gas release occurred when workers ruptured a gas main. The leak was quickly repaired. People in nearby houses were forced to evacuate. The gas was dispersed using high pressure water spray.

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

---

**Lessons**

[None Reported]

---

1198207 July 1997

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

[fire - consequence, plant shutdown, storage tanks, spill, pump failure]

---

**Lessons**

[None Reported]

---

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]

---



8934 06 July 1997

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

Location : , INDIA

Injured : 100 Dead : 0

---

**Abstract**

An SO<sub>2</sub> (sulphur dioxide) release from a copper smelter settled onto an adjacent dry flower factory injuring some 100 people, five of them critically. Symptoms were, chest pains and eye, nose and throat irritation.

[spill, processing, injury]

---

**Lessons**

[None Reported]

---

1134006 July 1997

Source : LLOYDS LIST, 26 JUL, 1997.

Location : , TAIWAN

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

8935 06 July 1997

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

Location : , TAIWAN

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

### Abstract

During a routine switching over of coke pots at the bottom of a combination tower, hot vacuum tower bottoms oil (VTB) was released to atmosphere and auto-ignited. The resultant fire caused plant damage of \$180,000 (1997) and loss of production of \$410,000 (1997). It was very fortunate there were no injuries to personnel since operators were working above the coke pots at the time of the incident.

At 1420 hours, the fractionator operator was instructed to switch over the coke pots. These pots are designed to remove coke fines from the bottom of the combination tower on the outlet to the suction side of pump. Only one pot is in service at any one time, the other being on standby. They are normally switched over every Thursday or as necessary. The operation involved taking drain pot B out of service and replacing it with pot A. Before the contents of the pot can be drained, the pot has to be cooled with 32 degrees C/90 degrees F purge oil from 321 degrees C/610 degrees F to 121 degrees C/250 degrees F. At 1450 hours, the fractionator operator was advised by radio from the control board operator that the temperature of the pot was 232 degrees C/450 degrees F. There is no local temperature indicator at the pots, only a temperature transmitter back to the control room.

At 1500 hours, a coke drum change over commenced as this was already planned and also requires the assistance of the fractionator operator. As soon as the fractionator operator had completed the tasks associated with the coke drum change, around 1510 hours, he proceeded to drain the coke pot. The flow from the drain appeared excessive and as he was about to close the drain valve, the fire erupted.

The incident occurred on the last day of the work shift and the last day before a major holiday. It was unusual to have a major coke drum switch at the same time as a coke pot switch. The coke drum switch requires the efforts of three operators including the fractionator operator. The coke pot switch requires the efforts of the fractionator operator plus another operator. Both tasks are coordinated through the control board operator under the supervision of the chief operator. The fractionator operator had completed the switchover from coke pot B to A including alignment for purge oil cool down at 1430 hours without the usual assistance of a second operator. He returned again to the operation after he had finished his tasks associated with the coke drum switch. There is conflicting evidence as to whether the fractionator operator, in fact, had permission to drain the coke pot from the control room (radio communication). Coke fines present in the system tend to make it difficult to operate the valves which are often plugged.

Evidence suggests that the four-inch suction valve from pot B to pump was a quarter open (2-3 rounds) and that the purge oil valve was also open when the fire occurred. The pot had been pressured up and the operator had taken his wrench to #bang# the drain valve in order to clear the system and get flow started. Once the drain broke free, hot oil splashed out of the containment pit.

[operational activities, valve, design inadequate, autoignition, fire - consequence, spill]

### Lessons

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

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

Power failure due to lightning caused a plant to shut down for approximately one hour. Safety valves, which opened automatically when the plant shut down, released large plumes of gas over the plant. These were not toxic.

[power supply failure, plant shutdown, gas / vapour release, safety relief valve, operational activities]

---

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

**Location** : New Jersey, USA

**Injured** : 0      **Dead** : 5

---

**Abstract**

Pollution near a now closed munitions plant killed five residents and sickened others with illnesses including lead poisoning. The company involved improperly disposed of toxic industrial waste, including heavy metals and solvents, by burning it in open pits or dumping it into a stream.  
[human causes, fatality]

---

**Lessons**

[None Reported]

---



Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : , USA

Injured : 1      Dead : 0

---

**Abstract**

A road transportation incident. A tank truck hauling 6400 gal of toluene crashed into a utility pole in a small town. An estimated 200 gal of the cargo spilled, but because the material is highly flammable and live utility lines had been downed in the incident about 300 residents were evacuated. There was no fire and residents were allowed to return to their homes the next day. The driver was treated at a local hospital.

[collision, evacuation]

---

**Lessons**

[None Reported]

---

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

**Location** : Calcutta, INDIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A river transportation incident. A cargo ship carrying 5,700 tones of steel, collided with a tug and sank causing a spill of fuel oil which polluted river banks.  
[pollution, sinking]

---

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

**Location** : Louisiana, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A transportation incident. A hole occurred in a barge holding 600 tonnes of hydrochloric acid causing a spillage of 7,500 l of acid.

---

**Lessons**

[None Reported]

---

8958 06 June 1997

Source : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A leak of light gasoline oil occurred which drained into the nearby estuary, fortunately the spill was contained by fixed booms.

---

**Lessons**

[None Reported]

---

8904 05 June 1997

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

Location : Teeside, UK

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

Source : LOSS CONTROL NEWSLETTER, 1997,; ENDS REPORT 269, JUN, 1997,; ECN, 16-22 JUN, 1997.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

About 5 tonnes titanium tetrachloride leaked into cooling water system in a heat exchanger, corroding a pipe and was released into the atmosphere. A dense white cloud of hydrochloric acid and titanium oxychloride occurred. Prohibition notice issued.

[cooling equipment, gas / vapour release, corrosion]

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , GULF OF MEXICO

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



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

**Location :** , BELARUS

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source :** 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 :** , RUSSIA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

[spill, transportation]

---

**Lessons**

[None Reported]

---

**Source :** ICHEME

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

Approximately 1000 litres of intermediate containing xylene was spilt when an operator failed to check a connection from a pump. The spillage was contained and covered with foam. There were no environmental consequences.

[operator error, spill, near miss]

---

**Lessons**

[None Reported]

---

**Source :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , USA

**Injured :** 4      **Dead :** 0

---

**Abstract**

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

[maintenance, injury]

---

**Lessons**

[None Reported]

---

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

**Location** : Lousiana, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

**Location :** Texas, USA

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

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

[fire - consequence, leak, spill]

---

**Lessons**

[None Reported]

---

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

**Location** : Texas, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



9021 08 May 1997

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

**Location** : Arkansas, USA

**Injured** : 16    **Dead** : 3

---

**Abstract**

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

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

The fire was thought to have started from smouldering pesticides.

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

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

---

**Lessons**

[None Reported]

---

**Source :** ENDS REPORT, MARCH 1997.

**Location :** , UK

**Injured :** 0      **Dead :** 0

---

**Abstract**

A backup of effluent during commissioning of new pipework resulted in a major spill/release of acidic effluent into the a near-by river. The release also knocked out a sewage works and caused serious pollution of a river.

[drains & sewers, backflow]

---

**Lessons**

[None Reported]

---

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

**Location :** , JAPAN

**Injured :** 0      **Dead :** 0

---

**Abstract**

A marine transportation incident. A tanker carrying 630,000 litres of gasoline collided with 1,000m<sup>3</sup> LPG carrier, 50,000 litres of gasoline spilt.  
[spill, collision]

---

**Lessons**

[None Reported]

---

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

Location : , CANADA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. A fuel tank of a locomotive punctured by part of a swing bridge mechanism while crossing the bridge, 12,000 l of diesel oil spilt into the river.

[spill, collision]

---

**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** : HAZARDOUS CARGO BULLETIN, 1997, AUG. THE DAY.

**Location** : Connecticut, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

A road transportation incident. A road tanker overturned after swerving to avoid a car causing 10,000 litres of heating oil to onto the road, two truckloads of sand was used to contain the oil.

---

**Lessons**

[None Reported]

---

Source : LLOYDS LIST, 6 MAY, 1997.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

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

---

**Lessons**

[None Reported]

---

Source : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

Over 50 tonnes of trichloroethylene was spilt and approximately one tonne entered a nearby canal.

[spill]

---

**Lessons**

[None Reported]

---



8956 04 May 1997

Source : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

[spill]

---

**Lessons**

[None Reported]

---

**Source :** 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** : 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 : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

An incident at a coatings plant. A fitter was working on pipework to remove a blockage from a high speed disperser on the middle floor of a production building. The fitter told the supervisor and an operator not to use the machine. However, whilst he was on a break, a second operator on the top floor started to charge the disperser and 190 litres of xylene flowed out through open pipework. The site was evacuated whilst the spill was cleared.

[evacuation, operator error, permit to work system inadequate, maintenance]

---

**Lessons**

Isolation procedures and Work Authorisation notes to be developed

---

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

Location : , TAIWAN

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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]

---

9002 01 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , AUSTRALIA

Injured : 3      Dead : 0

---

**Abstract**

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

[storage tanks, spill]

---

**Lessons**

[None Reported]

---

**Source** : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

**Location** : Hampshire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---



Source : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

[spill, pollution, operational activities]

---

**Lessons**

[None Reported]

---

2202 23 March 1997

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A pipeline was ruptured by a mechanical digger involved in road surfacing operations. It took about 6 hours to contain the leak.  
[drilling/digging/ploughing vehicles, spill, natural gas]

---

**Lessons**

[None Reported]

---

Source : 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]

---

3204 18 March 1997

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

An incident at a coatings plant. A let-down tank containing a white spirit based resin, overflowed by approximately 800 litres. The site was evacuated and the spillage cleared.

The level in the tank was controlled by a PLC. The PLC had correctly opened the inlet valve to the tank, but the incident happened when the valve failed to shut. It was discovered that the controller on the valve had drifted out of calibration.

[evacuation, valve failure]

---

**Lessons**

Data store to check and calibrate controllers.

Install additional valves to this, and other tank inlets and hard wire from high level switches.

---

Source : LOSS PREVENTION BULLETIN, 134, 24.

Location : ,

Injured : 28    Dead : 0

---

**Abstract**

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

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

[spill, gas / vapour release]

---

**Lessons**

[None Reported]

---

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]

---

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]

---



9005 March 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : , SPAIN

Injured : 0      Dead : 0

---

**Abstract**

15,000 litres of hydrochloric acid were accidentally released at a chemical plant. The spill occurred during the unloading of a tanker.

[road tanker, human causes]

---

**Lessons**

[None Reported]

---

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

Fumes were released when a leak occurred from a vat of organic solvents, resulting in the surrounding area being sealed off to traffic. The situation was brought under control within 2 hours.

[gas / vapour release]

---

**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]

---

2715 16 February 1997

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]

---

Source : LOSS CONTROL NEWSLETTER, 1997.

Location : , NEW ZEALAND

Injured : 0      Dead : 0

---

**Abstract**

A fire occurred at the top of a large 10 sq. metre mound of sulphur. A toxic cloud of sulphur dioxide release spread over the nearby town but was contained within an hour to the immediate site.

[gas / vapour release, contamination, fire - consequence, storage, environmental]

---

**Lessons**

[None Reported]

---

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.

---

9004 27 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location :

Injured : 0      Dead : 0

---

**Abstract**

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

[leak, spill, processing, contamination]

---

**Lessons**

[None Reported]

---



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]

---

8452 18 January 1997

**Source** : OBSERVER, 1997, JAN, 19,; GUARDIAN, 1997, JAN, 20.

**Location** : English Channel,

**Injured** : 0      **Dead** : 0

---

**Abstract**

A marine transportation incident. Two marine tankers in collision in fog, 32 miles from Dover. One marine tanker holed and leaked gasoline into sea. 3000 tonnes of gasoline leaked into sea.

[spill]

---

**Lessons**

[None Reported]

---

1197415 January 1997

**Source :** ICHEME

**Location :** , GERMANY

**Injured :** 0      **Dead :** 0

---

**Abstract**

4m3 of sodium hydroxide and sodium sulphide solution escaped from a plant. Of this, 50 litres were released into the site drainage system, reaching a nearby river.

[spill, environmental, leak]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , GERMANY

Injured : 0      Dead : 0

---

**Abstract**

Part of an upper tray in a column on a distillation plant became displaced releasing approximately 18 tonnes of a mix of acrylonitrile and process water. Prompt action by site personnel minimised the danger to the plant and personnel. The local fire brigade pumped the spilt liquors into another tank for refeeding back into the distillation plant at a later time.

[spill, near miss, mechanical equipment failure]

---

**Lessons**

[None Reported]

---

3290 10 January 1997

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 :** 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 :** LOSS CONTROL NEWSLETTER, 1997.

**Location :** , JAPAN

**Injured :** 0      **Dead :** 1

---

**Abstract**

A marine transportation incident. Much of the cargo of 19,000 tonnes of fuel oil leaked from marine tanker when it broke in two in stormy weather. The 10 km wide spill has affected up to 450 km of coastline. The ship is believed to have sunk after colliding with semi-submerged object.  
[collision, sinking, fatality, pollution, heavy seas]

---

**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, NOV.

**Location** : Cambridgeshire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

107291997

Source : THE SACRAMENTO BEE, P. HECHT, 22 SEP, 1997.

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

1,500 gallons of chemicals spilled into a creek from a leaking pipe at a water treatment pumping station.

Hazardous materials crews constructed earthen dams to contain the spill of the ferric chloride solution, an acid used to control odour in the waste treatment process, which leaked from a pipe and entered a storm drain feeding the creek.

Fish within the area of the spill were killed, however, the spill was contained and there was no danger to fish downstream.

[pollution, waste water treatment, separation, ecological damage]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

**Location :**

**Injured :** 0      **Dead :** 0

---

**Abstract**

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

[storage, drainage system, ecological damage, leak]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

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

[contractor error, safety procedures inadequate, spill]

---

**Lessons**

A number of immediate actions were taken including:

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

In addition the removal of any redundant piping requires:

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

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

#### Abstract

As is common on many compressors, the flash gas compressor has a seal oil reservoir venting to the miscellaneous vents system, and a lube oil reservoir venting to atmosphere. This incident occurred when back pressure in the vent header caused an increase of pressure in the seal oil reservoir, leading to migration from the seal oil system to the lube oil system. The gas entrained in this oil then escaped to atmosphere from the lube oil reservoir vent. The restriction in the vent header arose due to an incorrectly applied isolation on the drains system, which had been put into place to allow change out of a submersible drains caisson pump. Drain lines from various locations on the platform pass through sand pots, or seal pots, before entering the caisson. These pots vent to the miscellaneous vents header. Isolations were applied on the outlet of the pots, but not on the inlets or vent lines. As a result, water entering the drains backed up into the vent system, leading to the oil contamination incident described above.

[processing, compressor, vent, backflow, isolation inadequate, vent blocked, gas / vapour release]

---

#### Lessons

The availability of an unrestricted vent is critical to compressor lube/seal oil systems.

---

**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]

---

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]

---



124321997

**Source :** ICHEME

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

A gas release occurred through the body of a non-return valve on a process unit. The non-return valve shaft blew out causing the release and subsequent fire.

[gas / vapour release, fire - consequence, mechanical equipment failure]

---

**Lessons**

[None Reported]

---

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

**Location** : Iowa, USA

**Injured** : 18    **Dead** : 4

---

**Abstract**

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

[spill, leak, fatality, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

**Location :**

**Injured :** 7      **Dead :** 0

---

**Abstract**

A safety valve burst on a 1100 litter distillation tank, spraying paint stripper over an industrial estate.

[safety equipment failure, spill, injury]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

Approximately 120,000 litres of hydrochloric acid leaked from two linked tanks into a bund compound and storm drains. Polluted water containing acid from the drains was pumped to the foul sewer drains and treated at a local sewage work. The majority of the spillage has been diluted and contained in a storm overflow tank, a neutralising chemical will be added to this liquid, once neutralised it will be pumped through the surface system. There is no threat to local drinking supplies.

[drains & sewers]

---

**Lessons**

[None Reported]

---

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

**Location :** , UK

**Injured :** 1      **Dead :** 0

---

**Abstract**

A water supply station has been closed following contamination of a nearby stream with lindane. An open drum containing 20lbs of lindane powder was found in the stream. A woman who put her hands in the stream was burned and dead fish have been found. An emergency clean-up operation has been carried out.

[ecological damage, burns, drums, leak]

---

**Lessons**

[None Reported]

---

122251997

**Source** : CHEMICAL HAZARDS IN INDUSRTY, FEBRUARY 2000.

**Location** : South Wales, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

A company was fined £10,000 (2000), for polluting a watercourse with transformer oil. Allegedly the company was aware that one of it's transformers was leaking, but continued to top up the oil until it eventually contaminated the ground and was washed into a tributary.

[pollution, human causes, contamination]

---

**Lessons**

[None Reported]

---

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

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

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

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

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

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

[tank failure, rupture, storage]

**Lessons**

The following recommendations were made:

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

**Source :** ICHEME

**Location :** , 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 : ,

Injured : 0      Dead : 0

---

**Abstract**

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

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

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

[storage tanks, spill, contractor error, maintenance]

---

**Lessons**

[None Reported]

---

Source : 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.
-

8655 05 December 1996

Source : LLOYDS LIST, 1996, DEC, 14.

Location : Florida, USA

Injured : 2      Dead : 0

---

**Abstract**

A rail transportation incident. 1,200 gallons of fuel spillage when youths operated a switching device which caused the derailment of a rail tanker. \$1 million (1996) damage done.

[derailment - consequence, damage to equipment]

---

**Lessons**

[None Reported]

---

1197104 December 1996

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]

---

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

**Location** : Kondinin, WESTERN AUSTRALIA

**Injured** : 0      **Dead** : 1

---

**Abstract**

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

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

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

[fatality]

---

**Lessons**

[None Reported]

---

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]

---

**Source :** ICHEME

**Location :** ,

**Injured :** 0      **Dead :** 0

---

**Abstract**

A spillage of approximately 2100 litres of highly flammable recovered solvent occurred. Of this approximately 1500 litres was spilled into the drains. No one was injured by the spill. The exact cause of the spill is not known.

---

**Lessons**

[None Reported]

---



**Source :** ICHEME

**Location :** , UK

**Injured :** 0     **Dead :** 0

---

**Abstract**

A release of hydrogen chloride occurred when a scrubber was not able to cope with the release of fumes during tanker unloading operations. Two contractors were affected by the release.

[gas / vapour release, mechanical equipment failure]

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , NEW ZEALAND

Injured : 0      Dead : 0

---

**Abstract**

A dangerous occurrence at a coatings plant.

An operator was obtaining a sample of solvent from a room on the third floor of a production building. On completion, he left the drain valve to the manifold open to drain the manifold, but had not realised that the xylene valve into the manifold was not fully closed.

Xylene was seen to be running down through the building and outside past an adjacent administration block.

Approximately 700 to 900 litres of xylene were thought to have been lost. Clean up of the spill required the site electrical system to be turned off.

[operation inadequate, sampling,

---

**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 : , SWEDEN

Injured : 0      Dead : 0

---

**Abstract**

A dangerous occurrence at a coatings plant.

An operator was removing a plug that was attached to a ball valve, in order to decant water from a toluene storage tank. The operation was being carried out at night in a poorly lit area. The operator did not realise that he was inadvertently disassembling the valve.

The ball valve started to pass and 18 tonnes of toluene spilt into the tank bund. This was later pumped away to containers.

[maintenance, storage tanks, spill, maintenance inadequate]

---

**Lessons**

The following recommendations were made:

1. Engineering measure to change drainage system 2. implemented.
  3. Spillage procedures to be improved.
  4. Improved instruction for weekend responsible supervisors.
-

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]

---

**Source** : NATIONAL TRANSPORTATION SAFETY BOARD, 1999, (<http://www.nts.gov>),; LOSS PREVENTION BULLETIN 155, 16-17.

**Location** : Murfreesboro, Tennessee, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

An incident occurred whilst preparing for maintenance on an 8-inch pipeline containing diesel fuel. The incident occurred during isolation and purging when approximately 84,700 gallons of diesel fuel was released due to overpressure rupture. The line section containing the leak was isolated. Fortunately the incident did not cause a fire or explosion and no one was injured.

[overpressurisation, operator error, spill, near miss, preparation for maintenance, operation inadequate]

---

**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]

---

6057 26 October 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, NOV, 4.

Location : Ludwigshafen, GERMANY

Injured : 0      Dead : 0

---

**Abstract**

Two tonnes of formaldehyde flowed into a river after a pipe leaked. Leakage occurred when a rubber seal linking two pieces of pipework failed when pumping the material.

[seal failure, spill, material transfer]

---

**Lessons**

[None Reported]

---



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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

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

[storage tanks]

---

**Lessons**

[None Reported]

---

Source : LLOYDS LIST, 1996, OCT, 2.

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A major explosion and fire occurred at chemical plant causing the release of a cloud of toxic smoke which caused the closure of motorways.  
[fire - consequence, gas / vapour release, processing, toxic fumes]

---

**Lessons**

[None Reported]

---

8640 10 September 1996

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

Location : , UK

Injured : 1      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

Source : HAZARDOUS CARGO BULLETIN, 1997, JUL.

Location : North Carolina, USA

Injured : 0      Dead : 0

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**Abstract**

A release of 132m<sup>3</sup> of propane occurred during a delivery at a bulk storage facility. The incident occurred when during the unloading of a cargo tank into two 113m<sup>3</sup> storage tanks, the discharge hose became separated from its coupling at the storage tank inlet connection. The driver shutdown the engine, stopping the discharge pump but could not access the remote closure control to close the internal stop valve.

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

[hose failure, spill]

---

**Lessons**

[None Reported]

---

10412September 1996

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

An explosion occurred at a chemical plant after dextrine powder ignited, rupturing the steel humidifier vessel and spilling powder into the humidifier room where it caused a second explosion. One employee working nearby was knocked off his feet.

On investigation it was found that the plant's safety measures were deficient on all counts. The nitrogen inerting system was designed to keep oxygen levels in the humidifier down to 10%, but calculations showed the dextrine would ignited at 8% to 9%. The relief vent in the humidifier was bolted in place so it contained, rather than vented, the explosion and the relief duct was blocked. The company has since closed.

[safety procedures inadequate, processing]

---

**Lessons**

[None Reported]

---

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]

---

Source : ICHEME

Location : ,

Injured : 0      Dead : 0

---

**Abstract**

Spill during the transfer of tank bottoms at a refinery.

During a planned transfer of tank bottoms from one tank to another, the hose attached to the pump outlet separated from its flanged connection, releasing a significant amount of tank bottoms. It was found that the non-return valve was fitted in the line the wrong way which created a pressure build-up and led to the hose separating from the flange. In addition, the equipment was not operated in the manner in which the designers and suppliers had intended, and there was no pressure relief in the system using positive displacement pump. The cause was due to the incomplete training of the labour crew since tank bottoming practice had changed requiring flanged fittings and assembly of reducers and a non-return valve onto the tank valve flanges. No training was provided on the set up and operation of the compressor/pump facility. Inadequate policies, procedures, evaluation of loss exposures, specification of design criteria, and evaluation of changes also contributed to this incident.

[material transfer, valve failure, refining]

---

**Lessons**

The scenario demonstrates clearly how one wrong item in a chain of events, i.e., the reverse fitting of an NRV led to the incident.

There are probably lessons that all sites can learn; essentially better communication and control of contractor operations.

---

9027 19 August 1996

**Source** : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.

**Location** : Lancashire, UK

**Injured** : 0      **Dead** : 0

---

**Abstract**

An exothermic reaction caused a fire and subsequent spill from a distillation process vessel. The vessel contained 4000 kg of solvents used in paints and printing inks.

[fire - consequence]

---

**Lessons**

[None Reported]

---



8629 10 August 1996

Source : LLOYDS LIST, 1996, AUG, 13.

Location : Ontario, CANADA

Injured : 0      Dead : 0

---

**Abstract**

A rail transportation incident. Two hundred people evacuated when a rail tanker of sulphuric acid was derailed and ruptured. Spill.  
[derailment, evacuation]

---

**Lessons**

[None Reported]

---

8630 09 August 1996

Source : LLOYDS LIST, 1996, AUG, 13.

Location : , GREECE

Injured : 0      Dead : 0

---

**Abstract**

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

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

[weather effects]

---

**Lessons**

[None Reported]

---

8621 06 August 1996

Source : LLOYDS LIST, 1996, AUG, 9.

Location : , FRANCE

Injured : 1      Dead : 0

---

**Abstract**

A fire caused by an explosion in an agricultural chemicals storage depot sent a toxic cloud over the town.

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

---

**Lessons**

[None Reported]

---

Source : ICHEME

Location : , USA

Injured : 0      Dead : 0

---

**Abstract**

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

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

---

**Lessons**

The following recommendations were made:

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

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** : LOSS CONTROL NEWSLETTER, ISSUE 3, 1996.

**Location** : West Yorkshire, UK

**Injured** : 7      **Dead** : 0

---

**Abstract**

There were two sulphur trioxide gas releases - the first while a vessel was being opened for routine cleaning, the second from a relief valve while operations to cap the leak were under way. The cloud, which reached a height of around 650m, drifted over the town and residents were told to stay indoors.

[gas / vapour release]

---

**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]

---

Source : ENVIRONMENTAL INFORMATION BULLETIN, 1997, JUL.; THE CHEMICAL ENGINEER, 10 APR, 1997

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

320 kg of 1,2-dichloroethane spill from vinyl chloride plant during recommissioning operations. The DCE was used during the decommissioning stage to flush out to remove water and iron, then flushing with nitrogen to remove the DCE. Operators failed to close a valve which allowed DCE into the nitrogen system. Pressure built up and a flexible hose blew off, releasing a jet of DCE. Operators stopped the flow within 2 minutes and covered drains but 29 kg reached the canal.

The company was fined £15,000 (1996).

[spill, design or procedure error]

---

**Lessons**

[None Reported]

---



8622 05 July 1996

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

Location : , UK

Injured : 0      Dead : 0

---

**Abstract**

A road transportation incident. Road tanker overturned causing a spillage of 1000 gallons of concentrated hydrochloric acid occurred.

---

**Lessons**

[None Reported]

---

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

Location : West Yorkshire, UK

Injured : 7      Dead : 0

---

**Abstract**

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

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

---

**Lessons**

[None Reported]

---

9011 July 1996

**Source :** CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

**Location :** Yorkshire, UK

**Injured :** 1      **Dead :** 0

---

**Abstract**

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

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

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

---

**Lessons**

[None Reported]

---

**Source** : LLOYDS LIST, 1996, JUL, 3, JUL, 9.

**Location** : South Carolina, USA

**Injured** : 0      **Dead** : 0

---

**Abstract**

Transportation. Pipeline spillage of 420,000 gallons of diesel fuel, some into a river. Pipeline was operating at reduced rate after inspection by an smart pig leak detection system. Later it was estimated that at least 1 million of No. 2 diesel spilled from the pipeline. 900,000 gallons were recovered by skimmers and vacuum trucks.

---

**Lessons**

[None Reported]

---

8625 22 June 1996

Source : LLOYDS LIST, 1996, AUG, 3.

Location : , NIGERIA

Injured : 0      Dead : 0

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

8602 18 June 1996

**Source** : LLOYDS LIST, 1996, JUN, 24.

**Location** : Rostov, RUSSIA

**Injured** : 0      **Dead** : 1

---

**Abstract**

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

---

**Lessons**

[None Reported]

---

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

Location : , GERMANY

Injured : 0      Dead : 0

---

**Abstract**

A release of contents of a pressure vessel occurred when a longitudinal weld tore open. The vessel had been shut down and had just been put into use again when the incident occurred.

The gas mixture contained hydrocarbons with 30% hydrogen. It has reached its working pressure of 31 bar, but was only at -26 degrees C, instead of the working temperature of -73 degrees C, no liquid was present.

An investigation found a crack, 1.6 metres long, had formed near the upper end of the weld.

[incorrect temperature, gas / vapour release, weld failure, tank]

---

**Lessons**

The following recommendations were made:

All vessels of similar construction to be tested for incipient cracks on the inner surface by using a dye penetration test.

If the interior is inaccessible, welds and impact zones are to be tested by ultrasonic methods.

---

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

Light ends from the FCC main fractionator were being recovered using a wet gas compressor. Two casing drains from this compressor had thinned through internal corrosion. Engineered box enclosures injected with special sealant had been installed to avoid an untimely shutdown of the compressor. Within 3 weeks of the temporary repair being installed, one of the box enclosures failed releasing high pressure hydrocarbon vapours to the atmosphere. Fortunately, there was no ignition but production losses amounted to \$56,000 (£33,433 (1996)).

Inspection of the temporary enclosure device revealed that the strongback tongue had failed. The tongue (see Figure 6) is designed to hold the leak repair device in position during the sealant injection process and during operation. The tongue is a necessary part of the leak repair device since there exists an unequal axial thrust generated during the sealant injection operation. The tongue is also vital during normal operation because the unequal axial thrust remains after the sealant injection operation is completed. This is due to the physical characteristics of the sealant material that was used. The selected sealant for this application was a thermosetting type which exhibits the characteristic of very little or no shrinkage after hardening. Therefore, whatever forces are introduced into the box enclosure by the sealant injection including the enclosed piping and fittings themselves remains as long as the device is installed. These forces can be significant due to the high injection pressures typically applied during the sealant injection process. Typically, injection pressures are in the order of 1000 to 2000 psig. This pressure is exclusive of the static pressure necessary to create sealant flow through the injection gun.

Representatives of the leak repair contractor responsible for the job were brought in to assist with the investigation into the incident. Both the leak repair contractor representative and a refinery engineer performed independent reviews of the leak repair device configuration, design calculations, material selection and design conditions used. The conclusion from both parties was that the box enclosure was properly designed. The box enclosure with the enclosed flange and piping still intact were sent back to the leak repair contractor's manufacturing facility for further inspection and testing. In addition, a full review of the installation procedure used for this specific application was carried out. According to the leak repair contractor's design calculations for the tongue, an injection pressure of 1300 psig was used to calculate the generated hydraulic thrust. The allowable working load of the tongue was calculated and shown to be 1 1/2 times the hydraulic thrust thus indicating an acceptable design. However, the leak repair contractor's review of the installation procedure used for this job revealed that an injection pressure of 2500 psig was inadvertently used for this application. Given this injection pressure, the generated hydraulic thrust due to sealant injection exceeded the allowable working load of the tongue by a factor of 1.3. The leak repair contractor representative also indicated that there was a sharp transition from the box enclosure to tongue. The excessive hydraulic thrust introduced during the sealant process, the minimal shrinkage characteristic of the type of sealant selected, in combination with a stress riser due to the sharp transition between the tongue and the box enclosure most likely resulted in a fatigue failure in the transition area. This was consistent with visual observations of the failure.

[mechanical equipment failure, gas / vapour release, competency lacking, cracking, pipe, drain]

**Lessons**

The justification for undertaking this type of temporary repair must be weighed against the potential consequences of failure. Such justifications should be endorsed by senior management on advice from a professional mechanical engineer. When there is justification for such a repair, all aspects of the job must be carefully examined, controlled and implemented by competent personnel.

The following corrective actions were taken:

1. The Leak Repair Contractor has reviewed the injection procedures and trained their technicians to ensure their understanding of the differences in injection mechanics associated with the various types of sealant. This will ensure that the correct sealant injection pressure is applied in future.
2. The Leak Repair Contractor's Engineering Department has reviewed high stress concentrations at the enclosure to tongue transition specifying a minimum radius.
3. Other similarly designed clamps installed have been inspected to ensure that a similar failure will not occur.
4. Inspection will continue to monitor the first and second stage drain piping at 6-month intervals or until a corrosion rate is established for each stage.



8605 02 June 1996

Source : LLOYDS LIST, 1996, JUN, 5, JUN, 6.

Location : , INDIA

Injured : 0      Dead : 0

---

**Abstract**

A river transportation incident. Spillage of several tonnes of petroleum products into water at jetty when oil barge overflowed her pipeline during loading operations. 358,000 litres of diesel spilt.

---

**Lessons**

[None Reported]

---

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

**Location** : West Bengal, INDIA

**Injured** : 0      **Dead** : 0

---

**Abstract**

364,000 litres of diesel spilt when a marine tanker's pipeline overflowed during loading operations on a jetty.

[spill, marine transport]

---

**Lessons**

[None Reported]

---

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

**Location** : Magdeburg, GERMANY

**Injured** : 0      **Dead** : 0

---

**Abstract**

A rail transportation incident. An explosion caused two wagons carrying vinyl chloride to catch fire leaving a toxic cloud over the area.

[fire - consequence, gas / vapour release]

---

**Lessons**

[None Reported]

---

8596 01 June 1996

**Source** : LLOYDS LIST, 1996, JAN, 3.

**Location** : Sant Celoni, SPAIN

**Injured** : 0      **Dead** : 0

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**Abstract**

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

---

**Lessons**

[None Reported]

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