

# COMAH

## Major Accidents Notified to the European Commission

### England, Wales & Scotland 1999-2000

#### Report of the Competent Authority

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#### SYNOPSIS

The Control of Major Accident Hazards (COMAH) Regulations 1999, are implemented by a Competent Authority comprising the Health and Safety Executive working jointly with the Environment Agency and the Scottish Environment Protection Agency.

This report covers the period April 1999 to March 2000 and provides details of the 10 COMAH major accidents and 3 'near misses', in England, Scotland and Wales, notified to the European Commission. The report describes the causes of the accidents, their consequences and the enforcement action taken by the Competent Authority.

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#### 1 EXECUTIVE SUMMARY

The Control of Major Accident Hazards (COMAH) Regulations 1999 apply to approximately 1200 establishments that have the potential to cause major accidents because they use, or store, significant quantities of dangerous substances, such as oil products, natural gas, chemicals or explosives. The general duty of the regulations is that 'Every operator shall take all measures necessary to prevent major accidents and limit their consequences to persons and the environment'. The regulations are unusual in that they are implemented by a Competent Authority (CA), which is not a single body, but comprises the Health and Safety Executive working jointly with the Environment Agency and the Scottish Environment Protection Agency. This

arrangement reflects the requirements to ensure the protection of both persons and the environment.

The CA is required to notify certain major accidents to the European Commission (EC). The criteria include; the release of a specified quantity of a dangerous substance, specified harm to persons (e.g. 1 death), specified harm to the environment (e.g. significant damage to more than 10 km of river) or in some circumstances as a 'near miss' of particular technical interest. This report describes the 10 EC Reportable Accidents (ECRAs) that occurred during the first year the regulations were in force, from April 1999 to March 2000, including the causes of the accidents, their consequences and enforcement action taken by the Competent Authority. A further 3 incidents were initially reported to the EC as major accidents, but after investigation were treated as 'near misses'. A summary is provided in a tabular form as appendix A.

The key points to note are:

- 1 accident resulted in the death of an employee.
- 2 accidents resulted in minor onsite injuries; an employee and 2 firefighters.
- 1 accident resulted in minor offsite injuries; 10 residents treated for eye irritation.
- 3 accidents required hundreds of people to remain confined in doors for several hours.
- 6 accidents cost a total of £4 million in onsite damage and losses.
- There was no recorded offsite property damage.
- The CA investigated all 13 accidents. There have been 2 prosecutions so far and 2 investigations are ongoing (as at October 2001).
- Formal enforcement action in the form of prohibition and/or improvement notices was taken following 4 of the accidents. In the other cases improvements were undertaken without formal notices being required.

The principal conclusions are:

- a. There were 10 ECRAs in 1999 - 2000 (if the 3 'near miss' accidents are excluded). This is typical of the 5 to 10 accidents reported each year under the previous CIMAH regulations.
- b. Whilst recognising that it is difficult to draw conclusions from such a small sample, ECRAs can be used as a crude measure of safety performance. The Accident Frequency Rate (AFR) (excluding 'near misses') is 8.3 ECRAs per thousand establishments per annum. Alternatively this can be expressed as 1 ECRA per 120 COMAH establishments per annum.
- c. The CA is concerned at both the magnitude and frequency of these accidents and believes that thorough implementation of the COMAH regulations will make a significant contribution towards securing improvements.

## **2 Introduction**

In April 1999 the Control of Major Accident Hazards (COMAH) regulations came into force in England, Scotland and Wales, superseding the CIMAH regulations that had been in place since 1984. The COMAH regulations are implemented by a Competent Authority (CA), comprising the Health and Safety Executive working jointly with the

Environment Agency and the Scottish Environment Protection Agency. This arrangement reflects the requirements to ensure the protection of both persons and the environment.

One of the changes introduced by COMAH is a greater public access to information relating to major accident hazards. For example the safety reports and notifications submitted by Operators are placed onto public registers located at the offices of the Environment Agencies. These measures are required by the 'Seveso II' directive and are in line with the UK government policy to improve public access to information on safety and the environment.

The COMAH regulations require the Competent Authority to notify the European Commission of certain major accidents. This is a continuation of the CIMAH requirements and there have typically been 5 to 10 such accidents in the UK each year. The EC uses the data to inform its decisions on future changes to legislation regarding major accident hazards. The data is also made available, including on the internet, so that it can be used to learn lessons from the past and help to prevent accidents in the future. This report provides details of the 10 COMAH major accidents and 3 'near misses', that were notified to the EC between April 1999 and March 2000, the first year that the regulations were in force.

### **3 Regulatory Background**

The first European Council directive concerned with controlling major accident hazards involving dangerous substances was adopted in 1982. Known as the 'Seveso' directive, (82/501/EEC), it was incorporated into UK law by means of the Control of Industrial Major Accidents Hazards Regulations 1984 (CIMAH). The regulations were primarily aimed at protecting people, and enforcing them was the responsibility of the Health and Safety Executive. In 1996, it was superseded by the 'Seveso II' directive (96/82/EC). The principal changes were a broadening of scope to include a wider range of dangerous substances and enhanced requirements to protect the environment. Most of the requirements of 'Seveso II' have been implemented by the COMAH Regulations 1999.

The general duty of the COMAH regulations is that 'Every operator shall take all measures necessary to prevent major accidents and limit their consequences to persons and the environment'. The regulations apply to over 1200 establishments in total in Scotland, England and Wales. Approximately 800 are lower tier establishments, which must prepare a Major Accident Prevention Policy and an on-site emergency plan. The remaining 430 establishments with larger inventories of dangerous substances are classified as top tier and are subject to additional requirements, including submitting a safety report to the CA and developing off-site emergency plans.

### **4 EC Notification Procedure**

COMAH Regulation 21 requires the competent authority to notify the European Commission as soon as practicable of any major accident meeting certain criteria. The criteria and the information to be provided are given in Schedule 7 of the regulations, part 1 of which is reproduced as appendix B of this report.

The notifications are sent to the Major Accident Hazards Bureau of the European Commission Joint Research Centre, based at Ispra in Italy. The Bureau gives support to Directorate General XI (Environment, Nuclear safety and Civil Protection) of the European Commission. There are 2 forms provided for the purpose; the short form is for immediate notification of an accident and provides basic information, the

long form is to be sent later when the investigations have been completed and the causes of the accident has been established.

The data is entered onto the Major Accident Reporting System (MARS). The names and addresses of the Operators are removed, then the data is made available to the public on the JRC website [mahbsrv.jrc.it](http://mahbsrv.jrc.it). Data searches and analyses can also be carried out on-line. For further information contact Christian Kirchsteiger, European Commission, Joint Research Centre, TP 670, I-21020 Ispra (Va), Italy. Email: christian.kirchsteiger@jrc.it or by fax: +39 0332 78 9007.

## **5 EC Reportable Accidents 1999 - 2000**

10 major accidents were reported to the EC because they satisfy one of the criteria given in paragraph 1 of Schedule 7 of the COMAH regulations (reproduced as appendix B). For example the loss of more than 5% of the top tier threshold inventory of a dangerous substance or causing specified injury to persons or damage to the environment.

### **5.1 BASF, Middlesbrough, Cleveland.**

BASF operates a chemical works producing acrylonitrile, an intermediate used to manufacture nylon. It is a COMAH top tier establishment because of the inventory of flammable and toxic chemicals including several hundred tonnes of hydrogen cyanide. On 20 December 1999 it is alleged that a worker left a plant control room to carry out routine sampling. When he failed to return a search was undertaken and he was discovered, collapsed, in the vicinity of a sample point, which was still running. The company emergency response teams handled the incident and the worker was taken to hospital but pronounced dead on arrival. This is an ECRA because it resulted in a death. The cost of lost production was £727,000. The CA served 4 improvement notices. Two of them related directly to the incident; requiring a review of the site sampling philosophy and protection of pipework from freezing. Two related to a recent reorganisation of the site; requiring the development of a training strategy for production technicians and a review of risk assessments and staffing levels. An investigation was carried out and a case file has been prepared to prosecute the company under the Health and Safety at Work etc Act 1974. However by October 2001, when this report was written, the Coroner had not held the inquest to establish the cause of death. The prosecution case will not be taken until the inquest has been held.

### **5.2 Associated Octel, Ellesmere Port, Merseyside.**

Associated Octel produces a range of chemicals including motor fuel additives, chlorine and solvents. It is a COMAH top tier establishment because of the inventory of lead alkyls, chlorine, liquified extremely flammable gases and other toxic chemicals. On Sunday 11 July 1999, a road tanker containing 20 tonnes of molten sodium had been returned from a customer and was being heated to melt the sodium prior to unloading. This caused a positive pressure within the vessel. The operators failed to vent the pressure as per standard operating procedures. Sodium had solidified in the outlet valve and a plant operator attempted to clear it using a metal rod. When he did so, 4 tonnes of molten sodium spilled out and ignited. The on-site and off-site emergency plans were activated. The on-site emergency response team succeeded in putting the fire out after 3 hours, by smothering it with sand. The police instructed local residents to remain indoors and more than 1000 people were confined to their homes for 3 hours. The nearby M53 motorway was closed for 45 minutes and a local charity football match disrupted. This is an ECRA because the

confinement of people indoors exceeded 500 person hours. There were no injuries or off-site damage.

The cause was operator error, in failing to follow the correct operating procedures for clearing a blockage in the road tanker outlet. The company had to demolish the offloading facility and rebuild to modern standards at a cost of £200,000.

### **5.3 Fine Organics, Middlesbrough, Cleveland.**

Fine Organics operates a chemical works producing speciality organic chemicals. It is a COMAH top tier establishment because of the inventory of both flammable and toxic chemicals. On 2 November 1999 a runaway exothermic reaction occurred in a road tanker loaded with 20 tonnes of product - a 75% solution of 2-chloro-5-chloromethyl thiazole (CCMZ) and dimethyl carbonate (DMC). The road tanker relief valve lifted, releasing a mixture of hydrogen chloride, carbon dioxide, and a solid by-product into the air. The on-site and off-site emergency plans were activated, site access roads were closed and more than 300 personnel on adjacent sites were confined to toxic gas refuges for 3 hours. This is an ECRA because the confinement of people indoors exceeded 500 person hours. There were no injuries or off-site damage. The lost production and clean up costs were £700,000.

Despite an investigation by the company and the CA the precise cause of the runaway chemical reaction was not established. There was no heat applied or other feasible initiating event and CCMZ is a relatively stable product with known thermochemical properties. The company decided to discontinue supplying CCMZ to its customers in the form of a solution as they could not demonstrate to the CA that decomposition would not occur again. It is now supplied only as a solid. The company also made changes to its risk management system.

### **5.4 European Vinyls Corporation (UK), Runcorn, Cheshire.**

EVC operates a chemical works producing ethylene dichloride, vinyl chloride monomer (VCM) and polyvinyl chloride (PVC). It is a COMAH top tier establishment because of the inventory of flammable and toxic chemicals, including VCM. On the morning of 8 March 2000 it is alleged that up to 500 kgs of hydrogen chloride gas was released into the air from a leak on a section of 12 inch diameter pipework. The on-site and off-site emergency plans were activated. The police instructed local residents to remain indoors and more than 1000 people were confined to their homes for about 4 hours. Schools were instructed not to open and the nearby motorway was closed. This is an ECRA because the confinement of people indoors exceeded 500 person hours. 10 local residents reported to hospital suffering from eye irritation, were treated and discharged the same day. There were no other injuries and no off-site damage.

The cause was a leak from a steel reinforced, PTFE bellows. 2 prohibition notices were issued, one relating to the use of the plant involved and the other to the design of bellows used elsewhere on the site. The first notice was not lifted until 9 months later, when the required Case for Safety had been accepted by the CA. The plant was undergoing commissioning at the time of the incident and was under the control of a contractor. Investigations have focussed on the contractor and the manufacturer of the bellows. As at October 2001, when this report was written, the investigations are still continuing.

### **5.5 VOPAK, Middlesbrough, Cleveland.**

VOPAK (previously known as Tees Storage Ltd), operates a bulk liquids storage facility adjacent to the River Tees. There are over 150 tanks on the site of up to 8,000 tonnes capacity. It is a top tier COMAH establishment because of the inventory of both toxic and flammable chemicals. On 21<sup>st</sup> July 1999, a worker discovered that a storage tank containing 750 tonnes of 30% sodium cyanide solution was leaking and there was a pool of liquid in the bund. The company immediately started transferring the contents of the tank into another tank. There were no injuries and the primary concern was of environmental pollution. 16 tonnes was lost from the tank, though 4 tonnes of that was recovered from the bund. This is an ECRA because the loss of 5 tonnes of sodium cyanide (pure) is 25% of the top tier threshold inventory. Some cyanide solution entered the on-site effluent system and thence into the River Tees. Agency fisheries staff surveyed the river by boat for several days. Sampling showed elevated levels of cyanide but there was no observable environmental impact.

The cause of the leak was found to be localised corrosion in the vicinity of a weld slag inclusion, originally formed when the tank was built in 1977. Although the tank was bunded, the containment system consisted of only a concrete wall, without an impermeable base. This is typical of many tanks built in the 1960's and 1970's and any chemicals spilled will inevitably leak in to the ground. A prohibition notice was served, preventing the tank from being used until it had been fully repaired. Repairs to the affected tank cost £250,000 and the Operator paid £20,000 towards the environmental monitoring costs incurred by the Agency. The company was prosecuted in June 2000 under the Water Resources Act 1991. They pleaded guilty to discharging up to 100 mg/l of cyanide into the river compared to the 8 mg/l allowed in their discharge consent and were fined £5,000 with £640 costs. Further investigations have found that bunds of similar design to those at VOPAK are in widespread use in the UK. The Competent Authority is currently assessing the acceptability of storage in tanks with such secondary containment systems and is liaising with the chemical storage industry to determine the best approach to be taken. Tank bunding is one of the Environment Agency COMAH inspection priorities for 2001/02.

## **5.6 Union Carbide, Wilton, Cleveland.**

Union Carbide operates a major chemical plant manufacturing ethylene oxide. It is a top tier COMAH establishment because of the inventory of more than 50 tonnes of ethylene oxide and other flammable chemicals. On 10 July 1999, there was a fire involving a release of 12 tonnes of liquid isododecane, above its boiling point, from a fractured pipe. The on-site and off-site emergency plans were activated and 2 firefighters suffered minor injuries whilst extinguishing the blaze. This is an ECRA because the loss of 12 tonnes (23 tonnes were initially notified but subsequently amended to 12 tonnes) of isododecane is 24% of the top tier threshold inventory. The total costs of the fire were £1 million, comprising £1.0 million materials losses and £0.1 million for emergency response and clean-up. The cause was the failure of a pump bearing that had failed due to lack of lubrication. This led to excessive vibration and the fracture of a section of nearby pipework. It is likely that the hot pump bearing ignited the leaking isododecane. The CA issued a prohibition notice requiring the company to ensure the mechanical integrity of small bore pipework and circulation pumps etc. before the plant was allowed to restart. The CA also issued an improvement notice requiring the company to provide reliable and fail safe remote operation of emergency isolation valves.

## **5.7 Hickson and Welch, Castleford, West Yorkshire.**

Hickson and Welch operates a chemical works producing a range of organic and inorganic chemicals. It is a COMAH top tier establishment because of the inventory of chlorine as well as toxic and flammable chemicals. On 20 January 2000, there was a release of 70kgs of sulphur dichloride into a process building, from one of the batch reactor systems. Sulphur dichloride reacts with the moisture in air to produce sulphur dioxide and hydrogen chloride. It is a named COMAH dangerous substance with a top tier threshold inventory of 1 tonne. The workers evacuated the building and there were no injuries or off-site damage. This is an ECRA because the loss of 70kgs of sulphur dichloride is 7 % of the top tier threshold inventory. The total cost of the accident was £47,000, comprising £17,000 of materials loss and £27,000 for clean-up and loss of business.

The company had washed out the reactor vessel and pipework with monochlorobenzene as part of the commissioning procedure for a new process. The monochlorobenzene used was the first consignment received from a new supplier and it was contaminated with water. When sulphur dichloride was added to a measuring vessel it reacted with the water, overpressurising the reactor vent system and bursting the scrubber. The hazard studies carried out beforehand by the company had assumed that the raw materials would be supplied to specification. The company amended operating procedures to include draining the reactor fill system of washout materials.

#### **5.8 BG Transco, Bourne Valley, Poole, Dorset.**

BG Transco (now Transco, part of the Lattice group), operates 3 low pressure natural gas holders at Poole with a total capacity of 150 tonnes. Natural gas is a named COMAH dangerous substance and the site is a lower tier establishment because it stores more than 50 tonnes. On 12 December 1999, there was a release of 40 tonnes of natural gas from the largest holder (of 80 tonnes capacity), into the air. It did not ignite and there were no injuries. Transco received 92 reports of 'gas leaks' from the public living up to 6 kilometres downwind. There were no other off-site effects. This was an ECRA because it involved the loss of 20% of the top tier threshold inventory. The cost of the gas lost was about £4,000.

The release was caused by rivet corrosion leading to a loss of water from the water seals on the holder. The Competent Authority took no formal enforcement action relating to this particular incident. However Transco subsequently agreed with the HSE Gas and Pipelines Unit that they would install automatic cup water seal monitoring equipment on all operational gasholders. The installation programme will be completed by 2004 at a cost of circa £7 million.

#### **5.9 Esso Petroleum, Fawley, Hampshire.**

Esso Petroleum operates a crude oil refinery at Fawley, which is a COMAH top tier establishment because of the inventory of petroleum spirits and highly flammable dangerous substances. On 14 July 1999, there was a spillage of 400 m<sup>3</sup> of light Syrian crude oil at ambient temperature and pressure, classified as extremely flammable, from a storage tank into its bund. The bund contained the spill. It did not ignite and there were no injuries or off-site effects. The company fire teams applied foam to the surface of the oil and it was all recovered over the following 2 days. This was an ECRA because of the volume of crude oil involved. The clean-up cost was approximately £7,500.

The release was caused by corrosion of the base of the tank. The company reviewed their tank maintenance criteria and recruited additional specialist inspection staff. The Competent Authority took no formal enforcement action relating to this particular

incident. However over the next 19 months there were two further leaks from tankage, one involving crude oil, reportable to HSE under domestic legislation. Neither of the subsequent incidents was an ECRA.

HSE reviewed the new information on corrosion rates revealed by the one further crude oil leak and subsequently served 4 improvement notices in April 2001. These required 3 crude oil tanks to be removed from service, by specified dates, and the implementation of mitigation measures in respect of 1 of the tanks, pending its withdrawal from service.

### **5.10 Corus, Redcar, Cleveland.**

British Steel operated an integrated iron and steel works at Redcar, that has since been taken over by Corus. It is a COMAH top tier establishment because of the inventory of toxic and flammable gas in the blast furnaces and in storage. The establishment was not covered by the previous CIMAH regulations. On 9 August 1999, there was a release of blast furnace gas from a section of pipework. The on-site emergency plan was activated and the workers sheltered in toxic gas refuges. The gas did not ignite and the fire service attended as a precaution. The gas was both flammable and toxic, containing 21% carbon monoxide and 5% hydrogen. A concentration of 400 ppm carbon monoxide was measured 200 metres away at the power station, but there were no off-site effects. This is an ECRA because the loss of 43 tonnes of carbon monoxide is 22% of the top tier threshold inventory. The blast furnace was shutdown, with all the gas being discharged through the flarestack. It remained shut down for over 1 week at a cost of over £1 million.

A ruptured seal on a valve in the blast furnace gas pipework caused the release. The Competent Authority investigation revealed that 130 tonnes of gas was lost from the ruptured valve and a further 77 tonnes was released unburnt from the flarestack because the pilot flame was not alight. The Competent Authority wrote to the company requiring them to modify operating and work control procedures.

## **6 'Near Misses' Reported 1999 - 2000**

These 3 incidents were initially reported to the EC as major accidents, but after investigation have been treated as being a 'near miss of particular technical interest'. The current CA guidance is that a 'near miss' should only be reported when there are new and significant lessons to be learned across the EU. These 3 near miss incidents would probably not have been reported had this guidance been available in 1999-2000.

### **6.1 European Vinyls Corporation (UK), Runcorn, Cheshire.**

EVC operates a chemical works producing ethylene dichloride, vinyl chloride monomer (VCM) and polyvinyl chloride (PVC). It is a COMAH top tier establishment because of the inventory of flammable and toxic chemicals, including VCM. On 13 May 1999, there was a fire following the release of up to 1.2 tonnes of ethylene into the air. The incident occurred during plant maintenance work and 1 worker was injured whilst escaping from the fire, suffering a broken nose and post-traumatic stress. 3 other workers in the vicinity of the fire were also put at risk. This is an ECRA solely as a near miss of particular technical interest'.

The accident was caused by a maintenance worker removing a sensor from a pipe containing ethylene at 80 bar pressure. The leaking ethylene was self-ignited by static electricity.

## **6.2 European Vinyls Corporation (UK), Runcorn, Cheshire.**

EVC operates a chemical works producing ethylene dichloride, vinyl chloride monomer (VCM) and polyvinyl chloride (PVC). It is a COMAH top tier establishment because of the inventory of flammable and toxic chemicals, including VCM. On 4 May 1999, over 500 kgs. of vinyl chloride monomer was released into the air. The on site emergency plan was activated though there were no injuries or off-site damage. This is an ECRA solely as a 'near miss of particular technical interest'

The accident was caused by a series of operational errors during the commissioning of a filter unit. The company was prosecuted in December 2000 under the Health and Safety at Work etc Act 1974. They pleaded guilty to failing to maintain safe plant and systems of work and were fined £30,000 with £10,000 costs.

## **6.3 BP Chemicals, Wilton, Cleveland.**

BP Chemicals operates a petrochemicals plant at Wilton, producing polyethylene. It is a COMAH lower tier establishment because it uses and stores highly flammable gases. On 20 September 1999, there was a release of 2.3 tonnes of ethylene gas from a busting disc on a hopper. This is an ECRA solely as a 'near miss of particular technical interest'. The cost to the company was £7,500.

The release was due to a failure of the compressed air supply to the plant caused by inadequate plant maintenance procedures. This led to the failure of an isolation valve to close during an emergency shut-down sequence and a build up of pressure in a hopper.

## **7 Conclusions**

- a. There were 10 ECRAs in 1999 - 2000 (if the 3 'near miss' accidents are excluded). This is typical of the 5 to 10 accidents reported each year under the previous CIMAH regulations.
- b. Whilst recognising that it is difficult to draw conclusions from such a small sample, ECRAs can be used as a crude measure of safety performance. There are 1200 COMAH establishments and there were 10 ECRAs (excluding the 'near misses'). Hence the Accident Frequency Rate (AFR) (excluding 'near misses') is 8.3 ECRAs per thousand establishments per annum. Alternatively this can be expressed as 1 ECRA per 120 COMAH establishments per annum.
- c. The accident frequency rate for ECRAs in the United Kingdom appears to be similar to that for Europe as a whole (see reference 3).
- d. The CA is concerned at both the magnitude and frequency of these accidents and believes that thorough implementation of the COMAH regulations will make a significant contribution towards securing improvements.

## **8 Feedback**

This is the first time that an annual report has been published, giving details of EC reportable accidents in England, Scotland and Wales. The Competent Authority believes it will provide an insight into the safety performance of industry and its own

performance as a regulator. It will also enable lessons to be learned from past accidents, thus helping to prevent similar accidents occurring in the future.

The CA would welcome feedback on any aspect of this report. Any comments or requests for further information should be addressed to the following contacts;

Trevor Britton, Head of Permissioning Policy, Hazardous Installations Division, Health and Safety Executive, St Anne's House, Stanley Precinct, Bootle, Merseyside. L20 3RA (email: [trevor.britton@hse.gsi.gov.uk](mailto:trevor.britton@hse.gsi.gov.uk)) or;  
 Andrew Hitchings, COMAH Policy Advisor, Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD (email: [andrew.hitchings@environment-agency.gov.uk](mailto:andrew.hitchings@environment-agency.gov.uk)), or;  
 John Burns, Policy Advisor, SEPA Corporate Office, Erskine Court, The Castle Business Park, Stirling FK9 4TR (email [john.w.burns@sepa.org.uk](mailto:john.w.burns@sepa.org.uk)).

## 9 References

- 1 The Control of Major Accident Hazards Regulations 1999, S.I. 1999 No.743, ISBN 0-11-082192-0, The Stationery Office £5.80.
- 2 The Control of Industrial Major Accident Hazards Regulations 1984, SI 1984 No. 1902, ISBN 0-11-047902-5, The Stationary Office.
- 3 Kirchsteiger, K. 2001, How frequent are Major Industrial Accidents in Europe? Trans I Chem E. Vol 79 Part B.

## Appendix A

### Summary Details of COMAH EC Reportable Accidents 1999-2000 (In order of severity)

Operator, Location & Date	Accident Description & Dangerous Substances	Accident Consequences & ECRA Notification Criteria	Causes and Actions Taken
BASF, Middlesborough, Cleveland 20/12/99	Toxic gas release. Hydrogen cyanide released during sampling.	1 employee died from cyanide poisoning. Production costs £727,000 1 death.	4 improvement notices. Prosecution delayed, awaiting Coroners inquest.
Associated Octel, Ellesmere Port, Merseyside 11/07/99	Fire following flammable liquid metal spillage. 4 te. sodium spilled during road tanker offloading.	Rebuilding costs £200k. More than 1000 people confined indoors for 3 hours.	Employee error, failure to follow procedures. Facility relocated further away from residents.
Fine Organics, Middlesborough, Cleveland 02/11/99	Toxic gas release. Hydrogen chloride from a chemical reaction in a road tanker of product (CCMZ)	Production costs £700k. 300 people confined indoors for 3 hours.	Precise cause of runaway chemical reaction unknown. Company amended formulation of product.

<b>Operator, Location &amp; Date</b>	<b>Accident Description &amp; Dangerous Substances</b>	<b>Accident Consequences &amp; ECRA Notification Criteria</b>	<b>Causes and Actions Taken</b>
European Vinyls Corp. (UK), Runcorn, Cheshire 08/03/00	Toxic gas release. 0.5 te. of hydrogen chloride from pipework during commissioning	Eye irritation to 10 residents 1000 people confined indoors for 4 hours.	Ruptured bellows. Investigation ongoing into 'turn key' plant operation 2 prohibition notices.
Vopak, Middlesbrough, Cleveland 21/07/99	Toxic liquid spillage. 12 te. of sodium cyanide solution from a storage tank into ground and River Tees.	No harm to river life. Repairs and costs £245,000. Loss of 25% of top tier threshold inventory.	Corrosion of defective weld. 1 Prohibition notice. Prosecution WRA91 for polluting river - fined £5k.
Union Carbide, Wilton, Cleveland 10/07/99	Fire following flammable gas release. 12 te. of isododecane from broken pipework.	2 firefighters minor injuries. Repair costs £1.1m. Loss of 24% of top tier threshold inventory.	Pipework failure due to vibration from faulty pump. 1 improvement and 1 prohibition notices.
Hickson & Welch, Castleford, West Yorkshire 20/01/00	Toxic gas release. 70kg of sulphur dichloride from batch reactor system.	Losses & clean-up £44k. Loss of 7% of top tier threshold inventory.	Water contamination of raw materials. Sampling regime introduced
BG Transco, Poole, Dorset 12/12/99	Flammable gas release. 40 te. natural gas from a gas holder.	No injuries or damage. Loss of 20% of top tier threshold inventory.	Corrosion & seal water loss. Automatic seal monitoring installed on all gas holders.
Esso Petroleum, Fawley, Hampshire 14/07/99	Flammable liquid spillage. 400 te. of a crude oil (extremely flammable) from a storage tank into bund.	All oil was recovered. Loss of 8 times the top tier threshold inventory.	Corrosion of tank bottom. Company tank inspection programme amended
Corus, Redcar, Cleveland 09/08/99	Toxic/flammable gas release. 207 te. of blast furnace gas (21% carbon monoxide).	No injuries or damage. Production costs £1m. Loss of 22% of top tier threshold inventory.	Ruptured valve. Inadequate management and maintenance. Procedures improved
European Vinyls Corp. (UK), Runcorn, Cheshire 13/05/99 and 04/05/99	These 3 accidents were reported solely on the grounds of being a 'near miss of particular technical interest'. EVC were prosecuted under HASAWA74 for one accident and fined £30k plus £10 costs, re competency and commissioning procedures. Their other accident resulted in minor injuries to a worker because of incorrect maintenance. The BP accident also related to inadequate maintenance. Details of all 3 'near miss' accidents are provided in the full report. The current CA guidance is that a 'near miss' should only be reported when there are new and significant lessons to be learned across the EU and these 3 'near miss' accidents would probably not have been reported had this guidance been available in 1999/2000.		
BP Chemicals, Wilton, Cleveland. 20/09/99			

## Appendix B

### COMAH Regulations Schedule 7.

#### SCHEDULE 7

#### Regulation 21(1) and (2)

#### CRITERIA FOR NOTIFICATION OF A MAJOR ACCIDENT TO THE EUROPEAN COMMISSION AND INFORMATION TO BE NOTIFIED

#### PART 1

#### Criteria

(This part sets out the provisions of Annex VI to the Directive)

The criteria referred to in regulation 21(1) are as follows-

1. Any accident covered in sub-paragraph (a) or having at least one of the consequences described in paragraphs (b), (c), (d) and (e) must be notified to the commission-

a. substances involved:

any fire or explosion or accidental discharge of a dangerous substance involving a quantity of at least 5 per cent of the qualifying quantity laid down in column 3 of Parts 2 and 3 of schedule 1;

b. injury to persons and damage to property:

an accident directly involving a dangerous substance and giving rise to one of the following events:-

i. a death

ii. six persons injured within the establishment and kept in hospital for at least 24 hours,

iii. one person outside the establishment kept in hospital for at least 24 hours

iv. dwellings outside the establishment damaged and unusable as a result of the accident,

v. the evacuation or confinement of persons for more than two hours (person x hours): the value is at least 500,

vi. the interruption of drinking water, electricity, gas or telephone services for more than two hours (person x hours): the value is at least 1,000;

c. immediate damage to the environment:

i. permanent or long term damage to terrestrial habitats:-

- 0.5 ha or more of a habitat of environmental or conservation importance protected by legislation,

- 10 or more hectares of more widespread habitat, including agricultural land;

- ii. significant or long term damage to freshwater and marine habitats:

- 10 km or more of river or canal,
- 1 ha or more of lake or pond,
- 2 ha or more of delta,
- 2 ha or more of coastline or open sea;

- iii. significant or long term damage to an aquifer or underground water:

- 1 ha or more;

- d. damage to property:

- i. damage to property in the establishment of at least ECU2 million,

- ii. damage to property outside the establishment of at least ECU 0.5 million;

- e. cross-border damage:

any accident directly involving a dangerous substance giving rise to effects outside the territory of the Member State concerned

2. Accidents or 'near misses'; which Member States regard as being of particular technical interest for preventing major accidents and limiting their consequences and which do not meet the quantitative criteria above should be notified to the Commission.