

Klorutsläpp från en kemisk anläggning.

940903

MARS 1994_17

mycket kort

Vid lossning av klor från en tankbil till en förrådstank uppstod ett utsläpp av klor då tanken blev överfylld. Gasen skingrades efter hand. Några anställda blev utsatta för klorgasen och erfor akuta klorförgiftningssymptom som irritation i ögon, andningsvägar och slemhinnor.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
klor	7782-50-5	några kg

Skador:

Människor: 5 anställda erfor akuta klorförgiftningssymptom som irritation i ögon, andningsvägar och slemhinnor.

Materiella: Inga.

Miljö/ekologi: Inga effekter rapporterade.

Infrastruktur: Inga.

Erfarenheter redovisade (Ja/Nej): Ja

Kortfattat anges förebyggande åtgärder.

Report Profile

Identification of Report:

country: FA ident key: 1994_017_01

reported under Seveso I directive as major accident reports: SHORT+FULL

Date of Major Occurrence: Time of Major Occurrence

start: 1994-09-03 start: 10:30:00

finish: 1994-09-03 finish: 12:00:00

Establishment:

name:

address:

industry: - not applicable -

Chemicals

Seveso II status: not applicable: Yes art. 6 (notification): No

art. 7 (MAPP): No

art. 9 (safety report): No

Date of Report:

short: full:

Authority Reporting:

name:

address:

Authority Contact:

rep_cont_name:

rep_cont_phone:

rep_cont_fax:

Additional Comments:

a) - not applicable -

b) - not applicable -

c) - not applicable -

d) - not applicable -

e) - not applicable -

Short Report

country: FA ident key: 1994_017_01

Accident Types:

release: Yes explosion: No

water contamination: No other: No

fire: No

description:

Release of chlorine from vent scrubber as a result of overfilling bulk storage tank from road tanker.

Substance(s) Directly Involved:

toxic: Yes explosive: No

ecotoxic: No other: No

flammable: No

description:

Chlorine - exact quantity unknown - thought to be order of a few kilograms.

Immediate Sources of Accident:

storage: No transfer: Yes

process: No other: No

description:

Transferring liquid chlorine from 18 Te road tanker to 46 Te capacity storage tank located in open air. Within site boundary.

Suspected Causes:

plant or equipment: Yes environmental: No

human: No other: No

description:

- 1) Load cell out of calibration - zero drift
- 2) High level alarm activated by load cell.
- 3) Gas detector at scrubber outlet out of working order.

Immediate Effects:

material loss: No

human deaths: No

human injuries: Yes community disruption: No

other: No

ecological harm: No

national heritage loss: No

description:

5 site employees inhaled chlorine gas experienced respiratory problems - admitted to local hospital for observation overnight.

Emergency Measures taken:

on-site systems: Yes **decontamination:** No

external services: No **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

On site emergency plan activated to some extent but not completely successfully. Tanker driver closed tanker valves wearing BA.

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: Yes

description:

1) Improved alarms/instrumentation.... see Appendix Short Report / description of immediate lessons learned

A Occurrence Full Report

country: FA **ident key:** 1994_017_01

1 Type of Accident

remarks: - not applicable -

2 Dangerous Substances

remarks: - not applicable -

3 Source of Accident

illustration: - not applicable -

remarks: - not applicable -

4 Meteorological Conditions

precipitation none: fog: rain: hail: snow:

Yes No No No No

wind speed (m/s):

direction (from):

stability (Pasquill):

ambient temperature (°C): 10

remarks: Pleasant September morning - bright and sunny. Slight breeze from South-West. Normal for time of year. lack of air movement prevented rapid dispersion or escaping gas.

5 Causes of Major Occurrence

main causes

technical / physical 5105 operation: instrument/control/monitoring-device failure

- not applicable -

- not applicable -

- not applicable -

- not applicable -

human / organizational 5303 organization: organized procedures (none, inadequate, inappropriate, unclear)

5304 organization: training/instruction (none, inadequate, inappropriate)

5305 organization: supervision (none, inadequate, inappropriate)

5313 organization: maintenance/repair (none, inadequate, inappropriate)

5314 organization: testing/inspecting/recording (none, inadequate, inappropriate)

remarks: Zero errors in load cells under tanks due to heavy corrosion and neglect main cause of overfilling tank. Compounded by instrument failures due to lack of attention. Relief operators received inadequate instruction and training.

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA ident key: 1994_017_01

event:

major occurrence 1101 release: gas/vapour/mist/etc release to air

initiating event - not applicable -

associated event - not applicable -

B Consequences Full Report

country: FA ident key: 1994_017_01

1 Area concerned

affected

extent of effects installation: Yes

establishment: Yes

off-site; local: No

off-site; regional: No

off-site; transboundary: No

illustration of effects - not applicable -

remarks The geographical extent of the effects should be illustrated with an appropriate... see Appendix

Full Report B / area concerned - remarks

2 People

establishment popul. emergency personnel off-site population

total at risk 25 0 0

immediate fatalities 0 0 0

subsequent fatalities 0 0 0

hospitalizing injuries 0 0 0

other serious injuries 5 0 0

health monitoring 0 0 0

remarks 5 workers suffered acute effects resulting from inhalation of chlorine gas ie ru... see Appendix

Full Report B / people

3 Ecological Harm

pollution/contamination/damage of:

- **residential area (covered by toxic cloud)** Suspected
- **common wild flora/fauna (death or elimination)** Suspected
- **rare or protected flora/fauna (death or elimination)** Suspected
- **water catchment areas and supplies for consumption or recreation** Suspected
- **land (with known potential for long term ecological harm or** Suspected

preventing human access or activities)

- **marine or fresh water habitat** Suspected
- **areas of high conservation value or given special protection** Suspected

remarks Relative small release of chlorine gas directly to atmosphere.... see Appendix Full Report B /

ecological harm

4 National Heritage Loss

effects on:

- **historical sites** Suspected - **historic monuments** Suspected
- **historic buildings** Suspected - **art treasures** Suspected

remarks Nothing threatened.

5 Material Loss

establishment losses off site losses

costs (direct costs to operator) (social costs)

in ECU British Pounds ECU British Pounds

material losses 100

response, clean up, restoration

remarks Only material loss was amount of chlorine lost to atmosphere.... see Appendix Full Report B /

material loss

6 Disruption of Community Life

establishment/plant evacuated disabled/unoccupiable destroyed

- **nearby residences/hotels** No No No
- **nearby factories/offices/small shops** No No No
- **schools, hospitals, institutions** No No No
- **other places of public assembly** No No No

interruption of utilities etc. no / yes duration

- gas No
- electricity No
- water No
- sewage treatment works No
- telecommunications No
- main roads No
- railways No
- waterways No
- air transport No

significant public concern none local level national level

- off site populations Yes No No
- media interest Yes No No
- political interest Yes No No

remarks Incident did not lead to any disruption of community life - no effects off-site.... see Appendix

7 Discussion of Consequences

C Response Full Report

country: FA ident key: 1994_017_01

1 Emergency Measures

taken - on site - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

- **off site** - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

still - on site - not applicable - - not applicable -

required

- not applicable - - not applicable -

- not applicable - - not applicable -

- **off site** - not applicable - - not applicable -

- not applicable - - not applicable -

- not applicable - - not applicable -

continuing contamination or danger

-**on site** not applicable

-**off site** not applicable

remarks - not applicable -

2 Seveso II Duties

pre-accident evaluation

Article item not due yet not done done/submitted evaluated

6 notification No No No No

7 policy (MAPP) No No No No

9 safety report No No No No

9, 10, 11 update No No No No

11 internal plan No No No No

11 external plan No No No No

13 informing public No No No No

9, 12 siting policy No No No No

post-accident evaluation

Seveso II duty was actual were actual compared with actual

contingency consequences consequences, the

addressed? addressed? predicted extent was?

Article item

7 policy (MAPP) not applicable not applicable not applicable

9 current safety report not applicable not applicable not applicable

11 internal plan not applicable not applicable not applicable

11 external plan not applicable not applicable not applicable

13 informing public not applicable not applicable not applicable

9, 12 siting policy not applicable not applicable not applicable

evaluation of safety organisation

organisational element element existed did element relate to actual circumstances of

yes / no no / partly / yes adequate?

- written policy objectives No

- specified management No

structure

- specified responsibilities No

- specified working procedures No

- specified procedures for No

assessment/auditing of

management system

- specified procedures for No

review and update of

management policy

- specified general training No

procedures

- specified emergency No

training procedures

evaluation of ecological impact control

organisational element element existed did element relate to actual circumstances of

yes / no no / partly / yes adequate?

- ecological status review No

before incident

- potential ecological No

consequences assessment

- ecological impact review No

after incident

- ecological restoration No

procedures

- subsequent review of No

restoration success

remarks - not applicable -

3 Official Action Taken

legal action

- not applicable -

other official action

- not applicable -

4 Lessons Learned

measures to prevent recurrence

1) Periodical inspection and s... see Appendix Full Report C / lesson learned - prevent

measures to mitigate consequences:

1) Clear and consistent emerge... see Appendix Full Report C / lesson learned - mitigate

useful references:

HSG 28 (needs urgent revision ... see Appendix Full Report C / lesson learned - references

5 Discussion about Response

- not applicable -

Appendices for the FA / 1994_017_01 report

Appendix Short Report / description of immediate lessons learned:

- 1) Improved alarms/instrumentation.
- 2) Improved maintenance of alarms/instruments.
- 3) Operating instructions and operator training.
- 4) Emergency arrangement - review and training.

Appendix Full Report B / area concerned - remarks:

The geographical extent of the effects should be illustrated with an appropriately marked map together, if available, with photographs and/or diagrams and/or other appropriate qualitative/quantitative data. Local gas cloud around storage tanks and scrubber - no appreciable spread across/over site.

Appendix Full Report B / people:

5 workers suffered acute effects resulting from inhalation of chlorine gas ie running eyes, irritation of nose, throat and upper respiratory system.

Appendix Full Report B / ecological harm:

Relative small release of chlorine gas directly to atmosphere.

Appendix Full Report B / material loss:

Only material loss was amount of chlorine lost to atmosphere.

Appendix Full Report B / disruption of community life:

Incident did not lead to any disruption of community life - no effects off-site.

Appendix Full Report C / lesson learned - prevent:

- 1) Periodical inspection and servicing and calibration of critical instruments.
- 2) Clear and precise operating instructions for safety critical activities.
- 3) Proper operator training.

Appendix Full Report C / lesson learned - mitigate:

- 1) Clear and consistent emergency procedures.
- 2) Adequate instruction and training of all staff.
- 3) Regular practices, drills and exercises.

Appendix Full Report C / lesson learned - references:

HSG 28 (needs urgent revision - very vague and unhelpful).