

Utsläpp av herbicid från en kemikaliefabrik för produktion av växtgifter.

861121 MARS 1986_02

Olyckan inträffade på en anläggning för produktion av bekämpningsmedel av olika slag. Efter att en läcka i kylvattensystemet uppstått rann närmare 2 ton herbicid ut i Rhen under sex timmars tid. Läckan identifierats inte i rapporten. Höga halter av herbiciden kunde påvisas i flodvattnet, varför förbud mot att använda flodvattnet som dricksvatten utfärdades. Herbiciden ifråga är löslig i vatten, resistent mot ljusnedbrytning och hydrolys. Den är inte enkelt biologiskt nedbrytbar med en halveringstid på ungefär 25 dagar.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
2,4-dichlorophenoxyacetic acid (herbicid)	94-75-7	2000 kg

Skador:

Människor: Inga.

Materiella: Inga.

Miljö/ekologi: I floden Rhen uppmättes halter av herbiciden nära 50 gånger större än normalt. Normal nivå ligger under 1 mikrogram per liter. Inga skadliga effekter noterades.

Infrastruktur: Ett temporärt förbud mot att använda flodvattnet som dricksvatten utfärdades.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1986_002_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 1986-11-21 start:

finish: finish:

Establishment:

name:

address:

industry: 2004 pesticides, pharmaceuticals, other fine chemicals

Pesticide (2, 4-Dichlorophenoxyacetic Acid Production)

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:** 1986_002_01

Accident Types:

release: Yes **explosion:** No

water contamination: Yes **other:** No

fire: No

description:

SYSTEM ORIGINATING AND OPERATING CONDITIONS... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: Yes **explosive:** No

ecotoxic: Yes **other:** No

flammable: No

description:

- 2,4-Dichlorophenoxyacetic Acid [2,4-D] (C.A.S. CODE: 94-75-7); amount involved = 2,000 Kg.... see Appendix

Short Report / description of substances involved

Immediate Sources of Accident:

storage: No **transfer:** No

process: Yes **other:** No

description:

The accident occurred during normal operation of the water cooling system of a pesticide industry for the production of 2,4-dichlorophenoxyacetic acid (a herbicide).

Suspected Causes:

plant or equipment: Yes **environmental:** No

human: No **other:** Yes

description:

CAUSES:... see Appendix Short Report / description of suspected causes

Immediate Effects:

material loss: No

human deaths: No

human injuries: No **community disruption:** Yes

other: No

ecological harm: Yes

national heritage loss: No

description:

ECOLOGICAL HARM:... see Appendix Short Report / description of immediate effects

Emergency Measures taken:

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

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

EXTERNAL TO THE ESTABLISHMENT:... see Appendix Short Report / description of emergency measures taken

Immediate Lessons Learned:

prevention: No **other:** No

mitigation: No

description:

- not applicable -

A Occurrence Full Report

country: FA **ident key:** 1986_002_01

1 Type of Accident

remarks: Following a leak in the cooling water system of the production plant, approximately 2 tonnes of the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) entered the Rhine river (code 1103) over a period of six hours via a cooling water outlet. ... see Appendix Full Report A / type of accident

2 Dangerous Substances

remarks: The total establishment and the potential directly involved inventories of 2,4-dichlorophenoxyacetic acid (2,4-D) refer to the amount released into the Rhine river. 2,4-D is readily soluble in water and resistant to photo degradation and hy... see Appendix Full Report A / dangerous substances

3 Source of Accident

illustration: - not applicable -

remarks: The accident occurred during normal operation of the water cooling system of a pesticide industry for the production of 2,4-dichlorophenoxyacetic acid (codes 3102 and 2004). The component involved was a piping of the water

cooling system (c... see Appendix Full Report A / source of accident -

remarks

4 Meteorological Conditions

precipitation none: fog: rain: hail: snow:

No No No No No

wind speed (m/s):

direction (from):

stability (Pasquill):

ambient temperature (°C):

remarks: - not applicable -

5 Causes of Major Occurrence

main causes

technical / physical 5102 operation: component/machinery failure/malfunction

5501 other: not identified

- not applicable -

- not applicable -

- not applicable -

human / organizational - not applicable -

- not applicable -

- not applicable -

- not applicable -

- not applicable -

remarks: The release of the herbicide to the Rhine river was due to a leak (code 5102) in the

cooling water system but when the Original Report was prepared the causes of that leakage

were not fully identified (code 5501).

6 Discussion about the Occurrence

- not applicable -

Type of Accident country: FA ident key: 1986_002_01

event:

major occurrence 1103 release: fluid release to water

initiating event 1103 release: fluid release to water

associated event - not applicable -

Dangerous substances

country: FA ident key: 1986_002_01

a) total establishment inventory

CAS number: 94-75-7 **identity:** 2,4-dichlorophenoxyacetic Acid

name from Seveso I Directive: - not applicable -

name from Seveso II Directive: - not applicable -

category from Seveso II: - not applicable -

other hazards (1): - not applicable -

other hazards (2): - not applicable -

maximum quantity (tonnes): 2

use of substance as: NORMAL FINISHED PRODUCT

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: 2 **potential quantity:** 2

c) substance belongs to relevant inventory indirectly involved: No

actual quantity: -1 **indir_pot_quant:** -1

Source of Accident - Situation country: FA ident key: 1986_002_01

situation

industry

initiating event 2004 pesticides, pharmaceuticals, other fine chemicals

associated event - not applicable -

activity/unit

major occurrence 3102 process: chemical continuous reaction

initiating event 3102 process: chemical continuous reaction

associated event - not applicable -

component

major occurrence 4011 general pipework/flanges

initiating event 4011 general pipework/flanges

associated event - not applicable -

B Consequences Full Report

country: FA ident key: 1986_002_01

1 Area concerned

affected

extent of effects installation: Yes

establishment: Yes

off-site; local: Yes

off-site; regional: No

off-site; transboundary: No

illustration of effects - not applicable -

remarks In the Rhine river a substantial increase in the concentration was measured (val... see Appendix

Full Report B / area concerned - remarks

2 People

establishment popul. emergency personnel off-site population

total at risk

immediate fatalities

subsequent fatalities

hospitalizing injuries

other serious injuries

health monitoring

remarks No people were injured during the accident.

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** not applicable
- **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 In the Rhine river a substantial increase in the concentration was measured (val... see Appendix

Full Report B / ecological harm

4 National Heritage Loss

effects on:

- **historical sites** not applicable - **historic monuments** not applicable
- **historic buildings** not applicable - **art treasures** not applicable

remarks No data available.

5 Material Loss

establishment losses off site losses

costs (direct costs to operator) (social costs)

in ECU ECU

material losses

response, clean up, restoration

remarks No material losses occurred.

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** No Yes No

- **media interest** No No No

- **political interest** No No No

remarks As a precaution, it was temporarily forbidden to draw drinking water from this r... see Appendix

7 Discussion of Consequences

- not applicable -

Ecological Components involved

country: FA **ident key:** 1986_002_01

type: 6204 freshwater: river

threatened: not applicable **affected:** not applicable

C Response Full Report

country: FA **ident key:** 1986_002_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

- not applicable -

measures to mitigate consequences:

- not applicable -

useful references:

- not applicable -

5 Discussion about Response

- not applicable -

Appendices for the FA / 1986_002_01 report

Appendix Short Report / description of accident types:

SYSTEM ORIGINATING AND OPERATING CONDITIONS

Cooling water system.

ACCIDENT CASE HISTORY DESCRIPTION:

Following a leak in the cooling water system of the production plant, approximately 2 tonnes of the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) entered the Rhine river over a period of six hours via a cooling water outlet. In the Rhine river a substantial increase in the concentration was measured (values up to 46 micrograms/litre against the normal level of below 1 micrograms/litre). No acute harmful effects on living organisms were observed. As a precaution, it was temporarily forbidden to draw drinking water from this river.

Appendix Short Report / description of substances involved:

- 2,4-Dichlorophenoxyacetic Acid [2,4-D] (C.A.S. CODE: 94-75-7): amount involved = 2,000 Kg.

2,4-D is readily soluble in water and resistant to photo degradation and hydrolysis. It is not readily biodegradable (half life about 25 days). Tendency to accumulation is slight. 2,4-D is moderately toxic to Daphnia.

Appendix Short Report / description of suspected causes:

CAUSES:

The release of the herbicide to the Rhine river was due to a leak in the cooling water system but when the Original Report was prepared the causes of that leakage were not fully identified.

Appendix Short Report / description of immediate effects:

ECOLOGICAL HARM:

In the Rhine river a substantial increase in the concentration was measured (values up to 46 micrograms/litre against the normal level of below 1 micrograms/litre). No acute harmful effects on living organisms were observed.

COMMUNITY DISRUPTION:

As a precaution, it was temporarily forbidden to draw drinking water from this river.

Appendix Short Report / description of emergency measures taken:

EXTERNAL TO THE ESTABLISHMENT:

The international Warning and Alarm Plan for the Rhine was activated on November 21, 1986, by the government of the Land of Rhineland-Palatinate.

DECONTAMINATION:

As a precaution, it was temporarily forbidden to draw drinking water from this river.

Appendix Full Report A / type of accident:

Following a leak in the cooling water system of the production plant, approximately 2 tonnes of the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) entered the Rhine river (code 1103) over a period of six hours via a cooling water outlet. In the Rhine river a substantial increase in the concentration was measured (values up to 46 micrograms/litre against the normal level of below 1 micrograms/litre). No acute harmful effects on living organisms were observed.

Appendix Full Report A / dangerous substances:

The total establishment and the potential directly involved inventories of 2,4-dichlorophenoxyacetic acid (2,4-D) refer to the amount released into the Rhine river. 2,4-D is readily soluble in water and resistant to photo degradation and hydrolysis. It is not readily biodegradable (half life about 25 days). Tendency to accumulation is slight. 2,4-D is moderately toxic to Daphnia.

Appendix Full Report A / source of accident - remarks:

The accident occurred during normal operation of the water cooling system of a pesticide industry for the production of 2,4-dichlorophenoxyacetic acid (codes 3102 and 2004). The component involved was a piping of the water cooling system (code 4011). From the Original Report it is not fully clear if it was chemical continuous reaction or not.

Appendix Full Report B / area concerned - remarks:

In the Rhine river a substantial increase in the concentration was measured (values up to 46 micrograms/litre against the normal level of below 1 micrograms/litre) but no acute harmful effects on living organisms were observed. In any case, as a precaution, it was temporarily forbidden to draw drinking water from this river.

Appendix Full Report B / ecological harm:

In the Rhine river a substantial increase in the concentration was measured (values up to 46 micrograms/litre against the normal level of below 1 micrograms/litre) but no acute harmful effects on living organisms were observed.

Appendix Full Report B / disruption of community life:

As a precaution, it was temporarily forbidden to draw drinking water from this river.