

Explosion på en anläggning för återvinning av sprängämnen.

911016 MARS 1991_08

Olyckan inträffade på en anläggning för behandling, återvinning och demontering av sprängämnen. Explosionen inträffade i ett rum som innehöll tändsatsmedel. Tändsatsmedlet exploderade och installationen täcktes med jord. Skadorna på byggnader var omfattande. Efter olyckan fann man att för mycket sprängämnen förvarats på samma plats.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
explosiva ämnen		30 kg
tändsats		1720 kg

Skador:

Människor: Inga.

Materiella: Explosionen skadade byggnader och krossade fönster på anläggningen. Skadorna i den närliggande byn Soelheim uppskattades till 1,5 miljoner D-Mark.

Miljö/ekologi: Inga effekter rapporterade.

Infrastruktur: Inga.

Erfarenheter redovisade (Ja/Nej): Ja

Mycket kortfattat anges förebyggande åtgärder.

Report Profile

Identification of Report:

country: FA ident key: 1991_008_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 1991-10-16 start: 21:00:00

finish: finish:

Establishment:

name:

address:

industry: 2999 other

General Chemical (Treatment, Recycling and Destruction of Explosives)

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:** 1991_008_01

Accident Types:

release: No **explosion:** Yes

water contamination: No **other:** No

fire: No

description:

SAFETY SYSTEMS OR OPERATORS INTERVENTION:... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: No **explosive:** Yes

ecotoxic: No **other:** No

flammable: No

description:

- Explosive materials dismantled and in explosion set: amount involved = 30 Kg... see Appendix Short Report /

description of substances involved

Immediate Sources of Accident:

storage: Yes **transfer:** No

process: Yes **other:** No

description:

The accident occurred in an industry for treatment, recycling and destruction of explosives. The explosion occurred in a dry and heated room (20°C), containing priming composition, located in a building (14m x 5m x 3m) constructed in reinfo... see Appendix Short Report / description of immediate sources

Suspected Causes:

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

human: No **other:** Yes

description:

CAUSES:

When the Original Report was prepared, the causes of the explosion have not been identified although self-ignition cannot be excluded.

Immediate Effects:

material loss: Yes

human deaths: No

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

other: No

ecological harm: No

national heritage loss: No

description:

MATERIAL LOSS:... see Appendix Short Report / description of immediate effects

Emergency Measures taken:

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

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

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

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: Yes

description:

MEASURES TO PREVENT ANY RECURRENCE OF SIMILAR ACCIDENTS:... see Appendix Short Report / description of

immediate lessons learned

A Occurrence Full Report

country: FA **ident key:** 1991_008_01

1 Type of Accident

remarks: The priming composition of the explosives was kept in a dry and heated room

(20°C). During operation, the priming composition exploded (code 1308)

causing extensive damages to the installation and the houses in the nearby

village of Soellhe... see Appendix Full Report A / type of accident

2 Dangerous Substances

remarks: The total establishment and the potential directly involved inventories of

the explosives refer to the amount involved in the accident.

3 Source of Accident

illustration: - not applicable -

remarks: The accident occurred in an industry for treatment, recycling and

destruction of explosives (code 2999). The explosion occurred in a dry and

heated (20°C) room (code 3201 and 4999) located in a building (14m x 5m x

3m) constructed in reinfo... see Appendix Full Report A / source of accident

- remarks

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):

remarks: Dry autumn weather.

5 Causes of Major Occurrence

main causes

technical / physical 5501 other: not identified

- not applicable -

- not applicable -

- not applicable -

- not applicable -

human / organizational - not applicable -

- not applicable -

- not applicable -

- not applicable -

- not applicable -

remarks: When the Original Report was prepared, the causes of the explosion have not been identified (code 5501) although self-ignition cannot be excluded.

6 Discussion about the Occurrence

- not applicable -

Dangerous substances

country: FA **ident key:** 1991_008_01

a) total establishment inventory

CAS number: identity: Priming Composition

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): 1,72

use of substance as: STARTING MATERIAL

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: 1,72 **potential quantity:** 1,72

c) substance belongs to relevant inventory indirectly involved: No

actual quantity: -1 indir_pot_quant: -1

a) total establishment inventory

CAS number: identity: Explosive Materials Dismantled

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): 0,03

use of substance as: NORMAL FINISHED PRODUCT

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: 0,03 potential quantity: 0,03

c) substance belongs to relevant inventory indirectly involved: No

actual quantity: -1 indir_pot_quant: -1

Source of Accident - Situation country: FA ident key: 1991_008_01

situation

industry

initiating event 2999 other

associated event - not applicable -

activity/unit

major occurrence 3201 storage: process-associated (stockholding, etc. on-site of manufacture)

initiating event 3201 storage: process-associated (stockholding, etc. on-site of manufacture)

associated event - not applicable -

component

major occurrence 4999 other

initiating event 4999 other

associated event - not applicable -

B Consequences Full Report

country: FA ident key: 1991_008_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 The explosion caused damages to windows and buildings also outside the establish... 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 by the explosion.

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 In the Original Report there is no evidence of significant ecological harms.... 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 DM ECU DM

material losses 4000000

response, clean up, restoration

remarks Inside the establishment the explosion caused damages to windows and buildings. ... 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 No Yes No

- media interest No No No

- political interest No No No

remarks The explosion caused damages to windows and buildings also outside the establish... see Appendix

7 Discussion of Consequences

C Response Full Report

country: FA ident key: 1991_008_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

After the accident, it was est... see Appendix Full Report C / lesson learned - prevent

measures to mitigate consequences:

After the accident a revision ... see Appendix Full Report C / lesson learned - mitigate

useful references:

More detailed information abou... see Appendix Full Report C / lesson learned - references

5 Discussion about Response

- not applicable -

Appendices for the FA / 1991_008_01 report

Appendix Short Report / description of accident types:

SAFETY SYSTEMS OR OPERATORS INTERVENTION:

The installation was covered with earth.

OTHER SYSTEMS INVOLVED AND OPERATING CONDITIONS:

Due to the shock wave and fragments in the service area, the cost of the damages amounted to about 40 millions of Deutch Marcs. In the nearby village of Soellheim, the explosion caused material damages for about 1.5 millions of Deutch Marcs.

ENVIRONMENTAL AND ATMOSPHERIC CONDITIONS:

Dry autumn weather.

ACCIDENT CASE HISTORY DESCRIPTION:

The priming composition of the explosives was kept in a dry and heated room (20°C). During operation, the priming composition exploded causing extensive damages to

the installation and the houses in the nearby village of Soellheim. More detailed information about the accident are available on some documents attached to the Original Report.

Appendix Short Report / description of substances involved:

- Explosive materials dismantled and in explosion set: amount involved = 30 Kg.
- Priming Composition: amount involved = 1,720 Kg.

Appendix Short Report / description of immediate sources:

The accident occurred in an industry for treatment, recycling and destruction of explosives. The explosion occurred in a dry and heated room (20°C), containing priming composition, located in a building (14m x 5m x 3m) constructed in reinforced concrete (wall thickness = 40 cm). The building was subdivided into 5 rooms separated by means of walls in reinforced concrete (wall thickness = 35 cm). The blow-down wall was instead made of wood. The installation was covered with earth.

Appendix Short Report / description of immediate effects:

MATERIAL LOSS:

Inside the establishment the explosion caused damages to windows and buildings. The cost of the damages has been evaluated in about 4 millions of Deutch Marcs. The explosion caused damages to windows and building also outside the establishment but no data are available about their cost.

COMMUNITY DISRUPTION:

The explosion caused damages to windows and buildings also outside the establishment in the nearby village of Soellheim.

Appendix Short Report / description of emergency measures taken:

INTERNAL TO THE ESTABLISHMENT:

Protection of the other damaged buildings against external effects.

EXTERNAL TO THE ESTABLISHMENT:

Additional surveillance and protection of the nearby plants.

Appendix Short Report / description of immediate lessons learned:

MEASURES TO PREVENT ANY RECURRENCE OF SIMILAR ACCIDENTS:

After the accident, it was established that storage of explosives would have been in smaller quantities and "Sandwich Bauweise". Besides, examinations on the basis of Federal Guidelines as far as it concerns the material tests have been executed by the Syndicate, industries and industrial inspectorate.

MEASURES TO MITIGATE THE EFFECTS OF THE ACCIDENT:

After the accident a revision of the safety distances was established.

Appendix Full Report A / type of accident:

The priming composition of the explosives was kept in a dry and heated room (20°C). During operation, the priming composition exploded (code 1308) causing extensive damages to the installation and the houses in the nearby village of Soellheim.

Appendix Full Report A / source of accident - remarks:

The accident occurred in an industry for treatment, recycling and destruction of explosives (code 2999). The explosion occurred in a dry and heated (20°C) room (code 3201 and 4999) located in a building (14m x 5m x 3m) constructed in reinforced concrete (wall thickness = 40 cm). The building was subdivided into 5 rooms separated by means of walls in reinforced concrete (wall thickness = 35 cm). The blow-down wall was instead made of wood. The installation was covered with earth.

Appendix Full Report B / area concerned - remarks:

The explosion caused damages to windows and buildings also outside the establishment in the nearby village of Soellheim.

Appendix Full Report B / ecological harm:

In the Original Report there is no evidence of significant ecological harms.

Appendix Full Report B / material loss:

Inside the establishment the explosion caused damages to windows and buildings. The cost of the damages has been evaluated in about 4 millions of Deutch Marcs. The explosion caused damages to windows and building also outside the establishment but no data are available about their cost.

Appendix Full Report B / disruption of community life:

The explosion caused damages to windows and buildings also outside the establishment in the nearby village of Soellheim.

Appendix Full Report C / lesson learned - prevent:

After the accident, it was established that storage of explosives would have been in smaller quantities and "Sandwich Bauweise". Besides, examinations on the basis of Federal Guidelines as far as it concerns the material tests have been executed by the Syndicate, industries and industrial inspectorate.

Appendix Full Report C / lesson learned - mitigate:

After the accident a revision of the safety distances was established.

Appendix Full Report C / lesson learned - references:

More detailed information about the accident are available on some documents attached to the Original Report.