Explosion och brand i en ångpanna på en pappers- och massafabrik.

900209 MARS 1990_15

I oljetanken till en ångpanna uppstod en explosiv blandning av ångor som exploderade. Explosionen följdes av en brand som släcktes av räddningstjänsten. Explosionens orsak var inte helt utredd, men man noterade förekomsten av flyktiga ämnen i bräsleoljan vilka kan ha utlöst explosionen.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
bränsleolja		okänt

Skador:

Människor:	En person omkom och 1 skadades vid explosionen.
Materiella:	Ångpannan skadades allvarligt, men även andra installationer i närheten skadades också.
Miljö/ekologi:	Inga effekter rapporterade.
Infrastruktur:	Inga.

Erfarenheter redovisade (Ja/Nej): Nej.

Report Profile

Identification of Report:

country: FA **ident key:** 1990_015_01

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

Date of Major Occurrence: Time of Major Occurrence

start: 1990-02-09 **start:**

finish: finish:

Establishment:

name:

address:

industry: - not applicable -

Wood, Pulp & Paper

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:** 1990_015_01

Accident Types:

release: No **explosion:** Yes

water contamination: No **other:** No

fire: Yes

description:

Due to formation of an explosive mixture in the supply depot of a steam boiler, an explosion occurred. The

explosion was then followed by a fire, which had been fought by the Fire Brigade of the GENERALITAD (Regional

Government of Catalonia... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: No **explosive:** Yes

ecotoxic: Yes **other:** No

flammable: Yes

description:

- Fuel Oil: amount involved = not known.

Immediate Sources of Accident:

storage: Yes **transfer:** No

process: Yes **other:** No

description:

The accident occurred in the fuel oil storage for the steam boiler of a wood, pulp and paper industry. The

component involved was the supply depot of a steam boiler.

Suspected Causes:

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

human: No **other:** Yes

description:

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

Immediate Effects:

material loss: Yes

human deaths: Yes

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

other: No

ecological harm: No

national heritage loss: No

description:

EFFECTS ON PEOPLE:... see Appendix Short Report / description of immediate effects

Emergency Measures taken:

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

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

INTERNAL TO THE ESTABLISHMENT:

The fire had been fought by the Fire Brigade of the GENERALITAD (Regional Government of Cataluna).

Immediate Lessons Learned:

prevention: No **other:** No

mitigation: No

description:

A Occurrence Full Report

country: FA **ident key:** 1990_015_01

1 Type of Accident

remarks: Due to the formation of an explosive mixture in the supply depot of a steam

boiler, an explosion occurred (code 1307). The explosion was then followed

by a fire (code 1202), which had been fought by the Fire Brigade of the

GENERALITAD (Regi... see Appendix Full Report A / type of accident

2 Dangerous Substances

remarks: No data are available about the amount of fuel oil involved in the accident.

3 Source of Accident

illustration: - not applicable -

remarks: - not applicable -

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 5501 other: not identified

- not applicable -

- not applicable -

- not applicable -

- not applicable -

human / organizational 5302 organization: management attitude problem

5307 organization: process analysis (inadequate, incorrect)

- not applicable -

- not applicable -

- not applicable -

remarks: The causes that led to the accident were not fully identified (code 5501). During the following investigations, volatile elements mixed with fuel-oil were detected in such a way that inside the depot a flammable atmosphere (due to the evapo... see Appendix Full Report A / causes of major occurrence

6 Discussion about the Occurrence

- not applicable -

Type of Accident **country:** FA **ident key:** 1990_015_01

event:

major occurrence 1307 explosion: VCE (vapour cloud explosion; supersonic wave front)

initiating event - not applicable -

associated event - not applicable -

event:

major occurrence 1202 fire: pool fire (burning pool of liquid, contained or uncontained)

initiating event 1307 explosion: VCE (vapour cloud explosion; supersonic wave front)

associated event - not applicable -

Dangerous substances

country: FA **ident key:** 1990_015_01

a) total establishment inventory

CAS number: identity: Fuel Oil

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

use of substance as: NORMAL FINISHED PRODUCT

b) substance belongs to relevant inventory directly involved: Yes

actual quantity: -1 **potential quantity:** -1

c) substance belongs to relevant inventory indirectly involved: No

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

B Consequences Full Report

country: FA **ident key:** 1990_015_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 In the Original Report there is no evidence of significant effects outside the e... see Appendix Full Report B / area concerned - remarks

2 People

establishment popul. emergency personnel off-site population

total at risk

immediate fatalities 1

subsequent fatalities

hospitalizing injuries 1

other serious injuries

health monitoring

remarks 1 person was killed and another one injured by the explosion.... 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 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 ECU

material losses

response, clean up, restoration

remarks The accident caused severe damages in the steam boiler and to other installation... 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 No No No

- political interest No No No

remarks In the Original Report there is no evidence of significant effects outside the e... see Appendix

7 Discussion of Consequences

C Response Full Report

country: FA **ident key:** 1990_015_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 / 1990_015_01 report

Appendix Short Report / description of accident types:

Due to formation of an explosive mixture in the supply depot of a steam boiler, an explosion occurred. The explosion was then followed by a fire, which had been fought by the Fire Brigade of the GENERALITAD (Regional Government of Catalonia).

Appendix Short Report / description of suspected causes:

CAUSES:

The causes that led to the accident have not been fully identified. During the following investigations, volatile elements mixed with fuel-oil were detected in such a way that inside the depot a flammable atmosphere (due to the evaporation of this mixture) could be present. This circumstance, not previously considered, was surely the cause of the fire in the upper part of the depot.

Appendix Short Report / description of immediate effects:

EFFECTS ON PEOPLE:

1 person was killed and another one injured by the explosion.

MATERIAL LOSS:

The accident caused severe damages in the steam boiler and to other installations and limited damages outside the establishment. No data are available about the cost of the material losses.

Appendix Full Report A / type of accident:

Due to the formation of an explosive mixture in the supply depot of a steam boiler, an explosion occurred (code 1307). The explosion was then followed by a fire (code 1202), which had been fought by the Fire Brigade of the GENERALITAD (Regional Government of Catalonia).

Appendix Full Report A / causes of major occurrence:

The causes that led to the accident were not fully identified (code 5501). During the following investigations, volatile elements mixed with fuel-oil were detected in such a way that inside the depot a flammable atmosphere (due to the evaporation of this mixture) could be present. This circumstance, not previously considered (code 5302 and 5307), was surely the cause of the fire in the upper part of the depot.

Appendix Full Report B / area concerned - remarks:

In the Original Report there is no evidence of significant effects outside the establishment.

Appendix Full Report B / people:

1 person was killed and another one injured by the explosion.

Appendix Full Report B / ecological harm:

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

Appendix Full Report B / material loss:

The accident caused severe damages in the steam boiler and to other installations and limited damages outside the establishment. No data are available about the cost of the material losses.

Appendix Full Report B / disruption of community life:

In the Original Report there is no evidence of significant effects outside the establishment.