

Fire followed by pollution of a stream

July 22, 2001

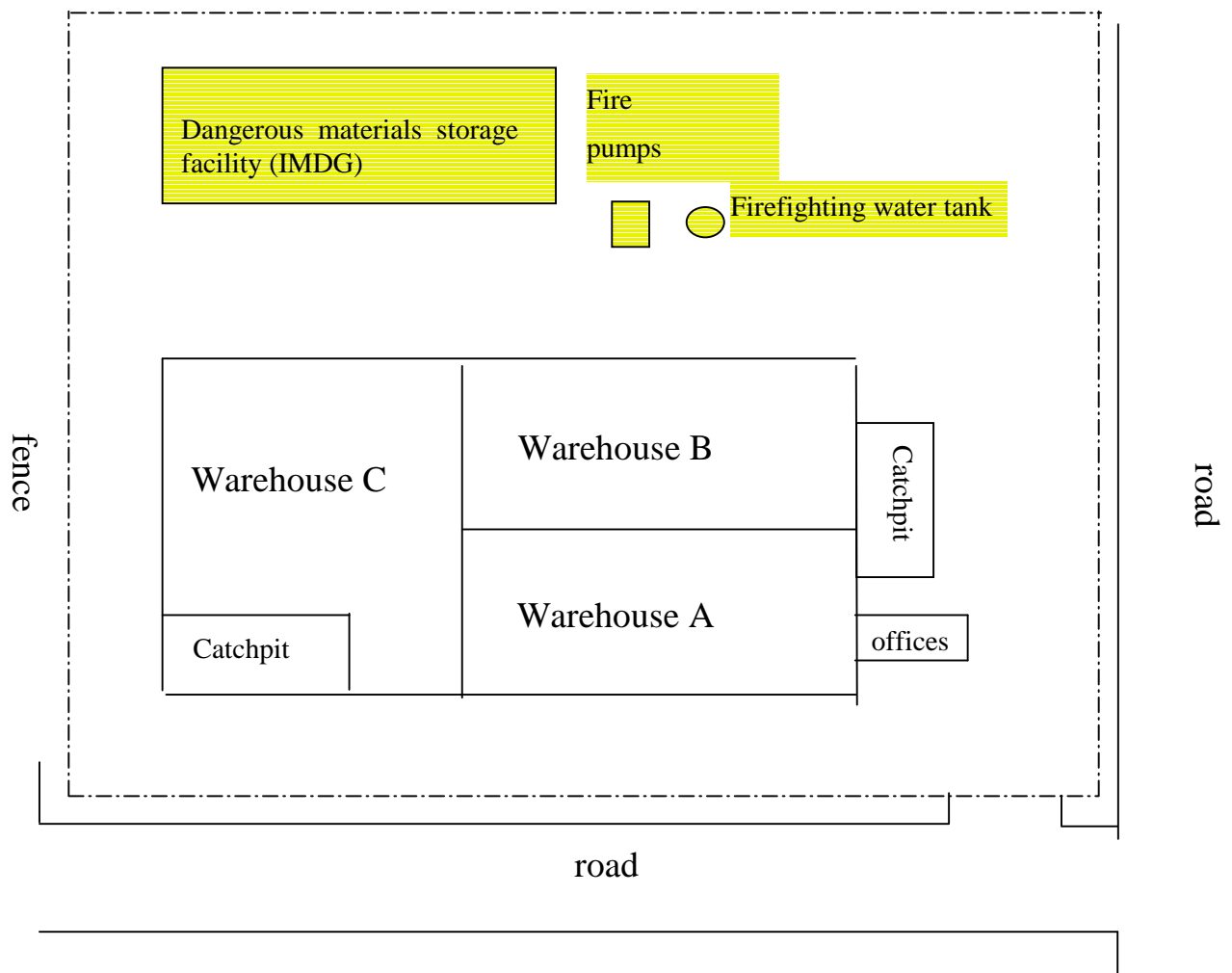
Port of Antwerp

Belgium

- Domino effect
- Warehouses
- SEVESO
- Malicious intent
- Catchpit
- Communication
- Internal contingency plan
- Firefighting water
- Dead fish

THE INSTALLATIONS IN QUESTION

The accident occurred in a warehouse complex near the Port of Antwerp (Belgium). The company specialises in the storage, handling and distribution of merchandise. Non-dangerous materials and materials classified under the International Maritime Dangerous Goods code (IMDG code) are stored at the same site. Owing to the nature of its activity (storage and distribution), the quantity of dangerous materials present at the site varies considerably over time.



The warehouse complex is classified SEVESO (notably owing to the storage of bromine, formaldehyde, very toxic, explosive and highly flammable substances...) and must respect the regulations which govern its activity. At the time of the accident, the operator was collecting the elements necessary to backfit the site to comply with environmental protection regulations, including a safety report, and to determine the possible consequences of an accident.

THE ACCIDENT, ITS BEHAVIOUR AND CONSEQUENCES

The accident:

On Sunday, July 22, 2002 at 4 am, a fire broke out in warehouse C. This warehouse was not being used to store dangerous materials. The emergency services were erroneously informed that a fire had broken out in the dangerous materials warehouse.

The consequences:

Since warehouse C was no longer being used to store dangerous materials, and consequently the condition of its firefighting water catchpits was paid less attention. At the start of the fire, the firefighting water flowed into the catchpit of warehouse C, but owing to its limited capacity, overflowed into the municipal sewer system.



The fire then spread to warehouse B that was being used to store dangerous materials, although not declared to the authorities.



Faced with the difficulties in bringing the fire under control, the Fire Chief decided to push the incandescent materials outside of warehouse C and into the catchpit, thereby decreasing the volume available for the firefighting water.

The fire completely destroyed warehouse C, while B was only partially extinguished. The stored merchandise was effected by the fire, smoke and firefighting water.

Subsequent investigations showed that the municipal sewer system did not release into the dock area but into a stream that flowed onto a natural site home to major fish farming activity. A large body of water was contaminated and fish were killed. The release continued until the next day in the afternoon.

European scale of industrial accidents

By applying the rating rules of the 18 parameters of the scale made official in February 1994 by the Committee of Competent Authorities of the Member States that oversees the application of the 'SEVESO' directive, the accident can be characterised by the following 4 indices.

Dangerous materials released		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human and social consequences		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental consequences		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economic consequences		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The parameters that comprise these indices and the corresponding rating method are available at the following address: <http://www.aria.ecologie.gouv.fr>

As the quantities of the substances released and the environmental impacts have not been established, the indices relative to the amount of dangerous materials released (parameter Q1) and water pollution (parameter ENV14) reached level 1 by default.

ORIGIN, CAUSES AND CIRCUMSTANCES OF THE ACCIDENT

The causes of the fire remain unknown although malicious intent is strongly suspected.

ACTION TAKEN

Intervention

According to current regulations, the operator of a "SEVESO 2" establishment must inform the department in charge of the inspection of all incidents. In particular, this department must conduct administrative investigations to determine the environmental cleanup measures and prevent all new accident of the same type. In this case, the operator did not fulfil its obligations and the environmental inspectorate was not present during the fire, even though it should have been informed for this type of accident.

Inspection

On July 23rd, fishermen report that they had discovered dead fish and an inquiry by the municipal department of the environment was sent to the environment inspectorate. An inspector arrived on the scene around 8.00 pm.



Photo BARPI

The Inspectorate reported the following facts.

- ✓ dangerous materials, deteriorated or not, are stored in warehouse B,
- ✓ the contaminated firefighting water were released into a stream (a sample was taken at the outlet source). Dead fish present and the surface of the water was coloured.
- ✓ the capacity of the catchpit for warehouse B was insufficient.

Corrective actions

The operator must submit a contaminated firefighting water treatment plan and have an environmental damage assessment performed by a certified third party expert.

On September 27th, a new inspection was performed to ensure that the operator had taken the necessary measures. Part of the firefighting water had been treated in compliance with the regulations, although no action had been taken to clean the stream. The damaged dangerous materials in warehouse B were still at the site. The list of stocks in warehouse B were analysed: products dangerous for the aquatic fauna and a large quantity of biocides were present at the time of the fire.

Following several administrative inquiries (based on the quantity of products stocked, analysis results of samples taken on site) a report, issued November 23rd, shed light on the following infractions:

- ✓ the declarations made by the operator were not detailed,
- ✓ disregard of the operating requirements stipulated by the authority,
- ✓ errors in the measurements taken to limit the consequences in case of accidents.

LESSONS LEARNED

Interesting lessons can be learned from this accident even though it is not considered a major event in terms of the SEVESO 2 Directive.

The operator did not pay enough attention to risk prevention and the limitation of the possible consequences. As such, using a catchpit to store incandescent materials limited the site's ability to contain the firefighting water. For the establishment, the establishment of an internal contingency plant should be a priority, in compliance with the requirements of the SEVESO Directive (implementation of the necessary measures to protect man and the environment from the consequences of major accidents).