

## Leaks of fuel oil and pollution of waterway /

## Pollution of the site

22 August and 13 December, 2002

**Brussels – [Brabant]**

**Belgium**

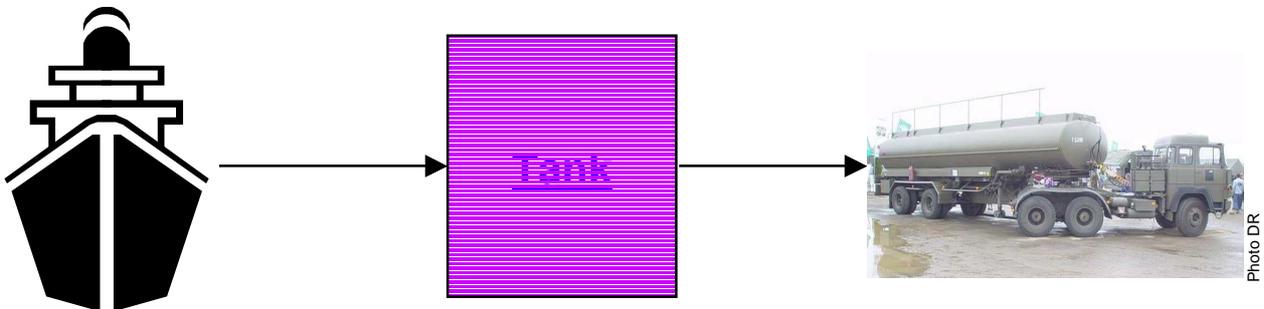
Release  
 Flammable liquids farm  
 Unloading  
 Fuel oil  
 Containment walls  
 Management / procedure compliance  
 Surface water pollution  
 Soil pollution

### THE INSTALLATIONS IN QUESTION

The two cases of accidents happened on two sites belonging to the same company. The permit holder is a fuel oil company specialized in the storage and distribution for wholesale companies. Both sites must comply to the SEVESO II obligations for lower tier establishments (lower threshold = 5 000 t). Their two sites in Brussels are entirely automated and require only one person to supervise both. Furthermore, they are fairly closed (distance about 1,5 km).

At the time of the accidents, ground pollutions had already been established for both sites. A safety assessment was on-going. The SEVESO inspections that took place also pointed out several deficiencies.

In the case of these installations, the process involved is quite simple: Boats come to fill the big tanks of the company and trucks come to fill their own tanks.



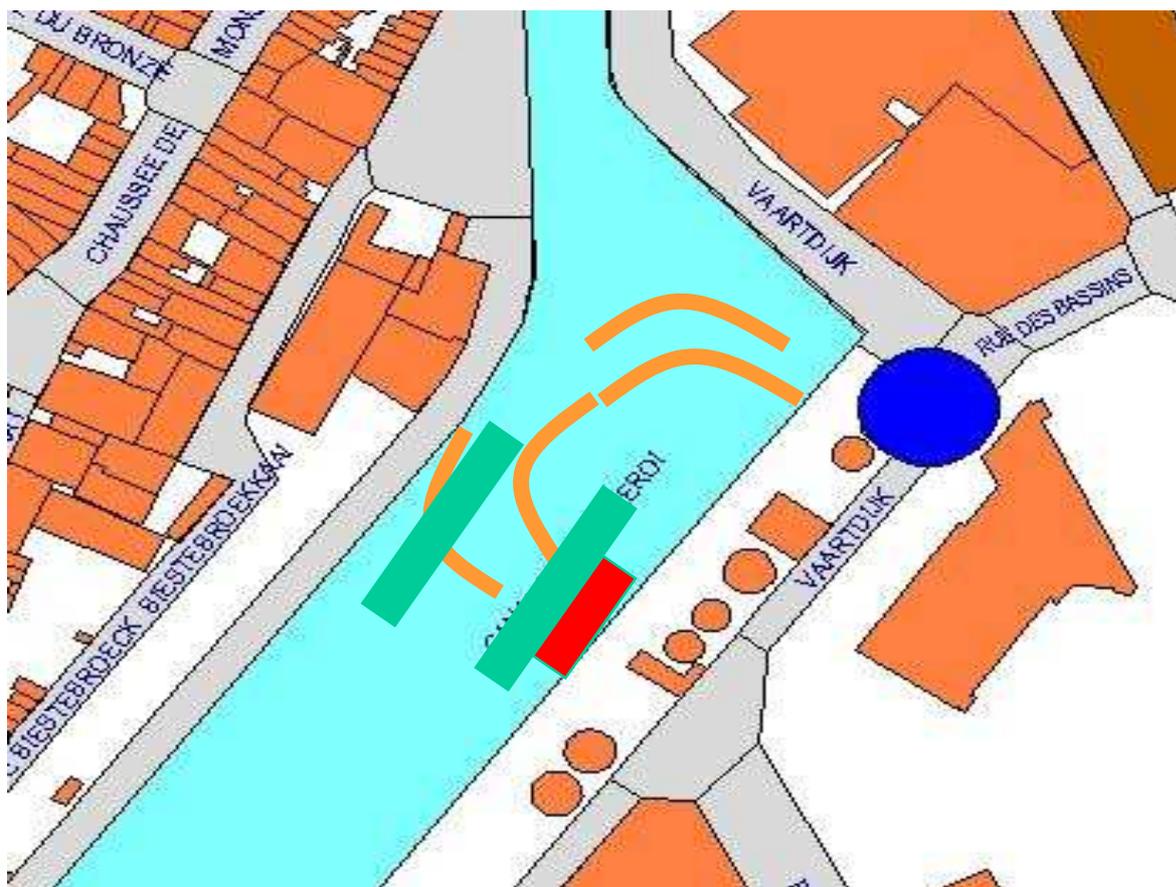
The amount of Site 1 storage capacity is 6 000m<sup>3</sup> for heating fuel oil, Site 2 capacity is 8 225 m<sup>3</sup> for heating fuel oil and type C fuel.

### THE ACCIDENT, ITS BEHAVIOUR, EFFECTS AND CONSEQUENCES

#### The accident on 22 August, 2002 (site 1):

The call originated from a regular plaintive living across from the company. He alerted the local TV station and the authorities. When the BIME inspector arrived on site, the police was already questioning the witnesses.

The release involves the « Georges » which is unloading. The schema below shows the general configuration of the site: the boat is the red rectangle on the schema.



As soon as the leak was noticed, the « Marguerite » (boat in green), moved next to the « Georges » in an attempt to contain the spill, but the wind and the current were working against them. The firefighters put two floating dams to prevent further spreading of the spill. Since they did not have the equipment to pump the fuel oil out of the water, they called for the Civil Protection.

Agents from the Harbour of Brussels (Environmental Service) stopped the navigation on the canal and used two more floating dams to contain the spill. The Civil Protection came afterwards with a floating pump: the remaining traces of fuel oil that could not be pumped out of the canal were dispersed with detergent.

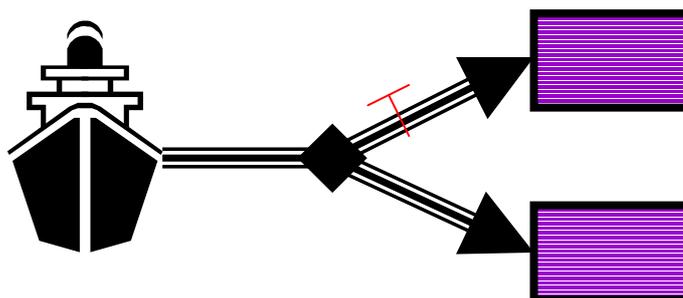
**The consequences:**

The accident resulted in a spill in the waterway of about 2 m<sup>3</sup> of fuel oil. The major part had been pumped by the firefighters and civil protection.

**The accident on 13 December, 2002 (site 2):**

The second accident occurred only a few months after the first one, but this time, on the other site of the company.

In this case, normally, the boat starts to unload into the first tank. The capacity of the boat usually exceeds that of the tank. When the first tank is almost full, an alarm tells the site manager when it is time to make the switch and start filling the other tank.

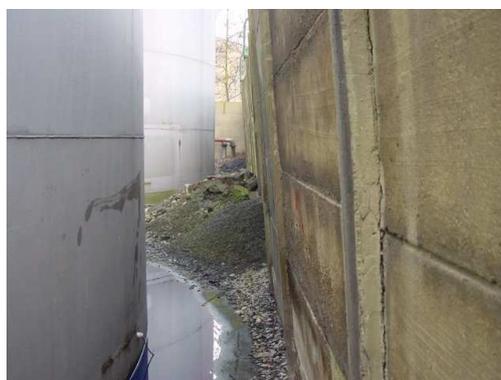


This time, the boat was unloading into the tank normally but the operator was distracted by other duties on site and did not hear the timer go off. He did not make the switch and, therefore, the tank overflowed.

When the inspection arrived on site, the firefighters and the agents from the Harbour of Brussels had already left. The accident was thought to be confined within the walls surrounding the tanks, so, according to them, there was no threat for the environment outside of the company site.



Seeing how close the walls were to the tanks, the inspectors decided to pursue their investigations a little further.



At the top of the tank that overflowed, the inspectors were able to see that the fuel oil overflowed over the containment walls. The walls themselves were not watertight either.



**The consequences:**

The quantity of fuel oil lost was estimated at 3 m<sup>3</sup> within the walls and 2 m<sup>3</sup> outside of the walls. It had been pumped and then eliminated by the company.

**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 which oversees the application of the ‘SEVESO’ directive, the accident can be characterised by the following 4 indices, based on the information available.

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

The level given to the parameter « Quantity of dangerous material released » characterizes the accidental leaks of 2 and 5 m<sup>3</sup> of fuel oil (parameter Q1).

**ORIGIN, CAUSES AND CIRCUMSTANCES OF THE ACCIDENT**

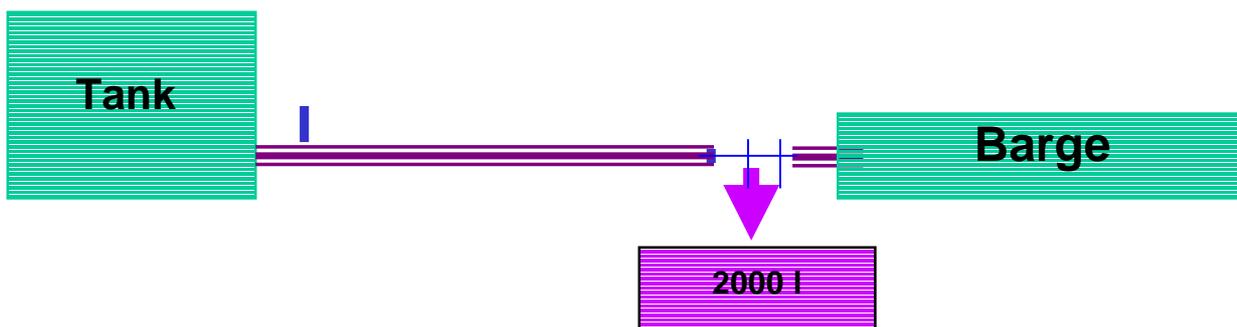
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**The accident dated 22 August, 2002 (site 1):**

After filling a tank, it is standard procedure to push a little air inside the hose to empty its content into the tank. Then the boat has to notify the site manager so that he can turn off the valve on the tank, and the boat can uncouple its hose.

The « Georges » uncoupled its hose without prior communication with the site, assuming that the valve from the tank was already closed. The strong odour from the fuel oil rushing out of the tank alerted the sailor, but he could not close the valves in time.

Identified causes lay into the lack of clear indications on the procedures, which were not posted nearby, and the lack of communication for the loading operation.



**The accident dated 13 December, 2002 (site 2):**

In this case, the lack of a strict compliance of the operating procedures is at stake, the use of devices that did not seem to be appropriate as well.

Indeed, apart from the fact that the tanks were very closed to the containment walls, the valves enabling the permutation of the tanks were located in rather deep peephole, so that the access was uncomfortable.



Photo DR

## ACTIONS TAKEN

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### The accident dated 22 August, 2002 (site 1):

Following this accident, the company was fined for infringements with the law of 1971 on the protection of surface waters and with the ordinance of 1997 on the environmental permits.

Seeing that the local television did not air the afternoon's events, the plaintive appealed against the company to have their environmental permit suspended: Each time it has been ruled « unfounded ».

### The accident dated 13 December, 2002 (site 2):

Although the fuel oil did not reach the canal, the company was still in infringement with the ordinance of 1997 regarding the environment permits. (Did not comply with the requirements of the permit).

After these 2 accidents occurred, the Inspectorate required that the company implements the following devices or materials:

- ✓ Floating dams (2x perimeter of the largest barge)
- ✓ Absorbing products at hand
- ✓ Bilingual instructions concerning loading procedures.
- ✓ Safety pictograms and identification of the pipes
- ✓ Watertightness of the feeding area pit and setting up of a connection from it toward a hydrocarbon separator.
- ✓ Setting up of a non-overflowing device on each tank.
- ✓ Replacement of the damaged pit, in compliance with safety distances.
- ✓ Setting up of anti-run-on valves
- ✓ Building of a new feeding pit area (connections with the barges)
- ✓ Radar detection implemented inside the tanks to check their level during feeding operations plus visual and auditory alarms in connection with these devices.

## LESSONS LEARNT

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Following these accidents, the environmental permits of both sites were modified and updated.

The company hired a prevention adviser to bring all his sites in Belgium up to par, at the same safety level. Furthermore, the company also concluded several contracts to have their normal equipments and their prevention equipments regularly checked. The operator is also finalizing a new action plan to comply with the SEVESO obligations (work safety and environmental).

In conclusion, those accidents do raise a few questions that can be applied to other cases:

- ✓ This kind of operations needs to work with third party companies: the problems to face up are how to control the work of someone who is not an employee of the company and how to make sure that everyone coming to the site is well aware of all the site procedures, especially as far as safety is concerned.
- ✓ For this kind of activity (barges), the language used by the different actors can also be a problem, especially when dealing with foreign third parties, since the only obligation for the practice of languages in Brussels is French and Dutch.
- ✓ The minimum distance between the containment wall and the tanks should be of half the height of the tank.
- ✓ The operating procedures that a company develops should be easy, simple and the same for all its sites.

Even though some companies have a very good prevention system, there should always be adequate means of intervention nearby that can be readily used in the case of an accident.