

Incident information sheet of LIMBURG 2002

The incident

On 6 October 2002 at 8h00, the French double-hull oil tanker the *Limburg* was hit by explosives from a small craft.

The vessel, with a 300,000 tonne capacity, was on its way to the SBM loading buoy of the Ash Shihs oil terminal (in the Hadramawt province), with a cargo of 57,000 tonnes of Arabian heavy crude oil, to complete its cargo after a stop in Ra's Tannura (Saudi Arabia). The explosion happened 3 km away from the terminal.

the starboard tank number 4 was holed in two places, and the spilled oil caught fire. The fire lasted for 36 hours. It was fought by the tug boat present next to the SBM loading buoy and by the security staff of Nexen company.



Impact on the Limburg ©CEDRE



The Limburg
©CEDRE

Pollution caused by the explosion of the Limburg

Assessment by CEDRE's expert during the mission carried out by the French government from 8 to 15 October 2002.

Following the explosion on the oil tanker Limburg near Ash Shihr (Yemen) on 6 October 2002, the French ministry of Foreign Affairs decided to send an investigation team on site. The team was made of three members of the [du Bureau Enquêtes Accidents \(Mer\)](#), part of the ministry for Transport, to investigate on the incident, as well as an agent from CEDRE to assess the consequences of the pollution caused by the explosion and burning of 12,000 tonnes of Arabian Heavy crude oil. They arrived on site (Al Mukalla) in the afternoon of Tuesday, 8 October.

Following a reunion with the ministers for Transport, the Environment, and Tourism, a plan was defined: on-site investigations, creation of an action plan, implementation of the action plan.



Wadi Hallah: burning residue catchment area ©CEDRE

The surveys, aerial (3 flyovers) and on land (six surveys), helped map out the impacted area, which spread on 70 km, from the Rigan airport (west of the oil terminal) to the municipality of Mayfaa (to the south-west).

The polluted areas were disconnected, with varying intensities between medium and low. Some localised heavily impacted sites were bordering wholly untouched coastline. The estimated volume on land was of hundreds of cubic metres (300 to 400 m³), made of burning residue with were dense and viscous. There is a possible presence of submerged slicks, mostly along the shores next to the terminal (sediment rich waters), seeing as the density of the burning residues was quite high. Pollution was visible in the form of tar balls, cakes, and occasional spots of a couple meters in diameter.

Long silvery sheen was observed at sea, parallel to the coast, a couple of nautical miles away. However, some areas (off Burum) showed brown slicks a couple of nautical miles long and tens of meters wide, which equalled a volume of 5 to 10 m³ of emulsified crude of, released by the vessel after the fire.



Rocky area polluted East of Al Mukalla ©CEDRE

The volume drifting at sea was estimated to about thirty cubic meters and the vessel only caused minor sheen since the last flyover on Monday, 14 October 2002.

The action plan was to establish a mapping of the coastline according to the intensity of the pollution and visual appearance. Cleaning priorities were established by experts from the [International Tanker Owners Pollution Federation Limited \(ITOPF\)](#), the [Oil Spill Response Limited \(OSRL\)](#), Nexen, representatives of Yemen and CEDRE. This plan included training of the responders and priority cleaning of accessible beaches and rocky areas with a leisure or economical interest.

A hundred workers from a local public works company were trained by technicians from OSRL, while ITOPF asked the French company Le Floch Dépollution to train their operators for response in rocky areas. A command centre was established in Al Mukalla, under the supervision of the port captain, with advice from two experts sent by [the IMO](#).



Small continuous and diffuse tar balls North-east of Al Mukalla
©CEDRE

In conclusion, this pollution appeared of a moderated intensity, with some particularly impacted sites. At first glance, and before in depth investigation, no dead bird or fish was observed, only the colony of ghost crabs seemed to be deeply impacted. The action plan implemented under the supervision of the command centre in Al Mukalla was an opportunity for the authorities in Yemen to reflect on the elaboration of a national contingency plan.



Oil cake East of Al Mukalla ©CEDRE



Submerged slick near the airport of Riyan ©CEDRE

Incidental explosions of oil tankers

Setting oil or fuel on fire is not always easy. Responders tried to do it on grounded vessels that constituted a possible pollution source. They sometimes had to try multiple times before succeeding. A typical example is the voluntary fire of the propulsion fuel aboard the container ship *New Carissa*, grounded on the coast of Oregon in February 1999 (see CEDRE newsletters n°[45](#), [46](#), [47](#), [48](#) and 75). Still, incidental fires or explosions leading to a fire are a constant risk in the oil industry. The history of oil transport is marked with such incidents, caused by material damage or human error. Without needing to go too far back, here are some examples.

Anonymous oil tanker, China, 11 September 2002

The name of the vessel is unknown: the incident was only briefly mentioned in media. As it was trying to find shelter from a typhoon, this oil tanker ran aground on the south coast of the country, in Guandong. A distress flare triggered during the evacuation set fire to a slick of the cargo. The fire triggered an explosion. Eight crew members were injured and two lost.

[Bételgeuse](#) in Bantry, Ireland, 8 January 1979

Journeying from Ras Tanura (Saudi Arabia), the vessel had unloaded its cargo of heavy crude oil (74,000 tonnes) in the terminal in Bantry Bay and was about to unload light crude oil (40,000 tonnes) when an explosion broke the vessel in half and caused a large-scale fire that took 20 hours to be controlled. About 50 people died and the terminal suffered major damage.

28,000 tonnes were spilled and polluted 20 km of coastline. Shoreline cleanup required around one hundred people.

[Haven](#), Genoa, Italy, 11 April 1991

The oil tanker was anchored off the port of Genoa (Italy) with 144,000 tonnes of crude oil in cargo when a fire started. Multiple explosions broke the vessel in three parts during towing attempts. All three parts sank. This incident led to

the largest oil spill ever in the Mediterranean Sea (see the incident sheet of the area).

Mega Borg, Galveston, Texas, 9 June 1990

The oil tanker, loaded with 130,000 tonnes of light crude oil from Angola, was transferring part of its cargo to another oil tanker off Galveston (Gulf of Mexico) when it suffered an explosion. It was followed by a major fire which could only be put out on 16 June 1990. Despite original fears, no pollution was noted on the coast.

Khark V, Spain, 19 December 1989

The vessel, loaded with 200,000 tonnes of Iranian light crude oil, was journeying from Kharg Island (Iran) to Europoort in the Netherlands. It suffered damage during a storm off Morocco and the cargo was exposed to the elements. A spark caused multiple explosions, followed by a fire. 70,000 tonnes were spilled and a large quantity of crude oil spread 50 km from the Moroccan coastline before dispersing.

Vitoria, Seine, France, 23 June 1987

The empty Greek oil tanker was travelling down the Seine towards Rotterdam while the Japanese oil tanker Fuyoh Maru, carrying 10,000 tonnes of kerosene, was on its way up. The latter, with a damaged steering system, allided with the Vitoria which exploded, broke in half, and caught fire. Five pumping boats fought for 8 hours to reach the Vitoria. 22 crew members out of the 28 were rescued.

Attacks on oil tankers

Numerous wars of the 20th century saw crude oil resources of one side taken as targets by the other. A study found more than 20 oil tankers sunken in the Pacific ocean during World War 2. No one knows how much of the cargo burned, spilled in the water, or remains in the wrecks. More recently, our resource center recorded the following cases.

Iran-Iraq War 1980-1988.

Attacks on oil tankers and terminals were frequent during this war, which lasted from September 1980 to August 1988. Statistics from Lloyd's noted 547 vessels hit by missiles, air dropped bombs, or incendiary grenades sent from airplanes, helicopters or ships. 58 attacks lead to the spill of more than 500 tonnes of oil. From 1985, the amounts spilled this way in the Gulf became so important that they exceeded all of the previous incidental spills from ships globally (see table below).

Tableau 3.11 Nombre d'accidents de structure en fonction de l'âge du pétrolier (période 1969-1972).

Âge des pétroliers (en années)	Nombre d'accidents	Pourcentage des accidents	Pourcentage de la flotte de pétroliers	Rapport des deux pourcentages précédents	Rapport des pourcentages dans le cas de déversement
de 0 à 4	14	12	20	0,60	0,10
5 à 9	17	15	23	0,65	0,07
10 à 14	25	22	25	0,88	0,40
15 à 19	37	33	15	2,20	3,75
20 à 24	15	13	5	2,60	6,00
25 à 29	3	3	7	0,43	0,04
Plus de 30	2	2	5	0,40	0,02

D'après l'OTA - 1975

Les applications de TANKER ©OTA

These attacks showed a great resistance of modern oil tanker to various destruction tactics. The oil tanker Khark 4 was hit 4 times and remained operational. The publication "Transport Maritime et pollution accidentelle par le pétrole : faits et chiffres (1951-1999), BERTRAND, AR", from which the above table was extracted, explains this resistance by the quality of modern special metals, the low flammability of crude oil, the inerting of the empty tanks, and passive protection using lures.

Silk Pride, Sri Lanka, 30 October 2001

This small coaster oil tanker was refuelling the Jaffna Peninsula (Sri Lanka) with a cargo of 160 tonnes of Kerosene and 250 tonnes of diesel when it was attacked by 4 suicide vessels of Tamil "tigers". Three crew members and four commandos died in the attack. A fire caught in the back of the Silk Pride, but its loading tanks were not damaged. The fire was controlled and the vessel towed to its destination under military escort.

An ideal subject for novelists

Anything is imaginable when talking about attacks on oil tankers, including pollution blackmail. Specialists of the politico-strategic "thriller" genre took the opportunity.

The novel "l'alternative du diable" by FORSYTH, published in French by Albin Michel (1979), is a particularly striking example. It is a romance novel on an international terrorism background which mixes politics, love, a cataclysm, adventure, and espionage. The Russian and American governments struggle to negotiate a limitation treaty on weapons while an agent of the British secret services obtains top secret information on the Politburo from a Russian spy. The action in this novel goes crescendo, the reality of the information and the many interests and human feelings cannot leave the reader indifferent.