

Incident information sheet of BOW EAGLE 2002

The incident

In the afternoon of Monday 26 August 2002, the Norwegian chemical tanker BOW Eagle, coming from Brazil and journeying to Rotterdam, alerts the CROSS agency in Jobourg of a breach on its port side flank. The damage caused water intake and a loss of 200 tonnes of ethyl acetate.

Once alerted, the [Maritime prefecture for the Channel and the North Sea](#) mobilised aerial and maritime response resources as well as specialists from LASEM (French Navy's test lab) and the intervention team from CEDRE for information on pollution risks.

The maritime prefecture for the Atlantic, which was looking for the vessel responsible for the allision with the Cistude trawler, established a possible link between the damage and this allision. This maritime tragedy, hardly imaginable in French territory (4 men dead because of the colliding vessel running away), will not be elaborated in this document. The leak was later confirmed through the confession of two crew members from the Bow Eagle and our thoughts are with the families of the deceased. This document will only report on CEDRE's domain of expertise, the risk for maritime pollution, thankfully less impacting.

The pollution examples following allisions between tanker ships and fishing vessels are numerous, with heavy consequences at times (see the section on "allisions involving fishing boats"). The risk for pollution is therefore rigorously considered. The databases quickly confirmed that ethyl acetate is a colourless and volatile solvent, with a noticeable smell, highly soluble in air and moderately soluble in water, used for various applications, in particular the preparation of polish, paint, ink and diluents, often as substitutes of methyl ethyl ketone (see information on [levoli Sun](#)). It is highly flammable, with vapours that can create explosive mixtures in the air, water could also encourage the propagation of a declared fire. Therefore, the assessment team which boarded the vessel had to observe essential precaution measures. Careful inspection was necessary before considering entry of the vessel in any port.

However, the risk for marine pollution was practically non-existent. This was clearly established by the IMO database used by the expert group on the scientific aspect of the protection of the marine environment (GESAMP).

GESAMP classification for ethyl acetate	
A: Bioaccumulation and Biodegradation	No bio-accumulation or alteration of taste noticed
B: Aquatic toxicity	Barely toxic
C: Acute mammalian toxicity	No risk
D: Irritation, corrosion and long-term mammalian health effects	Not irritating
E: Interference with other uses of the sea	No risk

As soon as this information was transmitted to the maritime prefecture for the Channel and the North Sea, they contributed, along with the implication of the Bow Eagle in the tragedy of the Cistude and the insurance transmitted by the charterer, to the decision of the maritime Prefect to not let the vessel go on and not let it enter a French port either.

On Tuesday 27 August, additional information helped give a better understanding of the situation regarding pollution.

The leak of ethyl acetate was controlled: the product was transferred to another tank and the repairs of the breach were in progress. But the vessel was loaded with nine different products (see the section on “loading a chemical tanker”), including two severe pollutants (benzene, toluene). A breach was found on the side of a tank close to the leaking ethyl acetate tank. This other tank contained cyclohexane. At the request of the maritime prefecture, a chemist from CEDRE travelled to Cherbourg. At the same time, it seemed that the Norwegian charterer of the vessel was a trusted company, [ODFJELL](#) second charterer for the freight of chemicals globally, insured by the P&I Club Guard, a first rank club.

Cyclohexane is a very evaporable product, with vapours three times denser than air. In the event of a leak, a flammable and irritating gas cloud will be carried by the wind at the surface of water.

Cyclohexane can cause damage to living marine resources in the event of a sudden spill. Furthermore, the product cocktail on board of the vessel immediately brings to the mind the consequences of an eventual grounding on the coast (see incident sheet on the [Cason](#)) or close to a port.

GESAMP classification for cyclohexane	
A: Bioaccumulation and Biodegradation	No bio-accumulation or alteration of taste noticed
B: Damage to living resources	Moderately toxic
C: Acute mammalian toxicity	Practically no risk
D: Irritation, corrosion and long-term mammalian health effects	Eye/skin irritation, pulmonary lesions...
E: Interference with other uses of the sea	Negligible hazard, beaches usable...

At the request of the maritime prefect, the vessel travelled by night toward Dunkirk, escorted by the maritime gendarmerie. It berthed in the waiting area of the port on the morning of 28 August as the port was not equipped to handle the cargo safely. An assessment team accompanied by criminal police officers came onboard. Two crew members admitted they were aware of the allision but kept quiet. The outfitting manager admitted the facts. In the afternoon, the Bow Eagle is allowed to travel to its original destination in Rotterdam.

No significant pollution was noted, but the risk was still rigorously managed.

Two elements of this situation are also important to note for the future: the cargo of a chemical tanker can be diverse, allisions between fishing boats and freight vessels can generate pollution.

Loading operation of a chemical tanker

Chemical tankers are part of the tanker vessel category: they transport chemicals in bulk inside tanks. However, while an oil tanker will most of the time fill all of its tanks with the same cargo in one terminal, a chemical tanker often contains different products, loaded from various terminals. Therefore, the *levoli Sun* had three different products as cargo when it sank, loaded from terminals of two different countries.

See the "Products" section in the incident sheet of the [levoli Sun](#) (which sank on 31/10/2000).

The cargo can be composed of a lot of different products since chemical tanker often carry more than 30 tanks.

The frequent transport of dangerous cargo and the closeness of tanks containing products that might interact with one another make the monitoring of these vessels essential. They often are managed by the same persons for a long time and have

particular outfitting. They are therefore known for their minimal incident rate.

More information on these vessels in the article “Chimiquiers, une grande variété de navires” by Jean-François Durand, in the “Navires et marine marchande” journal (n°10, Jan 2002, pages 32-45). We took the liberty of citing it below:

“The main outfittings:

The freight of chemicals is [...] a Norwegian speciality since two of the three main outfitters (Stolt-Nielsen, Odjfell Tankers and Jo Tankers) are Norwegian. ”

Chemical tankers must not be confused with cargo ships used for the freight of bulk powder or liquid chemicals. The most tragic incidents for ships transporting chemicals are those involving cargo ships: in the bay of Brest, the fire and explosion of the [Ocean Liberty](#) with ammonium nitrate as cargo; in Cape Finisterre, the grounding and fire of the [Cason](#) loaded with various chemicals.

The Bow Eagle is equipped with 20 tanks which have varying storage volumes between 200 and 2,000 m³. According to the loading plan shared with CEDRE, the vessel had in its cargo 9 different products during the incident. They represented a total of 23,645 tonnes.

Product	Quantity	Origin	Destination
Soya lecithin	510 tonnes	Buenos Aires	Rotterdam
Sunflower oil	1652 tonnes	Buenos Aires	Rotterdam
Methyl Ethyl Ketone	1050 tonnes	Rio Grande	Rotterdam
Cyclohexane	4750 tonnes	La Plata	Rotterdam
Toluene	3108 tonnes	La Plata	Rotterdam
Vegetable oil	500 tonnes	La Plata	Rotterdam
Ethyl acetate	2100 tonnes	Santos	Rotterdam
Benzene	4725 tonnes	Santos	Rotterdam
Ethanol	5250 tonnes	Portocel	Rotterdam

Cargo of the Bow Eagle during the incident

Cargo of the Bow Eagle during the incident

The loading plan showed proximity between tanks loaded with toluene and benzene, benzene and ethanol, toluene and ethanol. This was not unusual practice at the time. The tanks are designed to avoid any interaction with each other and are all equipped with their own pumps and conduits. In the event of an allision of grounding, damage to neighbouring tanks can lead to mixtures that are dangerous for man, the marine environment, or both.

In a situation where two nearby tanks were damaged to an unknown extent, where the introduction of seawater in them created hazardous mixtures, it would have been irresponsible to allow the vessel inside a French port that was not equipped to respond to the situation.

Allisions involving fishing boats

In its 2001 report, [the BEA Mer \(Bureau for the investigation of incidents at sea\)](#) counted 20 allisions between freight vessels and fishing boats from December 1997 to November 2001, which is equal to one every two months.

Only considering incidents in Europe, a consultation of press articles provides a large set of recent examples involving oil tankers:

- On 25 November 1996, collision between the French trawler Iroise and the oil tanker from Malta Zagara at the northern entry of the Ushant rail, light material damage, two people injured and light pollution by heavy fuel;
- On 31 January 2001, the 232 m long oil tanker Laura west of the Hebride Islands (Scotland) allided with the Trawler Saint Pierre (Lorient): material damage and two injured;
- On 8 May 2001, complete loss of the Briton trawler Le Royale after an allision with the Norwegian oil tanker Siboti in the Channel;

Involving chemical tankers:

- On 15 March 2000, collision between a Portuguese fishing boat and the chemical tanker Cervin near Cape St Vincent (Algarve). The fishing boat sinks on impact and the 8 crew members are helped on the Cervin.

With the vessel responsible running away:

- On 17 May 2001, an unidentified tanker ship allided with the trawler Laval (from Dieppe) in the Channel, off Barfleur, material damage.

Although human loss is rare, it still occurs from time to time. The most tragic example to this day is the allision of the Japanese teaching-trawler Ehime Maru by the American submarine USS Greenville off Hawai'i in February 2001. This happened while the submarine was surfacing. Nine men died when the trawler sank. The families of the deceased asked for a public apology from the American navy, which is normal in the context of Japanese culture surrounding mourning. Since such an apology would have constituted proof of guilt in the American justice system, the Navy refused.

Marine pollution is rare but can still be significant and cost a lot to the polluter. The most recent example is the allision of the oil tanker Gudermes (Malta), with a cargo of 26,000 tonnes of oil, by the trawler Saint Jacques II (Boulogne-sur-mer) in front of the port in Dover on 23 April 2001. The incident led to the spill of an estimated 110 tonnes of heavy fuel oil from a damaged tank. On 18 December 2001, the owner of the Saint Jacques II was fined 7,500 Euros by the maritime tribunal in Boulogne for violating the circulation and safety rules. These condemnations allowed the charterer of the Gudermes and the British [Maritime and Coastguard Agency](#) to claim compensation for the damages and the money invested in pollution response operations, which was a heavy burden on the insurer.

For other examples of maritime collisions leading to pollution, consult the [incident sheets](#) online as well as the [CEDRE newsletter](#).