

December 2006

## **Oily water separators**

**Dennis L. Bryant**

Pogo first uttered the immortal truth: "We have found the enemy and they is us!"

The maritime industry is slowly coming to the conclusion that the cause of the numerous illegal discharges of oily bilge water is not a cabal of black-hearted chief engineers, but the very device that was first installed to resolve the problem – the oily water separator (OWS).

Waste liquids naturally accumulate in the bilges of ships. Improved maintenance and closer attention to detail can reduce (but not eliminate) such accumulation. Part of those waste liquids consists of oil. To prevent the waste liquids from overwhelming the cargo spaces and the engine room, the bilge water and mingled liquids were traditionally discharged over the side and into the ocean. As shipping became somewhat more environmentally conscious, the OWS was developed to filter most of the oil out of the bilge water before the bilge water was pumped overboard.

The OWS was first mandated for installation on ships by the International Maritime Organization (IMO) in 1974. At the same time, a requirement was established for maintenance of an oil record book (ORB) to keep track of use of the OWS and disposal of the ship's oily waste. The OWS was originally designed to reduce the oil in discharge water to 100 parts per million. Ships could discharge waste water that contained up to that level of oil so long as the ship was underway, at least a certain distance offshore, and not in a particularly sensitive area. The equipment operated reasonably well and the program was largely self-enforced. Life was good.

Actually, there are three separate methods for a ship to legally dispose of waste oil: (1) burning on board, (2) transfer to an appropriate facility ashore, and (3) discharge into the ocean through a properly operating OWS. Use of the OWS is clearly the preferred method among shipboard personnel. The oil record book provides for detailed entries of oil accumulated and stored, as well as the time, place, and method of any and all disposals. Totals are supposed to match, but this is difficult as measurements, particularly of liquids in storage tanks on a ship at sea, are rough estimates at best.

In 1992, though, the discharge standard was strengthened to 15 parts per million. Problems surfaced immediately. The OWS equipment was not operating properly. Filters

**E-mail**

[dennis.l.bryant@gmail.com](mailto:dennis.l.bryant@gmail.com)

**Internet**

<http://brymar-consulting.com/>

**Maritime Reporter & Engineering News**

<http://marinelink.com/en-US/magazines/Archive.aspx?MID=3>

regularly clogged and discharges ceased frequently. Meanwhile, waste water levels in the bilges were rising. It turned out that many OWS manufacturers had merely fine-tuned their old 100 ppm devices to achieve the new 15 ppm requirement. This was easily done on a test platform in the factory, but frequently failed on a ship at sea. Life was no longer good, at least for chief engineers, who had to manage this problem while keeping the ship operating.

There are other, more basic problems, though. For many years, governments and ship operators only paid lip service to OWS operation and oil record book entries. Waste oil was routinely discharged at sea and few seemed to care. Chief engineers were under constant pressure to keep operating costs down. One method utilized was to ignore maintenance of the OWS. When the OWS wasn't working properly or when the filter needed replacing, the system would be circumvented. This could be done either through use of a by-pass pipe to divert the discharge around the sensor unit or by adding non-oily flush water to artificially reduce the level of oil passing the sensor unit to below 15 ppm. Alternatively, false entries could be made in the oil record book to show that more waste oil was burned on board than was actually the case. It is difficult to falsify the amount of waste oil transferred ashore, since signed receipts (and payment records) are required. But, for so long as everyone played by the same rules, the system (while flawed) was stable.

When the US Coast Guard and counterpart agencies in other countries (particularly France) began prosecuting ship owners, masters, and engineering officers for illegal discharges of oily bilge water, many in the maritime industry ascribed the blame to over-zealous prosecutors. It is no coincidence, although hardly noticed at the time, that the round of enforcement actions started in 1993 and closely followed the change in OWS standards.

Recently international shipping organizations, such as the Baltic and International Maritime Council (BIMCO), the International Chamber of Shipping-International Shipping Federation (ICS-ISF), the Oil Companies International Marine Forum (OCIMF), the International Association of Dry Cargo Shipowners (INTERCARGO), and the International Association of Independent Tanker Owners (INTERTANKO) issued guidance to members and the maritime industry in general on the proper use of oily water separators.

BIMCO recently published a handbook on how to prepare and undergo a port state control inspection by the US Coast Guard. The handbook notes that the majority of federal prosecutions of foreign seafarers relate to violations that occurred in US waters, such as the presentation to the Coast Guard of an ORB containing false entries. In the handbook, the crew is cautioned to operate and service the OWS and other equipment properly and to maintain contemporaneous and accurate records.

The most candid acknowledgement to date of problems with the OWS comes from ICS-ISF, which stated:

Flagrant infringements of MARPOL requirements concerning the use of oily water separators have apparently been allowed to develop on

a disturbing number of ships. A combination of poor equipment design, a lack of environmental awareness, and misguided attempts to save on waste disposal fees seem to be amongst the root causes. But these also imply serious management shortcomings and non-compliance with the ISM Code.

The problem has become particularly associated with the United States where the size of recent fines imposed on some well-known shipping companies has not only attracted the attention of the entire industry but also, sadly, of the public at large. The continuing lack of adequate waste reception facilities in some ports, despite the obligation of coastal states under MARPOL to provide them, is also a relevant issue, but it cannot be allowed to obscure the fact that these incidents are flagrant breaches of international law.

They say that confession is good for the soul, and this one is long overdue. But, there is another culprit.

The International Maritime Organization (IMO) promulgated the original technical standards for oily water separators in 1974. It also published a list of devices that met the standard. All a ship owner or shipyard was required to do (at least initially) was install an oily water separator that appeared on the list. When the water discharge standard was changed in 1992 from 100 parts per million to 15 parts per million, it appears that the IMO took the word of the manufacturers that only minor adjustments were necessary for most old OWS devices to comply. Ship owners and shipyards blindly installed and utilized whatever OWS could be obtained, so long as it was found on the IMO list.

Recently, the IMO acknowledged that the old OWS standard was inadequate. It promulgated a new, tighter standard. Oily water separators meeting the new standard are now on the market. They are much better able to deal with the mixtures of water, oil, solvents, chemicals, and waste commonly found in the bilges of ships. They provide significantly better monitoring and read-out features. And, they are less susceptible to by-passing and other manipulation.

The problem is that the IMO only requires installation of the new, improved OWS on ships built on or after January 1, 2005 or on older ships that replace their old OWS equipment. As a result, it is possible, even likely, that thirty years from now there will still be a few ship plying international trade routes with oily water separators that are inadequate. It is time for the IMO to step up to the plate and adopt an accelerated phase-out schedule for the old oily water separators. Only then will chief engineers be able to perform their demanding work without the constant fear of prosecution, fines, and jail terms.