

# The oily water separator

## An unlikely indicator for safety and quality

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*Safety and quality, one may ask? Isn't the purpose of an oily water separator (OWS) to protect the environment?*

*Of course it is - but if ever there were a distinct point at the intersection of the three grand themes of safety, quality and environmental protection, it is the OWS. And, although this equipment is usually out of sight and out of mind, maybe it should be more in the thoughts of marine superintendents and designated ashore. Located deep in bowels of the vessel, this most unlikely indicator reveals much in the way a vessel and a company 'walk the talk' (or not) of their ISM commitments.*

**T**he overarching concepts on oil discharge, oil residues and OWS are simple enough:

### 1

Marpol regulates discharge of oil from machinery spaces such that, outside of special areas\*, oil discharge is prohibited except when;

- the ship is proceeding en route;
- the oil content of the effluent is less than 15 ppm; and
- the ship has in operation an oil discharge monitoring and control system and oily-water separating/filtering equipment.  
(\*inside special areas the restrictions are more stringent)

### 2

The operation of any ship will most assuredly bring about a certain amount of oil residues (sludge) that must be accounted for. There are a limited number of ways of accounting for oil residues:

- they have been transferred to reception facilities ashore;
- they have been retained on board;
- they have been incinerated.

### 3

ISM requires a company to establish a safety and environmental-protection policy. Regardless of the specific wording of the company's policy, the overriding objective with respect to the environment is the avoidance of damage to the marine environment. This automatically infers an absolute intolerance to any deviations of practice with respect to Marpol. None. Zero.

These overarching concepts are simple enough. However, the tasks and requirements that relate to the fulfillment of the objective may be less so. These include, among others;

- creating useful and complete procedures for all oil and oil waste related activity;
- properly completing the oil record book;
- training in Marpol compliance and issues;
- maintenance and operation of the OWS, including adequate testing;
- maintenance and operation of the oily residue incinerator;
- scrupulous record keeping of tank soundings;

- waste output versus volumes purchased analysis; and
- minimising or eliminating leakage.

## Why an indicator'?

If the steering wheel of your new car came off in your hands as you were driving down the road, it would certainly raise questions about how the steering wheel itself had been installed. But would it not also raise questions as to the safety and quality of that car in general? If a company says it is committed to environmental protection but does not train their crew in these matters or audit for compliance, does this raise questions about their commitment to safety and quality as well? I think it most surely does.

One of the basic principles of quality management is leadership. Regardless of the company or organisation, large or small, it is the leaders who start the quality ball rolling. They establish 'unity of purpose' and set the course for the organisation. The leaders are instrumental in creating and maintaining a culture in which all employees are motivated and proactive in achieving the organisation's objectives.

For shipping companies, one of those objectives must be the protection of the environment. The leadership, be they ashore or onboard, cannot pay lip service to environmental protection and all the while turn a blind eye to deviations in practice. This not only undermines their credibility, but it reveals to all crew the contradictions between the ideals touted by the company and the real state of affairs. If these contradictions exist the crew will intuitively understand that it is OK to cheat or take shortcuts.

So, if I were to do an audit for safety and quality on a ship, I would start by heading straight for the engine room and the OWS. I would ask the chief engineer and other senior engine room staff about its operation. I would ask to see sounding records and the oil record book. I would ask about the training they have received in respect of the use of the OWS and Marpol requirements. I would look for discrepancies in waste output versus quantities purchased, as well as OWS

output parameters versus oil record book entries. I would query the crew on their perceptions of the environmental protection procedures and on the prevailing culture of compliance on issues pertaining to Marpol. If red flags are raised around the OWS, it clearly indicates a lack of commitment to the ideals of ISM – hence to both safety and quality in other areas of vessel operations.

## Legally speaking

If consistency and commitment to the ideal of environmental protection are not motivation enough; if the carrot of quality management and customer satisfaction (among others) is insufficient – then the stick of legal tribunals may add urgency to the equation. On 20 January 2009, the American courts confirmed their wide jurisdiction over foreign flag vessels, even if no discharge has taken place in US waters or if incorrect entries in the oil record book have been made, anywhere at any time.

‘It will be increasingly important for shipowners and managers to be vigilant in enforcing their environmental compliance programs, identifying and correcting improper discharge practices, and ensuring that a vessel’s required records are accurate and verifiable.’

*Maritime Alert*, 6 February 2009, Holland & Knight LLP (US law firm)

As a signatory to the Marpol Convention, the US has taken an aggressive stance on policing for compliance. And it is easy to see why. A quick overview of the port state control detentions conducted by US officials in 2008 reveals the following;

## PSC findings

- The oily water separator system failed to operate equipment properly when tested. Oil content meter (OCM) continually flashes alternating error codes indicating ‘repairs needed’ and ‘contaminated water’.
- Oil record book not maintained and with improper entries. Oil record book contains one page for the past five years and there are no receipts for discharge ashore.
- Crew is not familiar with essential shipboard procedures relating to the prevention of pollution by oil.
- Aft peak ballast tank was used incorrectly as a sludge tank. PSC officers observed crew bailing oily water out of

tank and into barrels. Master could not account for the origin of the oil within the tank.

- Oily water discharge piping leading to the overboard discharge of the OWS was found to contain thick oil sludge. While demonstrating operation of the OWS, crewmembers bypassed the oil sensing device.
- Excessive oil discovered throughout the engine room machinery spaces created a serious fire hazard.
- The vessel has a modified sludge transfer piping system that allows transfer of sludge into two lube oil storage tanks that are not recognised in the vessel’s international oil pollution prevention (IOPP) certificate.
- Crew was not familiar with essential shipboard procedures relating to the prevention of pollution as evidenced by the crew making several attempts to flush and clean the OCM without success.
- Vessel crew has installed a manifold onto the arrangement’s discharge side sludge transfer pump. The manifold has four discharge connections, allowing the transfer of sludge from the sludge tank to the bilge tank and several unauthorized tanks.
- The vessel has multiple overboard discharge connections. An additional valve and flange connection was added to the discharge manifold of the vessel’s sludge pump to rig additional portable pump for discharge operations.
- The vessel’s crew was transferring fuel oil (FO) sludge into oily water tank. Oily water tank not recognised by IOPP certificate for sludge storage. Crew stated insufficient storage for sludge. Total approved capacity for sludge oil is 2.2 cubic meters.
- Tanks designated for oil residues are at (or near) maximum machinery spaces capacity and are inadequate for the ship’s intended voyage.
- The vessel’s sludge oil storage tank’s water connection stripping pipe has been modified. A section of the piping was removed, and a flex hose was installed allowing for the transfer of sludge anywhere.
- The vessel has insufficient capacity for the storage of sludge oil. This lack of capacity resulted in the vessel making unapproved modifications to the sludge tank piping.
- Vessel’s safety management system has failed to ensure protection of environment. On multiple occasions, the chief engineer reported to company that the vessel’s sludge storage was nearing capacity and

discharge of sludge was required. The company failed to take appropriate action.

- An unauthorised discharge bypass device was discovered. The bypass was used to discharge sludge and oily bilge waste into the ocean using the fresh water generator discharge piping by connecting to a portable pump.
- OWS is inoperable posing a hazard to the environment.

This is truly a shameful litany of blatant disregard for the environment. But non-conformities such as these do not happen in a vacuum. Deviations of this proportion can only persist on a vessel with the tacit, if not active, accord of company management and vessel leadership. It is clearly a failure of leadership that is at the nexus – and when present, this failure cannot reasonably be confined to Marpol issues but most probably extends to safety and quality as well.

## It’s human nature

The Maritime International Secretariat has published a six page pamphlet that, although beguilingly simple, is chock-full of very effective guidance on the use of the OWS. Freely available online at [www.marisec.org/ows/](http://www.marisec.org/ows/) it is highly recommended reading for both management and shipboard personnel. One line in the pamphlet brings to the fore some interesting undercurrents that are worthy of further investigation:

‘Ship operators have ultimate responsibility for establishing a compliance culture within their companies, and it is important that every effort is made to ensure that seafarers do not engage in any illegal conduct in the mistaken belief that it will benefit their employer.’

Both a ‘compliance culture’ and ‘the mistaken belief that it will benefit their employer’ are different keys to the same lock. It is human nature to try to do the right thing, to do well in the eyes of one’s employer. If training and guidance on the use and maintenance of the OWS is lacking; if shore-based management are never on board asking questions; if audits are not performed on oil consumption and oily residue management – then the crew will take it upon themselves to do the ‘right thing’ which, at the end of the day, may well be the wrong thing. Through their inaction and silence, management will have telegraphed their intentions to the crew.

And what better example of the above than the US Coast Guard itself. In 2007, a former chief warrant officer in the US Coast Guard, a main propulsion assistant on a Coast Guard vessel, was indicted for lying to federal criminal investigators about his knowledge of the direct overboard discharge of bilge wastes into the sea.

His rank and duties made him one of the key persons in the engine room hierarchy. He later admitted having knowledge of the direct discharge of bilge wastes overboard. In all likelihood he could not have acted alone: some other engine room personnel must have assisted in the practice, because a reconfiguration of engine room equipment was necessary. Apparently, bilge wastes were transferred from the aft bilge to the deep sink and then overboard, bypassing the OWS.

But beyond the persons directly involved in the practice, what of the vessel's master and chief engineer? At the very least, they obviously did not ask the right questions. What of shore management? They most evidently were not preoccupied with ensuring compliance. As is often the case, operational personnel are targeted first and foremost as guilty parties – yet the true cause of the failure is actually much higher up the ladder. But my point here is somewhere else. If Coast Guard employees, with all of the resources and training that a top-notch organisation such as the USCG can muster, make these bad decisions – then, given similarly poor leadership,

anyone can. Both the lack of a compliance culture and the mistaken belief that their actions would benefit their employer were probably central in this and many other examples of OWS bypass scenarios.

## Conclusion

For companies of goodwill that want to do the right thing, nothing could be easier than to audit or give unambiguous guidance in respect of the management of oily residues. Simply put, all sludge must be accounted for, all transfers documented, and testing of the OWS must be an ongoing affair. Training in the use of the specific equipment and in the requirements of Marpol is necessary. But the equipment must also be of quality, function as designed and have enough resources assigned to ensure proper operation. If the OWS is malfunctioning – expect to pay for pumping out at shore reception facilities. Simply put, that is the cost of doing this business.

Any company official who wants to know how they measure up with respect to environmental protection has only to step on to the deck plates of the engine room and ask a few questions about the OWS. But the answers to such questions go far beyond how the company is doing with environmental protection. They will also likely indicate how it measures up in both safety and quality.

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## For your diaries

### May

**(07) UK**, Solent Branch, Warsash Maritime Academy, Evening meeting: e-Navigation: **enhancing safety, security and protection of the marine environment**;

Tel: 0207 9281351 email: pda@nautinst.org  
**(13-14) Latvia**, Maritim Park Hotel, Riga, **12th European Manning and Training Conference**;

Tel: +44 (0)20 7017 5511  
email: maritimecustserv@informa.com

**(15) Ireland**, Matheson Ormsby Prentice (Solicitors), 70 Sir John Rogerson's Quay, Dublin 2. Irish Maritime Law Association Seminar **Shipping - Prospects, Pollution and Piracy**; email: helen.noble@mop.ie

**(18) UK**, SE England Branch, Royal Cinque Ports Yacht Club, Waterloo Crescent, Dover, **Branch AGM** followed by **Return from the Antipodes**; Tel: 01304 372192

**(19) UK**, North of Scotland Branch, Shell Woodbank, Aberdeen, **Annual General Meeting**; Tel: 01339 741285

email: jeff.gaskin@orange.net  
**(19-20) The Netherlands**, Amsterdam Hilton Hotel, **Tugology '09**; Tel: +44 (0)1225 868821  
email: tugology@tugandsalvage.com

**(19-20) UK**, London, **2nd Maritime Corporate Social Responsibility**; Tel: +44 (0) 20 7369 1656  
email: melsom@navigateevents.com

**(19) UK**, SW England Branch, Royal Plymouth Corinthian Yacht Club, Madeira Road, Plymouth **AGM** followed by **The Isolated Mariner**;

Tel: 01752 585701 email: pwright@plymouth.ac.uk  
**(19-21) The Netherlands**, Amsterdam, **Ballast Water Management**; Tel: +44 207 981 2504  
email: mmulazzi@acius.net

**(25-29) Italy**, Cotone Congressi Genova, Genoa, **IAPH World Port Conference**;

Tel: +44 (0) 20 7017 4378  
email: maria.alm@toc-events.com

**(26-29) Singapore**, Grand Copthorne Waterfront Hotel, **Seafarers 2009 - Financial Crisis Today, Human Crisis Tomorrow - Are We Heading That Way?**; Tel: (65) 6514 3180

email: register@ibcasia.com.sg  
**(27) Piraeus**, Hellenic Branch, **Afternoon meeting - Paperless Navigation**;

Tel: 30 210 4292964 email: tarpon@otenet.gr

### June

**(09) Antwerpen**, Belgium Branch, Antwerp Maritime Academy, Noordkasteel Oost 6, 2030 Antwerpen, **The Human Element**;


Tel: + 32.3.458.29.30  
email: waltervervoesem@telenet.be

**(09) UK**, Southampton Master Mariners Club, 12-14 Queen's Terrace, Southampton, SO14 3BP, **Solent Branch AGM**;

Tel: 0207 9281351 email: pda@nautinst.org

**(11-12) UK**, Trinity House, Newcastle, **Nautical Institute AGM and MARS Seminar**;

Tel: 0207 9281351 email: sec@nautinst.org

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