

Pollution prevention

The role of the shipmaster

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Shipmasters are coming under increased pressure to comply with environmental requirements and pollution regulations. Regulations on waste from ships now include oil and sludge from bilges, cargo waste, garbage, air emissions and ballast water. Engagement between an owner, who may have an excellent safety management system (SMS) with high level commitment to the environment, and ship's staff can be a long tortuous trail. The owners may be in one country, the managers in another, manning agents in a third and training provided by a company elsewhere.

How are the master and crew to cope with this disassociation, on ships which may have been built and designed with equipment now outdated?

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board and presence of adequate reception facilities in port. There are important ecological reasons to try to reduce these operational discharges, especially in coastal waters and areas of international importance for the conservation of wildlife. However, to make this effective the motivation and empowerment of ships' staff to comply with the regulations is essential.

Port state control and other authorities are now seen to be vigorously pursuing violations of pollution regulations. As a result, companies and seafarers need to realise that the authorities will detect even the most minor violations of Marpol. Millions of dollars in fines are being levied and both company and seafarers can be liable to criminal prosecution and imprisonment. It is thus incumbent on companies to make their seafarers fully aware of the consequences of any illegal practices. Because it is critical to a company's financial risk, company management must send a firm message to their seagoing personnel that non-compliance with Marpol is not an option, particularly as coverage by P&I clubs is limited to that of accidental discharge. For example, a fine imposed for bypassing the OWS would not be covered by the P&I Club as it would be a violation of the provisions regarding construction, adaptation and equipment under Marpol. Most importantly, companies should provide resources and

auditing to ensure compliance.

A shipping industry guidance leaflet on the use of OWS notes that companies should establish a realistic operating budget for environmental compliance; provide meaningful and targeted training in environmental awareness and Marpol compliance; recognise the value of open communication with the crew and reward compliance; and address potential non-compliance (see p6).

Such guidelines address issues of specific training on relevant Marpol requirements, including supplementary training, documentation and establish formal policy documents and procedures on Marpol compliance and training. But are these guidelines being implemented? Are masters actually empowered by companies' SMS policies, or is the ISM Code perceived as owners complying with the regulations – and woe betide any master who causes extra expenditure in the pursuit of the policies in the Code? This article will address the issue of how shipmasters view the compliance of shipping companies with these guidelines and regulations, and how masters and crew need to be empowered to comply.

Background

In the US, the Vessel Pollution Initiative (Environment and Natural Resources

At the request of the Marine Environment Protection Committee (MEPC) of the IMO, the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) in their report No 75 (2007) estimated that of all sources of marine pollution, 12 per cent could be attributed to vessel operations and that 68 per cent of that amount could be attributed to fuel oil sludge from vessels. This equates to about 186,000 tonnes a year. Operational discharges of oil from ships depend on several factors including level of maintenance of ship and engines; presence of oily water separator (OWS) and other equipment; training and vigilance of ship's staff; storage capability on

SGCG

The Institute's Papers and Technical Committee operates an email correspondence group, the SeaGoing Correspondence Group (SGCG). Members who are currently active officers, and who would like to make a difference by offering their professional views, are asked to give feedback on a variety of technical and operational issues, typically between five and 10 times a year. If you think you can contribute to this professional forum, please contact David Patraiko for more details at djp@nautinst.org

Past topics have included navigation technology, routing, moorings, Colregs, training fatigue – and pollution.

**SeaGoing Email
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Division of the Department of Justice [DOJ]) is an ongoing, concentrated effort to prosecute those who illegally discharge pollutants from ships into the oceans, coastal waters and inland waterways. There are 15 US Federal pollution laws under which prosecution can be pursued, including OPA90, Clean Water Act, Ocean Dumping Act and the Migratory Bird Act.

Between 1995 and 2005, the DOJ prosecuted 30 criminal cases involving intentional discharge of oil, 21 since 2002 and has levied fines of US \$130 million since 1998. As Pierre Olney writes in his article in this issue (see pp 7-9): 'The DOJ does not excuse companies for the acts of crew members who deliberately disobey company policies and the law. It considers such misconduct as a failure of management to provide the oversight and resources necessary to ensure compliance with environmental regulations (p8)'. The view is that if a pollution incident occurs then the SMS procedures are not working.

The Assistant Attorney General for Environmental and Natural Resources Division noted in the prosecution of Norwegian Cruise Line in 2002, 'The sad fact remains that the practice of dumping waste oil and maintaining false log books has proved to be commonplace in the maritime and cruise ship industry'.

The perception is that some shipping companies are just paying lip-service to the regulations and not committing training and budget resources to waste management. This view by the US Coast Guard influences the prosecution of violations and results in high fines and penalties on mariners and owners. Other governments are pursuing non-compliances vigorously and, under the new European Directive on Ship Source Pollution 2005/35/EC, any discharge of polluting substances is to be regarded as a prosecutable infringement (see pp14-16). From the preamble to the Directive, 'The required dissuasive effects can only be achieved through the introduction of penalties applying to any person who causes or contributes to marine pollution'. A maritime industry coalition has challenged the Directive and the European Court of Justice is expected to make a ruling before the end of 2007 (see Nautex, in *Seaways* April 2007). In another development, the European Maritime Safety Agency (EMSA), under its CleanSeaNet programme, provides a European operational system for oil slick detection based on satellite-sourced images.

Seaways October 2007

Prosecutions

In recent cases, high fines have been levied on shipping companies, and ships' staff have been fined and even sentenced to terms in prison.

In December 2005, the crew of the *MSC Elena* used a 'magic pipe' to bypass the OWS. Owners were fined US \$10.5 million and the chief engineer was sentenced to two months in prison. In April 2006, the owners of the *Magellan Phoenix* were fined US \$350,000 on one charge of failing to maintain accurate records and the chief engineer was sentenced to one year and one day in prison. In the same month, a French court imposed a fine of €800,000 on the captain and owners of *Maersk Barcelona* as a result of an oil slick off the French coast. The owners maintained the spill was accidental and the result of faulty OWS, but this defence was not accepted: if the OWS is faulty it should not have been used. In May 2007 the *Nobel Fortuna* was fined CAN \$45,000 for illegal discharge of pollutant and failure to report the incident. The amount of pollutant discharged was estimated at 5.5 litres – which equates to over CAN \$8000 a litre.

It is not just oil pollution – garbage and sewage dumping from ships are now being prosecuted just as heavily and growing enforcement of air emissions and ballast water violations will only add to mariners' workload. In May 2005 the owners and master of the chemical tanker *Bow de Jin* were fined AUS \$15,000 for dumping one plastic bag of garbage. And in November 2005 the owners of the fishing vessel *Lynden II* were fined £2,000 for dumping garbage into the North Sea. This was for a first offence, the maximum for this offence is £25,000.

Non-compliance

Research conducted into the reasons of non-compliance with environmental regulations found several main causes. This research included comments received from officers in the Institute's SeaGoing Correspondence Group (SGCG) and published reports from the DOJ, US Coast Guard, Maritime and Coastguard Agency (UK), Transport Canada and Australian Maritime Safety Authority. The most common reasons for non-compliance are:

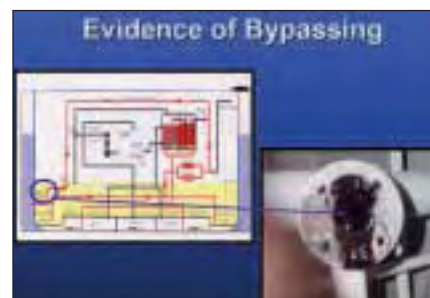
- **1. Poor maintenance of equipment** – particularly on older vessels where the OWS is not capable of coping with the emulsions and oil quality encountered today. Some OWS and associated



▲ Oily water separator



▲ Master's nightmare – sheen of oil next to the ship



▲ Evidence of bypassing



▲ Discharge to overboard



▲ 'Magic pipe' ready to connect

equipment were designed for the pre-1992 regulations where the discharge requirement was below 100 parts per million (ppm). The perception is that with poorer quality fuel and the many diverse substances which now end up in the bilges, the OWS and equipment is operating to standards (discharge requirement below 15 ppm) they were not designed for. Ships' staff are under increasing pressures just to keep the equipment operating. There is an opinion that some managers and owners consider maintenance of pollution control systems as being low-priority.

■ **2. Ergonomics.** Ships are designed to carry cargo. To increase the cargo space for the same size vessel, modern ships are designed with smaller engine rooms and smaller tanks to accommodate oily wastes. Smaller tanks reflects on the natural separation of water and oil, and this will impact on the efficiency of the OWS to get the discharge requirement below 15 ppm.

■ **3. Company/managers SMS procedures** are seen as a 'box-ticking' exercise, and any non-conformities relegated to the bottom of the maintenance/repair list.

■ **4. Some officers still have a 'can-do' attitude**, in the belief that they are saving money for the owners and asking for outside help reflects on their ability.

■ **5. Falsifying of records.** The perception of shipmasters is that this practice is still a widespread phenomenon. It is linked to mounting maintenance problems, equipment failures and poor design. Incorrect or mistaken entries in logbooks are also classified as falsifying records and will attract closer attention from inspectors.

■ **6. Out of date practices** – lack of inter-departmental communication, enforcement of rank hierarchy whereby junior ranks obey orders without question.

■ **7. There are also problems with waste reception facilities.** It is a common observation from shipmasters that services are expensive because certain countries and ports see the waste facility regulations as a way of generating extra income. Stringent shipboard practices are observed to far exceed those of many ports.

Industry advice

Bulletins, reports and policy initiatives from P&I clubs, flag states, IMO, and other industry organisations provide advice to owners and masters regarding compliance with regulations. One good example comes from Marisec; another is a flyer from the Marine Accident Investigation Branch: see box, top right.

Extract from OWS advice from shipping industry

- Focus on action to be taken by managers and operators to create culture of awareness of, and compliance with, environmental rules, within the company and its seagoing staff.

- Investment should be made into modern technology, upgrading of existing equipment and establishing a 'realistic operating budget' for environmental compliance.

Shipping Industry Guidance on the Use of Oily Water Separators Ensuring Compliance with Marpol (first edition 2006) published by Maritime International Secretariat Services Ltd. Available at www.marisec.org/ows

Extract from Marine Accident Investigation Branch (MAIB) flyer to shipping industry on the grounding of the *Kathrin* on 12 February 2006

- The operations manual lies at the heart of every SMS.

- Masters and crews must be made to understand that what the owners require in writing the ISM Code is actually meant, and is not simply a means of satisfying regulation.

- The integrity and importance of SMS may also be enhanced through a 'package' of ship visits, senior officer seminars and visits to company offices.

Solutions

Complying with numerous pollution and environmental regulations is a worthy but onerous task. All persons, both onboard the ship and ashore, have to work together to ensure companies and their employees not only comply with the regulations, but are seen to be proactive in their compliance. To achieve this they must take into account several factors:

1. Training. Both in-house and externally, training must be specific on the relevant environmental and pollution regulations. Some shipmasters in their comments pointed out there appeared to be no specific training targeted to complying with these requirements. However, some maritime colleges offer environmental training courses so these may need to be more widely advertised. While conscientious owners invest in state-of-

the-art ships and equipment, even some well-trained crews operate anti-pollution systems inefficiently. Masters would like to see training in various scenarios that spells out what the owners expect ships' officers to do in relation to specific environmental/pollution situations.

2. Adequate resources. Shipmasters report that in many cases there are no specific manpower or financial resources devoted to pollution requirements. Diligent crews make every effort to prevent pollution but if companies do not devote adequate resources to best practices and maintenance, ships' staff will find it easier to bypass the systems rather than comply with regulations, no matter how well informed and trained they are. If the root causes of pollution are the inadequate treatment and storage facilities on board, companies should install equipment further up the chain to reduce the amount of waste generated.

3. Ship-shore interface. The relationship with the designated person ashore (DPA) should be and, in the opinion of majority of masters is, a strong relationship. Most masters reported that they have regular meetings onboard ship and in the office ashore and feel that their DPA will assist, guide and help. Crucial to the success of an SMS is the idea that those most closely involved in its implementation should develop a sense of ownership of the system. This can only come from active participation and involvement. In this regard ships' staff should also have an input into writing of policies in the SMS. However, the MAIB report into the loss of containers on the P&O *Nedlloyd Genoa* in August 2006 noted that instructions contained in SMS are often well considered and intentioned, but full compliance with such instructions could sometimes be difficult for staff to achieve in practice. Managers, as part of their internal ISM audit, should check not only that their instructions are understood, but also that they are achievable with the manpower available. Senior staff from the owners and managers should make high profile visits to ships and reassure the ship staff that SMS systems are in place for the good of all. Having well developed environmental compliance plans in place will help ensure the company's compliance with pollution regulations.

4. Port reception facilities. While much improved in recent years, there are large discrepancies among countries and ports. Facilities range from excellent, where there are properly segregated bins for disposal of ships' waste, to certain ports

where the facilities are non-existent or are available only at a prohibitive price. The perception among ships' staff is that the enforcement of waste management regulations in ports is not as severely enforced as it is on board ships. Masters see the responsibility for waste management as being a joint responsibility with their owners/managers, who may be in a better position to arrange disposal facilities before the vessel arrives. Having adequate storage space for waste is seen as a problem for vessels trading between ports where disposal facilities are poor or non-existent. Improvement of reception facilities depends, at least partly, on the receipt of adequate information about alleged inadequacies. To this end, the MEPC has approved a format for reporting alleged inadequacies of port reception facilities in circular MEPC/Circular 469 of July 2005.

5. Oil record book (ORB) and garbage management logs. Insist on truthful logs. Again, owners should actively train their seafarers to avoid making the kinds of mistakes that lead to criminal charges. Inspectors have become extremely knowledgeable in detecting pollution violations, in particular the 'magic pipe' scenario and other tricks which have become normal over the years. However, many cases are prosecuted, not on the actual pollution infringement, but for lying to federal officials through false entries in the logbooks and cover-ups, which can easily be detected. Analysis of ORB records, OWS operability and OWS maintenance history, comparison of ORB entries with bridge logbook and tank sounding records are all investigative tools employed by inspectors.

Owners also collect this information through their SMS, but as it is recorded in different logbooks and spreadsheets it is not usually analysed. Owners should be proactive and have in place analytical

systems to track their ship's compliance and take remedial action to address any problems encountered.

6. Whistleblowers. Shipmasters see this in two ways. Those in favour of whistleblowing think it would wake up company management to the problems being experienced on their vessels. Others see it as a way for poorly paid, disgruntled employees to achieve undreamt of riches, through the publicity given to recent high rewards, such as the case of the *North Princess*. (In August 2007, four members of the crew were awarded US \$500,000.) However, the recent high-profile acquittal of *Captain X Kyriakou* and its owners, Athenian Sea Carriers, where the jury did not believe the testimonies of the whistleblowers, may reduce the instances of false claims: Nautalex, August 2007.

Owners and mariners should also note the USCG guidance for port state control examinations (G-PCV policy letter 06-01) which includes the following instructions to inspectors:

- Question the crew on how much waste oil and sludge is burned in the incinerator;
- Ask how ship disposes of sludge – ashore or incineration;
- Check for repairs or maintenance done to the equipment – check spares for indication of maintenance;
- Crew members' inability to successfully operate pollution prevention equipment may indicate the equipment is not routinely used.

The letter contains extremely detailed instructions – even the most minor non-compliance will be thoroughly investigated.

Conclusions

Ship operators have the ultimate responsibility for establishing a compliance culture within their companies, and it is important that every effort is made to ensure that their seafarers do not

engage in any illegal conduct in the mistaken belief that it will benefit their employer.

In a speech at the Maritime Cyprus Conference in 2005, Robert Ho, president of Fairmont Shipping (HK) Ltd said: 'it is very easy to blame the officers and crew for not adhering to SMS and other operational procedures should such equipment fail to perform. It is the easy way out.... Is it justified to place all the blame on the crew, when clearly the equipment and systems on board just comply with regulations, but are not actually equipped to do the job?.... Shipowners are ultimately responsible and should universally investigate and correct the situation by enhancing the layout and equipment currently on board.'

Shipowners should establish clear environmental policies and take measures to convince and motivate employees that they really do wish to comply with all anti-pollution legislation. Control procedures and devices alone cannot guarantee compliance.

Masters should be familiar with all company environmental policies and be confident they are empowered to enable them to comply with all regulations. If the master is in any doubt, he should be certain he can raise the issue with the company and be suitably empowered. This is after all a prime component enshrined in the ISM Code.

A shipping company that demonstrates to its ship's staff that it is sincere and committed to anti-pollution regulations and environmental compliance, will ensure that the master has the empowerment to comply and this will also avoid unnecessary suspicion when boarded by inspectors. A number of shipping companies are committed to these ideals and the masters of their ships feel very empowered in ensuring no violations occur.