

Corporate Irresponsibility?

Julian Longson, a Director of Pole Star / Purplefinder, argues that if the shipping industry is to become corporately responsible it must urgently establish fleet-wide Environmental Compliance Plans and to this end implement remote equipment monitoring and geo-verification using satellite communications.

Oil spills are synonymous with corporate irresponsibility and the authorities that regulate and monitor the shipping industry are adopting a zero tolerance approach to ship operators that are not fully MARPOL compliant. Port-State Control (PSC) attention is focussed on the strict adherence to requirements concerning the use of Oily Water Separator systems. International, Regional and National laws now treat oil pollution discharge from ships as criminal acts punishable by heavy fines and possibly imprisonment. In several recent high-profile pollution cases courts have imposed very severe penalties and these cases have demonstrated that a minimum compliance mentality is not enough to protect the environmental credentials of ship operators.

Magic pipes, ORB's and golden whistles conjure up images of Harry Potteresque scenes at Hogwarts School of Witchcraft and Wizardry. However, to the shipping industry they relate to more sinister practises of deliberate tampering of the Oily Water Separator (OWS), falsification of the Oil Record Book (ORB), and lucrative bounty incentive for whistleblowers...all from the School of Hard Knocks. This reality requires that ship operators establish an Environmental Compliance Plan (ECP) and implement remote equipment monitoring and geo-verification using satellite communications as a first stage of any risk management process.

Ship Operations and Marine Pollution

The objective of an OWS system is to separate oil from bilge water and to pump clean bilge water overboard and allow for storage and disposal of waste oil. An example of an OWS system is shown below:



The cause of oil pollution is complex with an array of contributing factors. Over the last 30 years, a three-phase incremental strengthening of OWS system regulations has placed the shipping industry in a position where, for older ships, it is now operationally difficult to meet the required levels of compliance. These ships have poorly laid out waste handling systems and insufficient holding tank capacity forcing operators to find alternate ways to overcome this problem - sometimes illegally. Sub-standard operators and crews are a factor, and poorly trained crews another. However, what is unambiguous is that increasing political and public concern over environmental performance is resulting in greater port-state diligence, with higher fines and longer jail terms for those convicted.

The UN joint Group of Experts on the Scientific Aspects of Marine environmental Protection estimates that an avoidable 68% of the marine industry's 12% contribution to the total level of

marine pollution can be attributed to deliberate discharge. Given this contributory level and fact that the effect and media coverage of oil pollution is visual, tangible and emotive, it is apparent that few other industries have a single comparable issue that resonates so negatively with the public as marine oil pollution.



Times are changing, and the shipping industry is fast realising that it is now totally unacceptable to operate ships in a substandard manner. If the shipping industry has a real desire to protect all of its stakeholders: the shipowners, operators and their crews, shareholder's and, of most importance, the environment, then ECP's are not optional, they are a necessity. Indeed, Corporate Responsibility and Risk Management (CRRM) as a management practice, incorporating ECP's, is increasingly being adopted by quality shipping companies to monitor and manage their environmental activities beyond the minimum statutory compliance requirement.

The Regulatory Environment

In 1974, the MARPOL Convention / Resolution A393(X) first mandated OWS systems for use on ships. An associated requirement was established for maintenance of an ORB to keep track of the OWS utilisation and disposal of the ship's oily waste. The system was designed to reduce the oil in discharge water to < 100 ppm, and this proved generally effective.

In 1992, MARPOL 73/78 Resolution MEPC.60(33) strengthened the discharge standard to 15 ppm. OWS systems were re-tuned from their old 100 ppm devices to achieve the new 15 ppm requirement, achievable in factory tests but more problematic at sea.

In 2003, MARPOL 73/78 Resolution MEPC 107(49) set even stricter performance standards for OWS systems, including: the provision of a certified bilge alarm or Oil Content Monitor (OCM) for internal recording of alarm conditions, the OCM to be tamperproof, the OCM alarm to be activated whenever clean water is used for cleaning or zeroing purposes, and the OWS capable of achieving 15 ppm on type C emulsion.

These MARPOL regulations have or are being incorporated into regional and national laws that go as far as criminalising *accidental* oil discharges, and those States at the forefront include the European Union, United States, Canada, and Australia.

United States Port-State Control – the test-case and the mega-case

The United States, through its regulatory enforcement and judicial bodies e.g. the US Coast Guard Port-State Control and District Attorney's offices, has been leading by example in the regulatory enforcement process.

In a 1993 test-case, the USCG observed oil discharging from a cruise ship on the high seas off Florida. In port a review of the ORB revealed no entry had been made relative to the discharge. After the ships' Flag-State declined to take action, the U.S. government charged the operator with

making a *false statement to a federal official*. In response the operator argued that federal law had not been violated since the discharge and the ORB entry were made while the ship was on the high seas and outside US jurisdiction. The court held that the false statement occurred when the ORB was presented for Coast Guard examination *while the ship was in a U.S. port*. The operator settled the criminal charge by payment of US\$ 9 million (and in a related case by payment of US\$ 18 million). No other shipowner or operator has since litigated an ORB charge.

In a 2005 mega-case, Evergreen International, S.A. paid US\$ 25 million in fines, the largest-ever amount for a case involving deliberate ship pollution. Evergreen ships routinely used bypass equipment to discharge oily waste and sludge oil, circumventing required pollution prevention equipment and concealing the discharges in fictitious logs it knew were inspected regularly by the Coast Guard. Four related Evergreen companies also will be bound by a detailed ECP to prevent future violations as a condition of probation. Criminal convictions increased over the period 1993-2005 and fines totalled a staggering US\$ 83 million.

A review of the operators who have admitted liability demonstrates that the issue is not restricted to substandard operators in general, nor is it the sole domain of either the operator or crew. It is apparent that some owners are ambivalent to illegal discharge, but have diligent crews who make every effort to prevent discharges. On the other hand, there are conscientious owners who have invested in state-of-the-art ships and provided expensive OWS systems and well-trained crews, and the very same crews are totally negligent in their operation of the system. In defence of some operators it must be stressed that some cases of illegal discharge have been as a result of faulty OWS systems.

Whistle While You Work

Recently a California Federal District Court awarded four crew members a total of US\$ 250,000 under the bounty provision of the Act to Prevent Pollution from Ships. The Act allows courts to award up to one-half of the criminal fine to those who provided information leading to the conviction. The award for informing the U.S. Coast Guard inspectors that the crew had been instructed to use an elbow pipe to bypass the ship's oil water separator, and a "magic pipe" to discharge sludge directly into the ocean, marks the latest in a series of substantial whistleblower awards in cases involving the magic-pipe bypass of an OWS system. The increasing frequency of successful prosecutions, significant criminal penalties, and strong incentives for whistleblowers to report discharges underscore the importance of adopting an ECP.

Remote Equipment Monitoring

Until the advent of satellite communications the ship, when underway, was generally isolated from the ship operator. Today, all ship operators are aware that satellite technology offers an extremely effective ship-shore communications tool and **the mantra of 'what gets monitored gets managed' is increasing being applied**. Inmarsat (www.inmarsat.com) is the primary communication service provider to the shipping industry and provides global, real-time, two-way services allowing an application service, such as Purplefinder (www.polestarglobal.com), to support powerful and cost-effective remote equipment monitoring solutions.

Remote equipment monitoring is currently not common practice in the shipping industry. However, an example of such a solution is the Ship Security Alert System (SSAS). The SOLAS Convention requires that all ships of 500 gross tonnage deploy a SSAS, which is essentially an integrated satellite transceiver and GPS with alert activations points / panic buttons. In its most simplistic form, when a panic button is pressed on the ship, the system automatically generates and transmits a security alert position report each 30 minutes to the Designated Person Ashore (DPA) until

deactivated. SSAS-type satellite communications equipment and OWS monitors are now being integrated to provide event-based information ashore. For any responsible ship operator utilisation of such a solution should form the first stage of any risk management strategy, and be incorporated into the ECP.

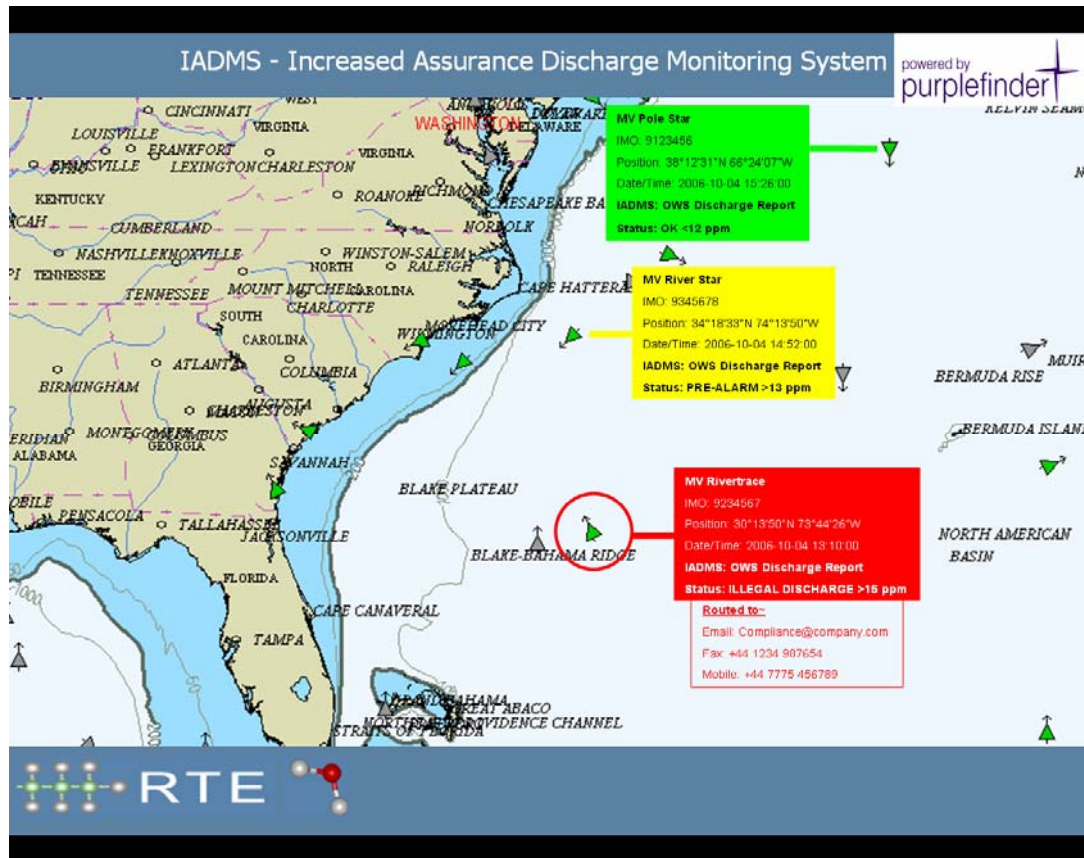
The Pole Star / Rivertrace Increased Assurance Discharge Monitoring System (IADMS) is an innovative integration providing tamper and operation-proofed assurance against illegal oil discharge. The IADMS and satellite transceiver are shown below (not to scale):



The system extends the alert logic of the SSAS, so as opposed to transmitting an after-the-event illegal discharge position report akin to the security alert position report, the discharge is avoided altogether as the IADMS / OWS monitor transmits a discharge request message containing the ship's position to the Purplefinder application service each time the OWS is started. The discharge request message is automatically geo-verified against a restricted discharge zones database and returns a control OK / NOK discharge response message back to the OWS monitor. If NOK, the IADMS keeps the 2nd diverter closed until an OK is received. If OK, the IADMS allows discharge to take place and repeats the discharge request process each 15 minutes. The DPA is instantaneously informed by email, fax and SMS and the Master is also informed by Sat-C message. This process prevents any unauthorised, unintentional or malicious attempted operation of the OWS system. **Remote monitoring is by exception in order not to overburden the DPA and keeps communication costs to a minimum by transmitting only what he or she really needs to know** e.g. when there is a system fault, the OWS monitor is off, an illegal discharge, or illegal discharge request been made. An example of the on-line Purplefinder application service interface is presented below.

To be tamper-proof, all aspects of the discharge process must be monitored including OWS control, oil content output, flow rate and cumulative flow through the discharge pipe. Only by monitoring these parameters, with strategic positioning of the output flow meter and integration with the Purplefinder application service to enable remote equipment monitoring, will illegal discharges be prevented and increased assurance guaranteed.

Pole Star's range of marine fleet management and security solutions business has progressively grown and now comprises over 500 shipping companies operating in excess of 10,000 vessels. Core to this success has been our proprietary Purplefinder web application service - a secure, reliable and cost effective system. Purplefinder is now being incorporated into business-to-business solutions to enable global, real-time monitoring and exception-based reporting of such parameters as equipment vibration, and geo-verification of OWS, Ballast and NOx/SOx operations.



References:

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