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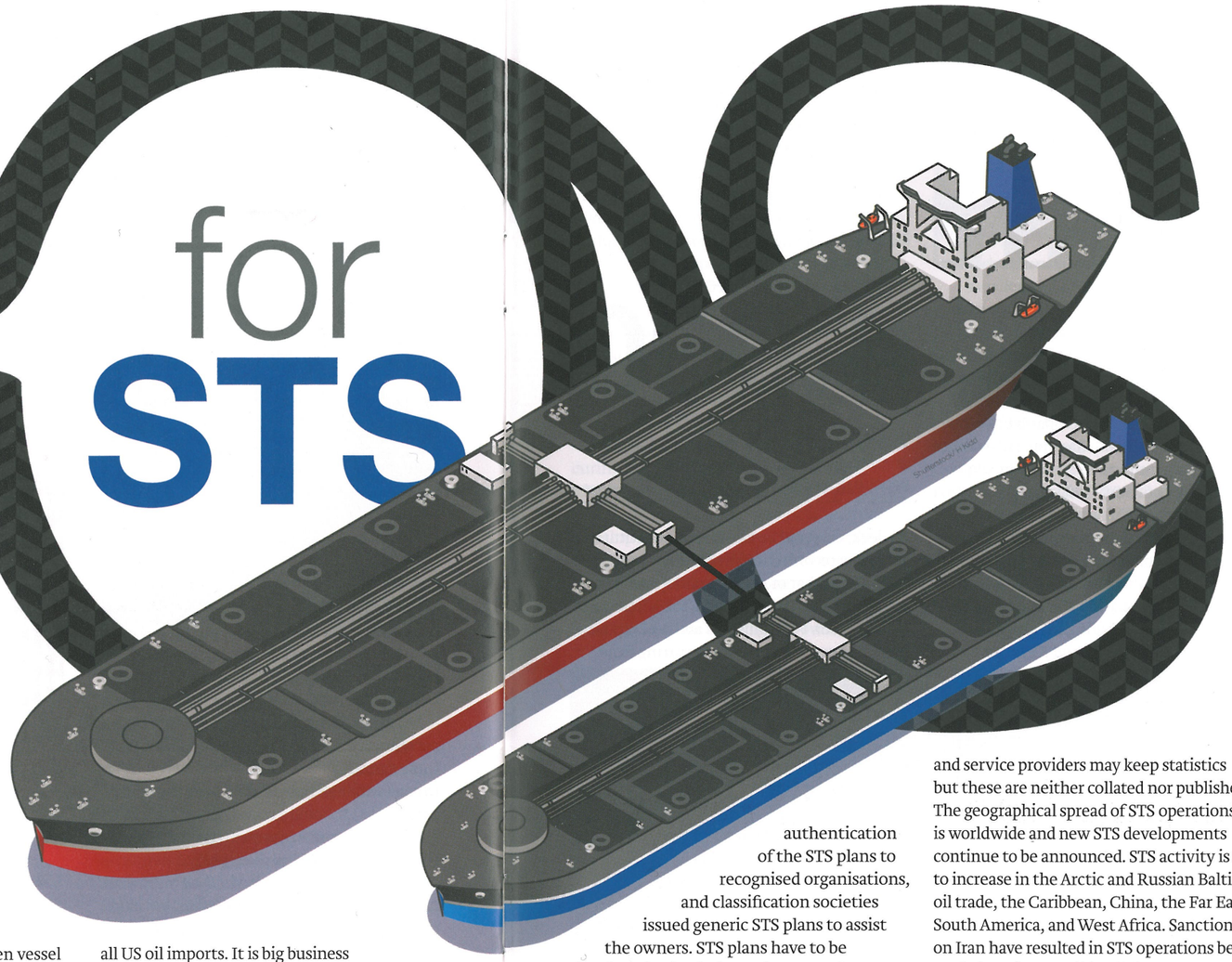
SOS for STS



Ship-to-ship transfer operations are on the rise, yet many of the risks remain unknown. ***Chris Spencer*** reviews the latest guidance, while also exposing the gaps that have yet to be addressed

Ship-to-ship transfer, or STS, also known as 'lightering operations', is an essential activity carried out daily in many parts of the world. However, many of such operations are outside public scrutiny and thus the activity as a whole represents a risk that is seldom assessed.

STS operations are usually associated with the transfer of crude and refined oil products. Also, LNG is being transhipped in large quantities along with LPG and dry bulk cargoes. STS operations take place within port limits; offshore within territorial or exclusive economic zone (EEZ) waters; and in international waters. A conventional STS operation is when a fully loaded vessel is discharging to a receiving vessel in ballast. Reverse lightering is where the laden vessel discharges to a receiving tanker to 'top off'.

The STS operation involves the approach manoeuvre and coming alongside another vessel, together with mooring, hose connection/disconnection, transfer of cargo, and unmooring/unberthing. Manoeuvring alongside another vessel is often outside a master's experience.

Historically, STS oil transfer operations occurred due to local port draught limitations. The practice is increasingly used for commercial reasons where vessels are used for transhipment or storage, enabling cargo owners to capitalise on commodity price changes. The US Gulf STS transfer market is said to be responsible for more than 25% of all US oil imports. It is big business and the practice in the US Gulf is strictly regulated. However, these high standards are not always replicated elsewhere.

This is one of the reasons why in January 2011 the IMO, through Resolution MEPC.186 (59), amended MARPOL 78/73 Annex I introducing Chapter 8. Regulations were added regarding the prevention of pollution during transfer of oil cargo between oil tankers at sea – while under way or at anchor – compliance of which was obligatory for all tankers over 150gt by April 2012. The tankers were also required to have an approved STS operations plan and advise the appropriate coastal state that the STS operations were occurring.

Most flag states have since passed over the authentication of the STS plans to recognised organisations, and classification societies issued generic STS plans to assist the owners. STS plans have to be developed using industry best practice, which the regulation identified as the *ICS/OCIMF Ship-to-Ship Transfer Guide (Petroleum), 4th edition 2005* and the *IMO Manual on Oil Pollution Section 1, Pollution* published in 2011. The ICS/OCIMF guide was published in 1975 and is being updated this year. The revised version incorporates the previous SIGGTTO guides for LPG, LNG, and chemical cargoes.

The scale of STS activity

Neither regulators nor any of the major maritime trade bodies keep statistics on the number of STS operations, incidents, or near misses. Individual oil companies and service providers may keep statistics but these are neither collated nor published. The geographical spread of STS operations is worldwide and new STS developments continue to be announced. STS activity is set to increase in the Arctic and Russian Baltic oil trade, the Caribbean, China, the Far East, South America, and West Africa. Sanctions on Iran have resulted in STS operations being carried out in areas 'friendly' to Iran. STS operations will rapidly increase in the near future as a result of a huge increase in LNG shipments, financial, commercial, and price trading opportunities.

Recognised service providers supply the 'superintendents' or mooring masters, support vessels, and appropriate hoses and fenders. They assess the risks and put together the combined STS plan. A leading STS service provider estimates that 12,000 oil and gas STS operations were carried out in open sea assisted by recognised service providers in 2012 (excluding the US Gulf, the China coast, and STS carried out in port areas).

The number of STS operations being carried out is unknown. The same leading STS service provider estimated that another 4,000 STS operations per year may be conducted without an acknowledged STS service provider. Anecdotal and claims evidence submitted to insurers suggests that these figures are plausible. Some of this STS trade may be legal, or will be aligned to illegal activities such as cargo theft or changing bills of lading, for example avoiding sanctions, customs duties, and taxes. Some STS operations could simply be keeping the activity hidden from regulators and oil majors, using sub-standard ships or ships not accredited in the Ship Inspection Report Programme (SIRE) system.

Most STS operations will take place using double-hulled tankers; however, single-hulled tankers are still being used as 'storage' units (for example off Singapore) and these may be stationed close to port limits. These STS activities, though legal under the existing rules, raise questions of the risk of pollution and insurers should evaluate the risks that these ships present. Although they are designated barges as they are used purely as storage tankers, they may still be single-hulled.

68%

➤ STS incidents due to mooring failures in one sample Dynamarine

Certain STS operations in West Africa (for instance in the Gulf of Guinea) and Southeast Asia are conducted without complying with the ICS/OCIMF guidelines. This has been highlighted during the past two years following acts of piracy when ships involved in STS off West Africa have been hijacked and, ironically, STS transhipment has been used to offload the stolen cargo to small tankers. Service providers and ICS/OCIMF maintain that security is the owner's responsibility. Owners should be aware of the security risks that STS operations can present and provide for these risks. A substantial number of STS operations in these areas are compliant with the guidelines and use approved service providers.

At present, no international standards for STS service providers exist, although an applicable ISO accreditation may give assurance that an STS service provider has the necessary resources and experience. The

The STS plan

A ship's STS plan approved by a recognised organisation is a substantial document integrated into the company ISM. The plan should include:

- Ship particulars and relevant information
- STS management, including policies, control, and use of STS service providers
- STS transfer areas, coastal state requirements, notifications, and approvals
- Weather operating parameters
- Ship compatibility requirements
- Equipment: fenders, hoses, mooring, cranes, and lighting
- Language, pre-arrival, and completion communications, and communication failure procedure
- Safety and emergency procedures, including oil-spill contingency and incident reporting
- Operational procedures before arrival, manoeuvring, mooring, and unberthing
- Cargo transfer and paperwork procedures
- Check lists, documentation, and record keeping.

shipowner should ensure that the service provider can meet their needs. In 2011, ICS/OCIMF issued the document *The Ship to Ship Service Provider Self Assessment Guidelines*, which advises service providers for STS operations and introduces self-assessment methodologies.

The quality of the service providers vary. Shipowners should ensure that when they charter their ship the STS operations will conform to the latest ICS/OCIMF STS guidelines. The service provider will be arranged by the charterers and compliance with the ICS/OCIMF guidelines will be obligatory. Considering the significant 'unknown' risks for a shipowner involved in an STS operation, for example the quality and experience of the STS service provider or the other vessel involved *and* compatibility of the ship's STS plan, an owner has much to evaluate when entering into an STS agreement.

The Greek company Dynamarine provides assistance to tanker owners in evaluating the risks associated with STS operations and practicable assessment of STS records. Owners anonymously and confidentially share their STS information and experiences, including incidents and near misses, so statistics and KPIs can be produced. The service provides owners with a screening report prior to each STS operation, which analyses the risks and assessment of the STS operation, including the past STS performance of participating vessels and their managers. An assessment of the service provider vis-à-vis the ICS/OCIMF guidelines is also supplied. This includes a record of previous performance, qualification, and assessment of the mooring master's experience.

As the database grows, the information will become more useful and could be a valuable tool in properly assessing the risks of STS operations.

Although the STS sample size is relatively small, the data provided by Dynamarine is interesting. Only 4% of the STS operations resulted in an incident; 50% were conducted solely at anchor, 37% manoeuvring with both ships under way and then at anchor, and the remaining 13% solely under way throughout. Sixty-eight per cent of incidents were due to mooring failures, 15% were due to vessel collisions, and 5% communication failures. Fender failure, hose failure, oil spill on deck, or vessel blackout each constituted 3% of the recorded incidents. Considering just the number of estimated STS operations conducted outside port areas, the US Gulf and China, about 100 collisions and 435 mooring incidents per year could be occurring from STS operations. One in ten of the fendering arrangements were not compliant with the ICS/OCIMF guidelines. Although these are extrapolated figures from a small STS sample, they do provide insight on safety, operational, and bridge procedures.

4,000

STS operations per year may be conducted without an acknowledged STS service provider

An IHS Fairplay source

Addressing gaps in the guidance

The *ICS/OCIMF Ship-to-Ship Transfer Guide (Petroleum), 4th edition 2005*, is the primary reference for STS operations. However, there are some areas that require expansion.

The STS transfer operation should be under the control of one person in overall advisory control (POAC). This could be either of the masters on the ships involved or a third-party STS superintendent. The POAC is designated to assist the masters in the manoeuvring, mooring, and unmooring of the ships and to co-ordinate and supervise the entire transfer operation. It is not intended that the POAC relieves the ship's master of any of his duties or responsibilities. This relationship should be fully understood by the ship's masters and guidance provided through training by the company.

OCIMF

The UK Marine and Accidents Investigation Branch (MAIB) report on an STS collision off the UK coast in 2009 advised that "the growth of STS operations worldwide, and the diversity of the products transferred, have resulted in the participation of many crews who are not experienced in this activity. In turn, this has led to the reliance on superintendents to assist inexperienced masters."

Additionally, there have been fatalities during STS operations where personnel, often sub-contracted, such as surveyors and supercargoes, were being transferred from one ship to another. Yet no coherent rules exist about this activity, for instance the use of the ship's cranes for personnel transfer is rarely addressed or mentioned.

Likewise, there is ambiguity over STCW requirements for qualification and training of superintendents engaged in STS operations. This includes ship-handling experience or working hours.

Security is also a major concern in some areas and owners should ensure that they address this with other stakeholders. Compliance with the International Ship and Port Facility Security (ISPS) Code during an STS operation off West Africa is certainly not going to deter Nigerian pirates.

Due to there not being enough ship-handling courses available to train masters in STS ship handling, owners should consider formal training regimes to address this. Finally, incident and near-miss experiences should be collated by trade bodies to benefit the industry.

Further Reading

- *ICS/OCIMF Ship-to-Ship Transfer Guide (Petroleum), 4th edition 2005*
- *ICS/OCIMF Ship to Ship Service Provider Self Assessment Guidelines*
- *IMO Manual on Oil Pollution, Section 1 – Prevention*
- IMO Resolution MEPC.186 (59): Amendments to the annex of the protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973

STS operations: key questions

Shipowners should test their knowledge of STS by asking themselves the following questions:

- Do you know the quality, knowledge, and record of the STS service provider and POAC?
- Have you had adequate time to review the service providers' combined STS plan?
- Do you know the quality and past STS performance of the other vessels involved?
- Do you understand the risks associated with a particular STS area?
- Do you know the quality of the equipment (fenders, hoses) supplied?
- Does the operation have adequate security?
- Do your masters and crew have the appropriate experience, including ship-handling abilities?
- Is your STS plan comprehensive and robust enough for the STS operation?
- Have you addressed the safety of personnel transfer to and from your ship?

US targets west coast tankers

Plans to greatly increase oil exports by expanding Canadian tar sands production prompted president Barack Obama to sign off on a proposal requiring the US Coast Guard to study the effects of higher tanker traffic moving in and out of the Pacific Northwest, writes ***John Gallagher.***

The proposal was part of the Coast Guard and Maritime Transportation Act of 2012, which president Obama signed into law on 20 December.

The risk assessment, which much be completed by mid-year, requires the commandant of the Coast Guard to assess the increased vessel traffic in the Salish Sea, including Puget Sound, the Strait of Georgia, Haro Strait, Rosario Strait, and the Strait of Juan de Fuca, that may occur from the transport of Canadian oil sands.

Maria Cantwell, a US senator from Washington State, pushed hard to make sure the study was included in the bill. "I am proud this legislation looks at the potential threat caused by supertankers and whether they are equipped to respond to a spill that could occur from corrosive tar sand oil," Cantwell said when the senate was discussing the bill in December. "A supertanker oil spill near our shores would threaten Washington State's thriving coastal economy and thousands of jobs," she warned.

Environmental groups hold much political clout in the region, and Kinder Morgan's plan to increase capacity on its Trans Mountain pipeline from 300,000bpd to 850,000bpd has many of the green activists worried that not enough has been done to prepare for the increased tanker capacity required to handle the expansion.

According to reports cited by Cantwell's office, the expansion could increase oil tanker traffic through the waters around the San Juan Islands and the Strait of Juan de Fuca by up to 300%.

"A single oil spill could take out an entire population of southern resident killer whales, whose migratory pattern matches the tanker shipping channel" in Washington, environmental consultant Fred Felleman told *SAS*. "Canada is hell-bent on exporting that oil to China, so we want to make sure the public is aware of the risks."

The study includes assessing whether transport of tar sands would require navigation through American waters, and which rules and regulations apply to super-tankers in US waters compared to Canadian waters.

In addition to assessing the spill response capability throughout the shared waters of the United States and Canada in the region, the study requires an analysis of the properties of tar sands oil, "which are likely different from other types of oil and therefore could require special cleanup technology", according to details of the proposal.