

A STUDY OF STANDARDS IN THE OIL TANKER INDUSTRY

AS PART OF SHELL INTERNATIONAL MARINE'S STRATEGIC REVIEW OF ITS ROLE IN THE 1990S, AN INTERNAL MULTI-DISCIPLINARY PROJECT TEAM WAS COMMISSIONED DURING 1991 TO ANALYSE STANDARDS IN THE OIL TANKER INDUSTRY, IDENTIFY HOW THESE COULD BE RAISED AND HOW SHELL COMPANIES COULD FURTHER PROTECT THEIR EXPOSURE TO LOW-STANDARD SHIPPING. MANY OF THE FINDINGS OF THE TEAM'S STUDY RESULTED IN INTERNAL RECOMMENDATIONS. THIS PAPER COVERS THOSE ASPECTS OF THE STUDY THAT MAY BE OF INTEREST TO INDUSTRY. IT OUTLINES THE ANALYSIS AND RECOMMENDATIONS OF THE STUDY WHICH ARE RELEVANT TO THE OIL TANKER INDUSTRY. IT IS RECOGNISED THAT SOME OF THE FINDINGS MAY REQUIRE FURTHER DEVELOPMENT BEFORE THEY CAN LEAD TO AN IMPROVEMENT IN STANDARDS. THE FINDINGS DO NOT NECESSARILY REFLECT THE VIEWS OF SIM MANAGEMENT NOR THOSE OF OTHER ORGANISATIONS WHO ASSISTED THE PROJECT TEAM. THEY ARE SIMPLY OFFERED HERE AS A STIMULUS FOR FURTHER CONSIDERATION BY THE READER.

Shell International Marine Limited

shipping industry in general and oil tankers in particular, and several potentially beneficial initiatives have been launched. Some of these are discussed in the following pages.

However, without wanting to appear unduly alarmist, the study noted several disturbing features:

- reports by underwriters and the managers of P&I Clubs and oil spill compensation funds that the size of claims has been escalating sharply in recent years; for example, the cost of tanker claims against IUMI members increased by 50% between 1987 and 1990
- the growing shortage of trained seafarers. (It is relevant that at least 80% of ship casualties are attributed to human error)
- the ageing profile of the world tanker fleet
- the increases in bulk carrier casualties and ballast tank corrosion
- the continuing impact of low returns from charterers on shipowners' financial and operational management. (It is relevant that for a fall of one point in 1991 Worldscale, the owner of a VLCC on long haul trades has \$0.25m per annum less to spend on maintenance and training.)
- casualties continue to occur despite today's tankers being required to carry some 40 valid certificates
- the increasing influence of legislators who believe that the way to reduce both the number of accidents and the amount of cargo outflow, is to tighten legislation, rather than to tighten the policing of existing legislation.

BACKGROUND

The study first assembled some relevant statistics:

	Source	Average Rates Per Year		
		1975-79	1980-84	1985-88/9
No. of Serious Casualties, Tankers over 6,000 grt	IMO	92	68	54
% p.a. of ships at risk		2.7	2.2	1.9
No. of Total Losses, Tankers over 100 grt	LR	28	22	15
% p.a. of ships at risk		0.4	0.3	0.2
No. of Oil Spills from Tankers, over 5,000 bbls	ITOPF	25	8	10
Accidental Tanker Pollution, Tonnes	ITOPF	458,000	123,000	120,000
Operational Tanker Pollution, Tonnes	IMO	700,000	N/A	158,000

See Annex A for an explanation of the abbreviations used.

These figures underline the considerable progress which has been made in the last 15 years, attributable to improvements in tanker design, procedures and training.

It would be comforting to think these trends will continue. Certainly in recent months there has been unprecedented attention to the question of standards in the

PARTIES INFLUENCING STANDARDS

Many factors contribute to ship standards – e.g. design, maintenance, manning, training, operational procedures –

and each such factor is subject to many influences, including international conventions, national regulations. Classification Society Rules, industry codes of practice, insurance considerations and financial pressures. The study did not attempt a detailed analysis of the importance, adequacy and areas of possible improvement in each of these factors. Nor did it seek wider comparisons, for example with the aircraft industry, because of the very different physical, regulatory and environmental conditions in which aircraft are built, licensed and controlled. Instead the study sought to identify the 'players' who influence standards, their traditional roles and how these roles are changing, their weaknesses and possible improvements. The players identified were:

- Seafarers
- Shipowners and Managers
- Shipbuilders
- Classification Societies
- Underwriters
- P&I Clubs
- IMO and ILO
- Flag State Administrations
- Port State Administrations
- Charterers and Traders

A traditional view of the inter-relationships between these parties is illustrated in figure 1.

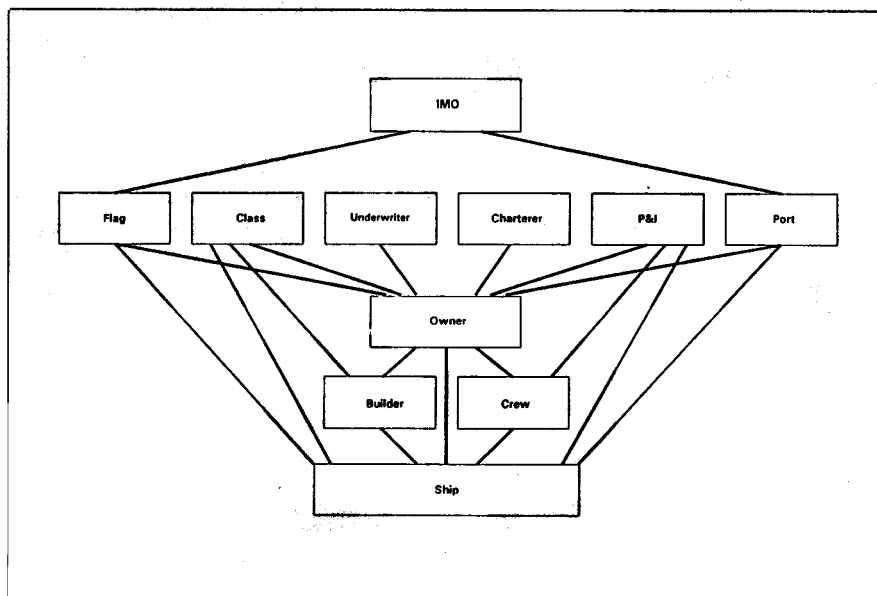


Fig. 1. Interrelationship of parties – traditional.

Seafarers

Even if common sense recognises that all ship casualties can be traced back to some human error or misjudgement in ship design or operation; most studies recognise that human error is the immediate cause of at least 80% of shipping casualties. Interestingly both ILU and P&I Club statistics suggest that even with hull

damage, human error was attributed as the immediate cause for 60% of their claims. Ultimately it always has been and will continue to be the seafarer who has the biggest influence on standards. Even the best designed and maintained tanker, its cargo and the environment are at risk with poorly trained seafarers, whereas good seafarers can go far to redeem a sub-standard ship. The 'ideal' ship's workforce is a highly motivated, trained and integrated team with undivided loyalties. The study recognised that some understanding of the underlying factors influencing seafarer performance is fundamental to improving industry standards. No exhaustive study was attempted, but the following factors were seen as important:

- traditionally training was restricted to officers; in some companies the selection standards and training of officers was and still is much higher than statutory requirements
- the seafaring profession is becoming less attractive to both new entrants and experienced staff, as ships spend less time in port and standards of living ashore increase
- this trend was seriously aggravated by the widespread cutback in the recruitment of European officer trainees in the 1980s

- it is generally accepted that with similar training and experience, most races/nationalities make acceptable ratings
- from the seafarers' point of view the biggest erosion of their potential to safeguard standards has been what they see as excessive reduction in numbers of both officers and ratings on older ships
- fatigue is increasingly recognised as a contributory factor to shipping casualties; few companies supplement numbers to cover periods of heavy workload
- senior officers are under ever-increasing pressure to maintain standards but at lower cost; in less reputable companies this results in increasing reluctance to report ship defects
- increases in ship size and lack of training/experience of superintendents and senior sea staff in 'new' companies mean a lessening in understanding of 'what the ship can take'
- there is no evidence that the attempts to date of IMO and ILO to regulate manning levels and standards of training and qualifications have had any beneficial impact; STCW is seen as largely window dressing.

The study recommended that in order to achieve meaningful improvements in the standard of seafarers:

- when selecting ships for charter, charterers should give preference to those owners investing in recruitment, training and retention of seagoing staff
- IMO should endeavour to minimise the consequences on standards of multi-lingual crews
- IMO should upgrade STCW standards and develop internationally enforceable minimum manning standards.

Shipowners and Managers

In the last two years a team from Shell International Marine has visited over 30 owners and managers of large tanker fleets. Naturally the outcome of such visits are a very confidential matter, but the study recognised that an overview of the practices and policies which characterised 'good' ship management would be a valuable insight into how contemporary issues can be handled by ship managers with the resources, commitment and skills necessary for their implementation. A summary of such practices and policies was accordingly prepared and is attached as Annex B. It is emphasised this list does not seek to be comprehensive or to reiterate the principles of good management

- pressures on manning costs are still forcing owners to reduce manning levels and recruit low cost seafarers from manning agencies, i.e. seafarers with little training from developing nations
- the result is that those officers who remain in the industry are ageing, and reduced in number per ship

to be found in the IMO and ISMA Ship Management Codes. The study recommended this list be considered by shipowners.

The study also sought to identify underlying reasons contributing to lower standards. The prime responsibility for the safety of a ship, after the Master, lies with the shipowner. Traditionally, shipowners combined the roles of financial ownership, ship management and crew employment; ships were maintained on the basis of a 20 year life, and decisions were made against a long term strategy.

The study identified the following factors which either directly or indirectly are contributing to lower standards:

- many of the traditional shipowning companies have gone out of business, and those that have survived have cut their shore staff substantially
- many of today's ships have separated financial ownership, management and/or crewing companies, thereby inevitably blurring responsibilities
- management decisions are increasingly made on the basis of short term financial expediency, such as tight budgetary control on maintenance and docking programmes and reduced frequency of ship visits by superintendents and of office visits by sea staff
- frequent fluctuations in fleet size jeopardise recruitment, training and ship continuity programmes and lead to increased use of sub-contractors
- increased use of the sale and purchase market ('asset trading') and changing crewing agencies, Flag registry and/or Classification Society inevitably detract from standards
- compliance with complex safety, environmental and other legislative requirements and frequent changes in company structure and procedure detract resources from basic responsibilities
- shipmanagers face the difficulties of absorbing an increasing diversity of specialist ship types and crewing cultures, and remaining profitable when fleets are withdrawn at short notice
- the increasing use of innovative financing can encourage short term maintenance policies which may benefit the immediate owner but are likely to cost dearly as the ship ages and, if not rectified, result in lower hull integrity and equipment reliability, to the detriment of crew, owners and potential charterers.

The study recognised that change of ownership, Flag and Classification Society, and/or the use of ship management

and manning agencies do not necessarily detract from good standards. It nevertheless recommended the potential risks inherent in these factors continue to be given emphasis when assessing suitability for chartering.

The study noted an increasing popularity of quality assurance programmes (ISO 9000) amongst shipowners, and in particular by ISMA and Intertanko. In contrast some responsible owners remain sceptical. The study had no doubt that QA has a place, but it is not a cheap answer to improving standards. A QA assessment can cover as much or as little as managers see fit, and need not necessarily embrace the full spectrum of safety management. Not least, successful assessment is no guarantee of safety standards, as the Piper Alpha incident demonstrated. The adoption of QA by shipowners should be voluntary rather than imposed by governments, underwriters or charterers. The study recommended that charterers should recognise the potential benefits of QA programmes when adopted for the right reason, but should not rush into making QA a charterers' requirement.

Most shipowners join national Chambers of Shipping which seek to influence their governments in keeping IMO conventions practical and the domestic fiscal regime competitive with those of other flags. These national Chambers are in turn members of the ICS. Over the years ICS, along with other bodies such as OCIMF and SIGTTO (and in many cases, with strong participation by Shell companies) have produced international industry codes of practice, for example the International Safety Guide for Oil Tankers and Terminals and the Bridge Procedures Guide. These codes remain the operational standards to which the industry operates, for IMO and national administrations lack the intimate knowledge required to keep up to date with developments in today's increasingly specialised tanker industry.

The study recommended that efforts to develop and up-date such codes are recognised as one of the major contributions that shipowners and oil companies can continue to make to improve industry standards.

Shipbuilders

The study did not probe the shipbuilding industry, but it noted that:

- the recession of this industry in the 1980s led to the loss of much experience as well as building capacity
- the depletion of owners' naval ar-

chitects and experienced superintendents has permitted shipyard designs to go unchallenged, allowing cost reduction through reduced scantlings and the increased use of higher tensile steel which have led to lower structural standards and shorter ship life

- during the shipbuilding slump of the 1980s yards had to minimise costs to attract orders, and in consequence some Classification Societies reduced scantling requirements to win classification work and stay in business; this led to a dramatic decline in structural standards, although this decline now appears to have been arrested.

The study recommended that major tanker owners continue to feed back and publicise structural problems through the Tanker Structures Forum, and to encourage Classification Societies to continue to improve scantling standards.

Classification Societies and IACS

Classification Societies perform a number of roles. The older Societies were established by shipowners to provide an independent service for the setting, updating and worldwide application of standards for hull structure and essential shipboard systems during the construction and life of the ship. The owner should thereby be guaranteed minimum standards for at least the essential parts of his ship. To remain 'in class' a ship must be constructed under survey and undergo Annual, Intermediate, Docking and 'Special' (five yearly) surveys to ensure that the structural strength of the hull, and the propulsion, steerage, auxiliary, ballast handling and other essential systems are likely to remain efficient until the next survey, given proper maintenance and operation.

An additional and most important role of the Societies today is that of contractor to the administrations of most Flag States to perform inspections and surveys required by Loadline, SOLAS and MARPOL surveys.

To fulfil these roles the Societies retain a large number of qualified and experienced surveyors worldwide, some as direct employees ('exclusive' surveyors), some in smaller ports as contractors who may also act on behalf of other Societies. These surveyors together probably amount to more than all the government, P&I Club and charterers' surveyors and inspectors put together, and thus represent the largest 'policing' agency in the industry.

However, it is important to realise that classification does not cover matters such

as ship stability or safety equipment, although most Flag States delegate responsibility for these matters to Classification Societies. Nor does class normally address cargo handling systems, accommodation design, manning, crew competency or operational procedures, and (with one notable exception) the Societies never seek responsibility for manning or operational matters.

The study understood that Classification Societies attribute failures in the structural condition of ships in recent years to:

- lack of will or ability by some owners to maintain ships at proper standards
- lack of understanding by some owners' staff of 'what a ship can take'
- because of their lighter scantlings, many ships built since 1980 can take less punishment by seas, corrosion and inattention to maintenance
- the demise of traditional companies has contributed to inadequate maintenance policies
- maintenance against arbitrarily fixed budgets results in low standards
- the increasing preference for repairs at sea which are not subjected to Class supervision and approval.

However, the study found the problems run deeper, for a ship to be 'in class' is not quite as black and white as it might seem:

- of necessity society surveyors can exercise discretion in the application of Class Rules, during building and subsequent surveys, and after damage/repairs; this can lead to inconsistencies in standards
- there is widespread belief that some individual surveyors, particularly non-exclusive surveyors, do not retain the impartiality that their employers profess and which charterers, underwriters and governments seek
- surveyors cannot conduct unannounced inspections or surveys without the owner's agreement nor, when invited aboard to inspect a specific defect or repair, can they inspect other parts of the ship without agreement and cooperation
- surveyors' work is increasingly frustrated by reduced times in port, owners' increased reliance on repairs at sea, and increasing intervals between dockings
- shipowners have a responsibility to disclose defects which may affect class, and when such defects have been rectified; but increasingly owners find it convenient to delay or even omit complying with this traditional and explicit responsibility because they fear their ship will be delayed

- shipbuilders and shipowners sometimes use the threat of changing to another Society when surveyors insist on repairs or renewals which involve 'excessive' cost or ship delay
- owners sometimes exploit Class Rules by negotiating one or more 'extensions' of prescribed intervals between periodical surveys
- survey reports are confidential between the Owner and his Society but are made available to Flag States on request and, with the Owner's consent, to other parties
- Classification is not a specific statutory requirement, nor is it necessarily a requirement for hull or cargo insurance, although higher premia would apply if the ship was not entered with a Society. Most charter parties only require the ship to be 'in class' at the commencement of the charter. P&I Clubs go further, suspending cover if owners fail to disclose to their Society defects which might require the Society to issue recommendations.

A ship may thus remain 'in class' even though not in compliance with Class Rules. Today there are 49 Classification Societies, of which 11 are members of IACS and only four of five can be regarded as having comprehensive rules and worldwide coverage. Strangely, while both underwriters and P&I Clubs 'prefer' the five largest Classification Societies, they do not find ships so classed to have better claims records. Some Classification Societies compete hard between themselves for ships and are loath to declass ships for punitive reasons (arguing that owners will simply move to a less stringent Society). However IACS members now claim to pass on details of the survey status when a ship changes Society.

As an organisation, IACS has never been seen as a strong voice in the industry, and has apparently lacked a collective will to raise industry standards. However, their recent decisions to require all members to submit to ISO 9000 and be audited by a panel of external assessors, and to establish a larger permanent secretariat, together suggest recognition of a need to be seen to be trying to improve the consistency of those standards for which they are responsible. On the other hand the study was disappointed to note the apparent caution by IACS for the recent OCIMF 'Recommendations Addressing the Structural Integrity of Oil Tankers' and the IMO 'Guidelines on Intensified Inspection for Oil Tankers'.

The study did not believe the respon-

sibilities of the Societies should be extended to include operational or crewing matters, and was aware that to up-date their procedures to take account of industry developments is difficult. However the study recommended the following to help improve the Societies' effectiveness in maintaining standards:

- continued review of scantling requirements (see sub 'shipbuilders' above) and requirements of periodical Surveys
- enforcement of requirement for shipowners to report significant defects promptly
- amendment of Society Rules to increase the stringency of Intermediate Surveys, especially with respect to ballast tank inspections
- amendment of Society Rules to allow surveyors the right of unannounced inspection
- amendment of Society Rules to allow underwriters access to all survey reports
- conduct of Intermediate and Special Surveys only by 'exclusive' surveyors
- IACS to agree much tighter rules controlling 'extensions' for Intermediate and Special Surveys; an obvious precedent is the SOLAS machinery for statutory survey intervals dating from year of build, with a maximum of three months' tolerance.

The study did not address the question of whether or not Classification Societies should continue to be funded by shipowners.

Underwriters and The Salvage Association

Marine underwriters offer Hull and Machinery cover for the ship, but generally not third party liability. Premia have traditionally been based primarily on the five year performance record of the owner, with no discount for voluntary safety features or procedures. Underwriters have legal protection of the owners' 'utmost good faith' in disclosing every material circumstance which would affect the underwriters' risk, and traditionally rely on The Salvage Association to investigate after casualties to ensure this warranty.

In the London market, still the largest in the world; just 20 underwriters 'lead' on new hull policies, but in recent years their experience has not saved the names in Lloyds and the institutions who are members of the ILU from large financial losses caused by:

- excessive competition from other insurance markets

- failure to lift deductible levels
- increasing claims for 'heavy weather' damage, the veracity of which is difficult to disprove
- major catastrophes in non-marine areas.

The study understood the major concerns of leading underwriters to be:

- the increasing age of the world tanker fleet
- the increasing number and duration of extensions being granted for Special Surveys
- decreasing standards of training and ship management, especially when financial ownership and operational management are separated
- bulk carrier structural strength and ballast tank corrosion

They are also concerned that, unless the industry puts its own house in order, legislative impositions such as double bottoms and QA will increase, not necessarily to the benefit of industry standards.

Underwriters are increasingly requiring the Salvage Association to survey those ships whose ownership causes them concern.

Lloyds and the ILU represent the UK Joint Hull Committee on the IUMI, but all these organisations have been inhibited in the past from concerted action to redress such concerns because of internal competition and fear of European competition laws and US anti-trust laws. However, there is apparently a fresh resolve that something must be done to improve the accountability of Classification Societies. The Joint Hull Committee's recent Structural Condition Warranty, invoking submission to a Salvage Association survey and compliance with recommendations arising, certainly gives underwrites a powerful sanction, but as the warranty is on a selective basis it perhaps indicates a symptom of the underwriters' concern about the standards on which they depend as much as a significant contribution to these standards being improved. A much more significant development would be adoption of the Joint Hull Committee's proposed warranty that Hull and Machinery policies include express warranties requiring:

- that the vessel remains 'in class'
- compliance with Class requirements concerning disclosure
- compliance with any Society recommendations/restrictions
- that owners report to underwriters any such recommendations, and any change of Classification Society

- that underwriters have the right to sight Classification Society records
- only a single extension of Docking and Special Surveys.

The study also recommended underwriters promote improved standards by:

- including the above warranty in all Hull and Machinery policies
- amending their premium policies to penalise non-IACS Societies and lack of visible efforts to achieve adequate management, training and operational standards.

P&I Clubs

Protection and Indemnity Clubs are mutual (i.e. non-profit making) insurance organisations, set up by shipowners to cover third party liabilities not covered by Hull and Machinery policies. The premia for Club policies are also dependent on performance, typically over eight years. There are 17 Clubs who are members of the International Group of P&I Clubs and who between them cover 95% of the world fleets. The Clubs maintain 'correspondents', often not exclusive, in most ports of the world, although these often have a commercial or legal background rather than nautical or technical qualifications.

P&I Clubs, like underwriters, rely on owners keeping their ships 'in class', complying with all statutory safety and manning requirements, and disclosing any breaches. But because of the escalating claims and increasing tendency for shipowners to 'shop around' the Clubs, an increasing number of Clubs are now analysing their claims statistics more closely, conducting their own surveys when ships leave lay-up, or when the managers fear 'all is not well'. Some Clubs have also embarked on a ship inspection programme, with the objective of raising members' awareness of safety standards.

The UK Club has reported an alarming increase in the frequency of claims from ships in the 10-15 year age bracket. There is concern about the extent to which the Classification Societies are still performing their traditional role of policing standards of ship structures (see above), and the extent to which the use of ship managers and frequent changes of ownership are lowering maintenance and operating standards. They welcome QA when voluntarily adopted, but would not reward QA certification with lower rates. While the Clubs do now exchange information when ships change clubs, like the Classification Societies they are reluctant to expel members (on the grounds they

would simply move to a less stringent Club), and are reluctant to restrict membership to named Classification Societies. They see charterers as having the greatest opportunity to improve standards.

The study suspected there is some discrepancy between the professed desire of the shipowner members of P&I Club boards to improve the standards of their ships and the standards their employees are actually seeking or managing to achieve. But given the apparent will at board level, the study recommended the Clubs' boards and managers should be encouraged to:

- accelerate their efforts to analyse further owner/ships records, seeking greater access to Classification Society records
- increase the number of Condition Surveys
- update their rating policies to take greater account of owners' efforts to improve standards
- resist claims by members failing to achieve basic maintenance standards.

IMO and ILO

These United Nations agencies are responsible for shipping and labour respectively. They develop and publish international agreements which when enforced by government administrations should establish a 'level playing field' on which the intensely competitive world shipping industry can conduct its business.

The constituents of IMO are 135 national governments, plus non-voting organisations such as ICS, OCIMF, IACS etc., and a large permanent secretariat. During the last 25 years IMO has produced over 700 Resolutions and 30 major Conventions and Protocols. Most of these address ship design matters, such as Load Lines, SOLAS (basic safety items) and MARPOL (prevention of operational and accidental pollution, including oil, chemicals, packaged goods, sewage and garbage). A complex series of Initial, Annual, Intermediate, Periodical and Renewal surveys are imposed to keep each ship in compliance with these main Conventions. Other IMO/ILO Conventions and Resolutions cover manning and procedures, such as the Collision Regulations, STCW, and the recent Guidelines on Management for the Safe Operation of Ships and Pollution Prevention.

IMO currently has 30 items on its work programme affecting industry standards; however, an increasing proportion of its work is for the benefit of politicians and

environmentalists rather than the shipping industry itself. However, like other UN organisations, IMO is suffering serious funding problems which are slowing the enormous tide of paper that emerges each year.

All IMO/ILO agreements need to be ratified by individual governments. Ratification of IMO Conventions and Protocols used to be a lengthy process, but today all those passed between 1965 and 1987 which affect tankers have been ratified and are now in force, except for three Protocols relating to oil spill compensation. However, it is important to recognise that:

- the ship design requirements are rarely retroactive to existing ships, for well-justified cost reasons
- most of the other agreements are very general in their wording, leaving individual governments to specify the details; some zealous governments add onerous interpretations; open registries often leave the IMO wording unchanged
- the enforcement of the resulting legislation has become a major burden to responsible government agencies and receives only token attention by the emerging nations and many open registries, although Liberia is a noteworthy exception
- administrations are entitled to delegate the issuing of Survey Certificates to the administration of any other country which is signatory to the relevant Convention/Protocol, or to Classification Societies or other agencies; the vast majority of Certificates are issued under these arrangements (see Flag State Administrations, below)
- the new double-hull requirements are being imposed by politicians on an industry already in financial difficulties, and while they may sometimes reduce cargo loss in event of hull rupture, they inevitably introduce new design, construction, operational, maintenance and crew safety problems.

The study recognised the inevitability of IMO responding to governmental pressure for improved environmental performance, but recommended industry participation in the IMO work addressing and containing the consequences of the present initiatives for double hulls, and as appropriate in other conventions under development. Experience has shown that the practicality of IMO drafting is a direct function of industry participation.

Flag State Administrations

The primary responsibilities of the administrations of the country with which a ship is registered, the Flag State, are the policing of the seven major International Conventions with which the shipowner has to comply – IMO's SOLAS, MARPOL, Load Line, Tonnage, STCW and Collision Regulations, and ILO's Regulation 147 on Crew accommodation and conditions. These form the backbone of the legislation of every Flag State, although most administrations, including the UK, delegate to Classification Societies the surveying and issuing of Certificates under the SOLAS, MARPOL, Loadline and Tonnage Conventions. The UK Department of Transport restricts this delegation to the five Societies with London committees (LR, ABS, BV, DNV and GL), but use their own surveyors to conduct all the SOLAS five year safety equipment surveys on UK Flag ships. However, many other administrations are less diligent.

Flag State administrations face increasing responsibilities:

- contributing to and implementing the outcome of IMO work, including many complex legal and technical issues over which shipowners and the seafarers' unions are in conflict
- recruiting and retaining staff with appropriate qualifications and experience (ironically not a problem in UK at present due to rapid reduction of UK Flag fleet)
- responding to the increasing tendency of shipowners to move their fleets from one Flag to another
- adequately supervising responsibilities contracted out to Classification Societies
- conducting Port State inspections and casualty investigations
- containing the widening division between country of registration and origin/place of business of shipping company
- fulfilling their responsibilities within budgets constrained by national economic pressures.

Some countries – such as UK (ferry safety) and USA (pollution) – embark on unilateral legislation which seriously impedes world trade as well as further taxing the overworked administrators. USCG has 80 separate projects arising from OPA90; ironically one of these was to ratify STCW.

It has been reported that prior to 1960, some \$300mpa was spent by traditional marine administrations in Europe, USA and Japan responsible for 80% of the

world shipping. Today 80% of world shipping is administered under government administrations whose priority is to make money from shipping and shipping services, while making only a token investment in safety administration. The accuracy of this statement would be difficult to check, but it is indicative of one of the main causes of falling industry standards.

The study concluded it was small wonder Flag State control is as weak as it is and recommended that IMO should be encouraged to:

- tighten the links between ship ownership and country of registry
- curtail the freedom of owners to 'shop around' between registries; until this is achieved Flag State authority will become increasingly meaningless
- improve quality and training of surveyors
- restrict authority delegated to Classification Societies, e.g. major surveys only by exclusive surveyors of Societies who are members of IACS
- publish lapses reported by own surveyors, Port State administrations, oil company inspectors, etc.

But it has to be recognised that while Flag States may delegate some of their authority to Classification Societies, they cannot delegate their responsibilities. If the Flag State does not ensure safety standards are maintained on ships under its registry, it cannot assume it has no sub-standard ships in its fleet.

Port State Control

The concept of Port State control – the random inspection of ships in port by the local administration – dates back to the 1929 SOLAS Convention. Today it is most organised in Europe, where under the 1982 Paris Memorandum of Understanding, 14 Flag States agreed to coordinate their Port State inspection programmes by exchanging information and implementing common standards and methods. Each of these states has undertaken to inspect at least 25% of ships visiting their ports each year, though no ship is re-inspected within six months (unless there are good grounds, e.g. crew complaints or suspected outstanding defects). When a choice exists, surveyors give priority to passenger ships, tankers and chemical carriers (no priority by Flag is allowed). A data bank is kept at St. Malo with on-line terminals to each administration. A small secretariat in the Dutch Shipping Inspectorate coordinates seminars every six months. It is claimed that over 80% of

ships using European ports are inspected each year.

Unfortunately, like so many other initiatives, the concept of Port State control is having only limited effect:

- nominally Port State inspectors are authorised only to check documentation and, since November 1991, operational procedures, though only 'when there is clear evidence of lack of familiarity with essential procedures'
- only Europe, USA, Canada and Australia exercise any degree of 'fear' amongst less scrupulous shipowners
- these countries are finding it difficult to recruit surveyors with experience in today's specialist ship types, and most other countries lack the surveyors to administer even a simple Port State control regime
- some individual surveyors tend to choose ships where they expect a civilised reception rather than those which they fear will be uncooperative
- administrations are apprehensive that over-zealous inspections and periods of detention can lead to unfair discrimination against ships flying their own flag
- even where the regime is effective, most deficiencies only result in the Master being advised to rectify the problem, and fewer than 5% of inspections result in the ship being detained or required to sail to a specific port to have the defect rectified
- except for the most flagrant breaches, when a ship may be detained (rare), the only other sanction – reporting to the Classification Society, Flag State and IMO – is often ineffective unless the ship happens to return to a port in its Flag State without rectifying the deficiency.

The proposal of USCG to examine company management under the umbrella of Port State control and use a 'model company' concept partly in lieu of ship inspections is a promising development, although there is some scepticism on how effective this will prove in practice. The study accepted that Port State control still offers considerable potential to overcome many of the problems today limiting the effectiveness of Flag State control, not least because detention is a much feared sanction, and recommended that:

- governments undertake Port State inspections more selectively
- Port State inspection deficiencies be published
- owners invite surveyors lacking tanker experience to visit their ships.

Charterers, Oil Traders and OCIMF

Among the traditional stabilising influences in the tanker industry was the long-term time-charter of ships by the oil majors. These encouraged owners to look to oil majors' design requirements, and provided secure income to underpin owners' more speculative voyage chartering activities and their timing of fleet scrapping and replacement. During the 1980s these influences waned, and at the same time the charter market became increasingly dominated by oil traders and national oil companies whose interests focus on short term results and whose staff are less experienced in chartering 'norms'.

Charterers have traditionally relied upon the legal responsibility under the Hague-Visby Rules for the shipowner to make his ship seaworthy and cargoworthy, and to properly man, equip and supply her. Charter Parties also require the ship to be in class and properly operated. In the many specialised areas of tanker trades, charterers through OCIMF have developed codes of practice on design and operating procedures, notably IS-GOTT, so that appropriate standards may be identified.

The division of responsibility between owner and charterer is delicate. Charterers have traditionally argued that shipping standards are and should remain the responsibility of the shipowner, notwithstanding developments such as charterers/cargo owners' liabilities under General Average, the TOVALOP clause in Charter Parties, the various oil spill compensation regimes and the Hazardous and Noxious Substances Convention now being drafted by IMO. The recent exposures to pollution liabilities in USA and the 'deep pocket' syndrome further underline the need for this division to be maintained. A less obvious example of the dangers of charterers unintentionally undermining owners' responsibilities is the apparent policy of some owners to increase expenditure on cosmetic items to satisfy inspections by Port State officials and oil company representatives, at the expense of 'unseen' neglect in ballast tanks. Although most owners recognise charterers' inspections as a useful supplement to their own monitoring of standards, a minority are tempted to use these inspections as an excuse to reduce the frequency of visits by their own superintendents.

The study addressed the concern frequently expressed by tanker owners that few charterers are prepared to pay a premium for 'quality' tonnage. It found that

while quality ships do command a small premium on the period market, there is not yet much sign of a two-tier market for spot fixtures. The reasons for this were thought to be:

- so long as the availability of shipping capacity exceeds demand, the spot tanker market will remain one of the most open in the world
- oil majors have a small and declining share of the tanker charter market and are thus not in a position to 'control' market rates, even if they wanted to
- some charterers do not recognise quality ships, while others are not prepared to give preference to a quality ship when they have a choice
- those charterers who are selective and prefer to fix 'quality' tonnage may not pay premium rates, but they do reduce the idle time of the quality ship and increase the idle time of lower standard ships, thereby helping to create a two-tier market.

The study found that charterers nevertheless have considerable opportunity to discourage low standards. This had not been so necessary when national administrations and Classification Societies were 'more effective', but today is of increasing importance. The study recommended that charterers use all means available to them to deter and avoid the use of sub-standard tankers, including:

- maintaining detailed data on all world tankers, when appropriate through operational inspections supplemented by in-depth discussions on standards with owners, but otherwise using published and factual data obtained from other charterers (in so far as legal constraints allow)
- detailed pre-charter and in-service surveys of time-charter vessels
- enforcing and auditing port/terminal safety procedures
- adapting above to charters of small ships
- developing and exercising ship casualty and oil spill contingency procedures.*

The study also recommended that oil company charterers should:

- give consideration to extending Charter Parties requiring the owner to exercise due diligence to report to their Classification Society all accidents and defects which might give rise to recommendations or conditions of Class being issued by that Society (as is al-

* Because of the considerable activity and development already in hand within Shell, the study did not pursue these matters further.

ready required by P&I Clubs and proposed by IUMI)

- actively support the current OCIMF initiatives to minimise charterers exposure to ballast tank corrosion on third party tankers.

Discussion

The above analyses suggest that the reasons for concern on shipping standards are many and often insidious rather than obvious or direct. Many can be traced to the demise of the dominance of shipowners and charterers with long term aspirations who recognised the inevitability of cyclical fluctuations in supply and demand, and who were able to provide continuity and self-discipline in maintaining standards.

Conceptually, the inter-relationship between the parties may be considered to have moved from that in figure 1 to that shown in figure 2.

traditional periodic inspections and surveys of Flag State authorities and Classification Societies, itself aggravates the workload of senior ship's staff, particularly with reduced staff numbers and short turn round time in port. This is especially acute when the inspectors are not themselves familiar with tanker practice and safety procedures, and/or when inspectors board immediately after the ship's arrival in port. This workload problem is potentially detrimental to ship safety. It is thus most important that shipowners and Masters are given proper warning of inspections and that inspectors recognise the impact their inspection may have on ships' staff.

CONCLUSIONS

The study sought to identify why industry standards are causing concern, and how standards might be improved. It found that the depressed shipping market

with long term objectives is being replaced by a survival ethos which has led most owners to cut manning and maintenance costs to the bone, and some owners to play one Classification Society against another and to exploit the lack of commitment/resources of the administrations of many open registries.

With shipowner influence dominating Classification Societies and P&I Clubs and the potential power of underwriters and national administrations neutralised by competition, the less scrupulous shipowner of today is able to pick and choose to the extent that traditional industry standards are no longer effectively enforced.

The study concluded that substantial improvement in standards will not come from increasing legislation, fines or insurance premia. Although legislation has always played a role in basic safety issues, national administrations have traditionally relied on the expertise and diligence of Classification Societies, shipowners and their employees to achieve acceptable ship design and operation standards.

Despite the temptation of legislators to regulate further, the international and competitive nature of the industry is increasingly undermining the effective policing of existing national legislation, even when based on IMO Conventions. The industry thus still largely controls its own destiny. But unless underwriters, P&I Clubs, Classification Societies, charterers and shipowners recognise and live up to the social responsibilities of today's world and the safety and environmental standards society demands, political pressures will continue to force legislators to usurp the roles of naval architects and ship managers.

All these parties must take a resolute stand to rid the industry of each sub-standard tanker. □

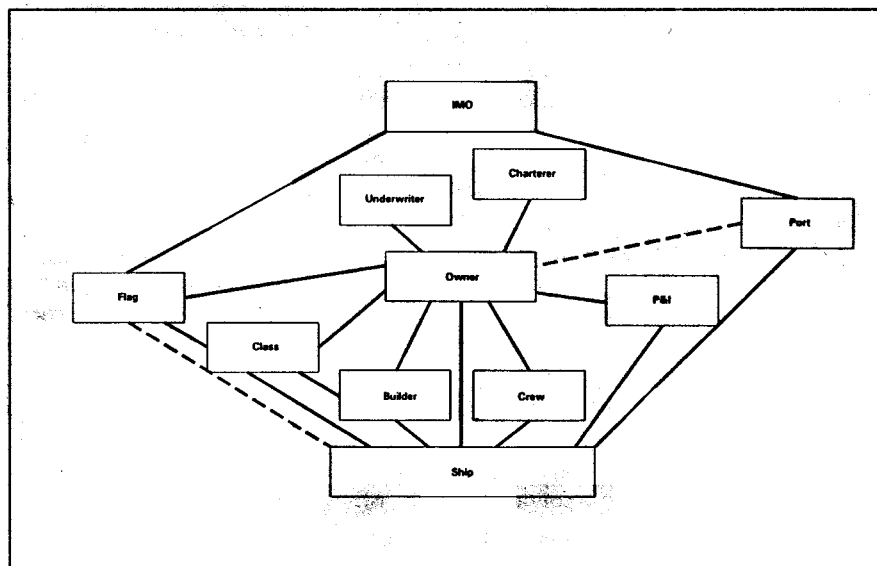


Fig. 2. Interrelationship of parties - de facto 1990.

Concurrent with these trends has been the increasing competition between individual underwriters, P&I Clubs, Classification Societies and Flag State administrations to retain or increase fleet size. This competition between the policing bodies of the industry has undoubtedly stimulated the growing disregard for many traditional practices of the industry.

The 'explosion' of inspections by Port State authorities, charterers and P&I Clubs, and of structural surveys by P&I Clubs and the Salvage Association, is evidence of the breakdown of trust in the industry traditional 'policemen', the Flag State administration and the Classification Society.

The development of such random inspections and surveys, additional to the

of the 1980s has led to fundamental changes in the structure of the industry. The dominance of owners and charterers

ANNEX A

Abbreviations

ABS	American Bureau of Shipping
BV	Bureau Veritas
cif	'cost, insurance and freight' contract of sale
DNV	Det Norske Veritas
fob	'free on board' contract of sale
GL	Germanischer Lloyd
IACS	International Association of Classification Societies
ICS	International Chamber of Shipping
ILO	International Labour Organisation
ILU	Institute of London Underwriters
IMO	International Maritime Organization
Intertanko	International Independent Tanker Owners Organisation
ISF	International Shipping Federation

ISMA	International Ship Management Association
ISGOTT	International Safety Guide for Oil Tankers and Terminals
ISMA	International Ship Managers' Association (ex 'Group of Five')
ITOPF	International Tanker Owners Pollution Federation
IUMI	International Union of Marine Insurers
LR	Lloyds Register of Shipping
MARPOL	IMO's Marine Pollution Convention
OCIMF	Oil Companies' International Marine Forum
OPA90	Us Oil Pollution Act 1990
P&I	Protection and Indemnity Clubs
QA	Quality Assurance
SIGTTO	Society of International Gas Tanker and Terminal Operators
SOLAS	IMO's Safety of Life at Sea Convention
STCW	IMO's Standards of Training, Certification and Watchkeeping Convention
T/C	Time Charter
USCG	United States Coast Guard
V/C	Voyage Charter

NB: 'Inspections' and 'Surveys'. These terms are considered by some to be interchangeable in the context of monitoring of ship standards. In this study the usage of 'inspections' relates to activities of a few hours duration, with emphasis usually on operational matters, while the usage of 'surveys' relates to activities of a day or more, with emphasis usually on the structural condition of the ship and/or its equipment.

ANNEX B

Good Ship Management Practices

This list summarises some practices and policies which have been adopted by some 'good' ship managers. It is not suggested that any one company adopts all these ideas.

Overall policy

Senior management commits itself to quality operation by demonstrating that it is a caring company which:

- looks after the health of its staff both on board and ashore
- shows concern for the safety of personnel and property by 'managing safety' properly and efficiently
- is committed to comprehensive training programmes
- is committed to maintaining its ships at the highest level
- has in place tight management controls and records covering all operations
- has in place tried and tested emergency procedure/contingency plans.

Health, Safety and Environment

A health, safety and environment policy statement issued to all company personnel both on board and ashore.

Health

Annual or biennial medicals for all staff by a company doctor or company sponsored doctor, including drugs and alcohol screening.

Safety (Equipment)

Comprehensive safety manuals, complemented by detailed safety circular programmes.

Nominated fleet safety officer who has the responsibility for on board training programmes using sailing safety instructors.

Safety committees on board with the basic agenda set by the fleet safety officer. Minutes sent to the office.

Safety audits every year by outside company like Marine Safety Services Limited.

Safety equipment condition check list, completed every two months, also forms part of the next docking list.

Environment

High level of company participation in environmental protection measures like IMO, MARPOL, HELMEPA (Greek Owners only), Garbage in colour coded bags. Incinerators on board, garbage disposal check list.

Personal safety

All accidents have to be reported including non lost time accidents so that detailed safety statistics can be produced. Management can then see whether their safety training initiatives are effective or not.

Extensive on board 'on the job' training programmes including videos.

Safety seminars in head office.

Any safety related incident is investigated and the findings are subject to a safety circular letter which is sent to all vessels.

Safety briefings for the senior officers prior to joining.

Regular newsletter which includes safety issues.

Training Programmes

Formal training courses for all ranks with a repeat of courses every two years held in the company's training centre.

Seminars and conferences held in head office or hotel.

Training by equipment manufacturers on board or in the factory.

Selected ships staff are brought ashore on a regular basis for special projects in order to assess their potential for shore appointment.

20/25% of the deck/engine superintendents spend two years ashore, e.g. as repair superintendents, in order that they can better appreciate some of the problems. They always return to sea after their tour of duty is completed.

Simulator training for ship and cargo handling.

Use of ships dedicated to training cadets.

Navigation and watchkeeping

Passage planning and the ICS bridge management guide. Double-check system.

Junior officers are encouraged to check vessel's position and orders whilst the Master is on the bridge and/or when a pilot is on board. Expect junior officers to alert Master/pilot if they think vessel is heading into danger.

Master is expected to use the Chief Officer in his capacity as second in command to relieve the Master when he is required to spend long periods on the bridge because of traffic or weather. Whilst most suggest that it is company policy it is not supported by written regulations.

Bridge watch check list.

Cargo handling

Cargo plan worked by Chief Officer and in some cases checked by the office.

Pre-loading/discharge cargo conference.

Pre cargo check list.

Junior officers are involved in cargo planning as 'on the job' training and as a check for the Chief Officer.

Extra officer or cargo superintendent placed on board in areas where there is heavy cargo handling involvement.

Records

Comprehensive company records and reporting procedures in addition to Flag State requirements.

Detailed sailing/arrival messages.

Regular reporting to office every 24/48 hours whilst at sea.

Log abstracts sent to office every month and are checked by each department.

Drugs and Alcohol

Detailed company policy posted on all ships noticeboards.

Pre-employment and annual/biennial medicals include drugs and alcohol screening.

As policy all vessels become dry 24 hours before arrival at a US port until 24 hours after sailing from a US port.

Drug search check list completed prior arrival at every port.

Officers and crew sign a blanket declaration which states that they have read and understood the company's policy on drugs and alcohol and accept the disciplinary consequences for any breach in company regulations.

Breathalysers are placed on board not for the purposes of undertaking random tests but as a defence for the officers and/or crew. Any accident to either property or personnel requires that all those involved including the Master and/or pilot are breathalysed.

Management Controls

Management visits to ships on a regular basis, normally every 6/8 weeks.

In addition to the routine visits at least two extra visits per year which involve full vessel inspection and equipment tests.

Ship's staff to visit office prior to joining vessel.

Masters hand over check list.

Staff seminars.

Operating superintendents regularly sail on ships for up to a week at a time.

Dry docking every 2 or 3 years.

Docking in accordance with latest OCIMF and IACS Guidelines.

Personnel reports on all staff by Master including what training has been carried out.

Emergency Procedures

Casualty contingency plan in manual form. One single emergency telephone number which is the duty officer. Manual should provide a check list for action in any particular event with primary contact numbers. Organisation flow chart detailing who might need to give support in a casualty situation.

Damage stability computer programme.

Media training.

Office filing plan detailing exactly where essential vessel data is kept.

Maintenance

Ballast Tank Structure

Tanks fully coated with coal tar epoxy plus back-up anode system.

A policy of 'maintain for life' i.e. assume the ship is never to be disposed of.

Consideration of fitting gas detectors in ballast tanks.

Pipelines

Cargo, ballast, crude oil washing and fuel oil lines pressure tested every year, date marked on pipe.

Ballast lines which pass through cargo

tanks pressure tested and inspected every ballast voyage.

Use riding crew of pipe fitters when necessary.

Inspection Policy/Procedures

Tanks designed with built-in access/walkways.

Dedicated team used for tank inspections.

Tanker structures guidance manual (OCIMF) kept on each ship.

Inspection equipment (Ultrasonics, lighting, rafts, access gear) kept on each ship.

Results recorded on computerised isometric diagrams.

All tanks inspected within 12 month period.

External/independent surveyor used, reporting directly to top management, as a check on own staff.

UMS instruments/alarm checked and sensors calibrated every six months.

All inspection procedures and results recorded.

'Rolling' defect list kept on board. Updated by superintendent at each visit and used as basis for docking spec.

Spare gear

One person left permanently in builder's yard to coordinate ordering of spares.

Reporting/management

All reports on all ships circulated to all managers and superintendents.

Wall chart of reports received and ships visited gives quick and simple warning of overdue reports/visits.