ABSTRACT

The International Convention for the Prevention of Pollution from Ships, 1973, drafted in London under IMCO auspices last fall is undoubtedly the most comprehensive and potentially promising step yet taken to prevent pollution to the seas by ships. While this convention is now open for ratification by nations, its very detailed nature has already caused studies to commence to identify the steps which must be taken to assure its practical and timely implementation.

This paper reviews first the essential provisions of the convention, stressing the technological elements relating to oil tankers. These elements include ships' operational and equipment features, as well as fundamental design changes for new tankers ordered after December 31, 1975. In addition, questions of reception facilities ashore will be considered. The paper will include a status report as fundamental design changes for new tankers ordered after December 31, 1975, as of the date of this conference, and governments toward bringing the IMCO 1973 convention effectively into force will be covered as well.

Much has already been written about the International Conference on Marine Pollution, 1973, which was concluded on November 2, 1973, after four weeks in London. This conference was conducted pursuant to Resolution A 176(VI) of the IMCO (Inter-Governmental Maritime Consultative Organization) Assembly adopted on October 21, 1969. The main conference objective was set out in IMCO Assembly Resolution A 237(VII) as being "the achievement, by 1975 if possible, but certainly by the end of the decade, of the complete elimination of the willful and intentional pollution of the seas by oil and noxious substances other than oil and the minimization of accidental spills."

As this paper is written, one year after the conference, it is our hope to add perspective to that event by a review of the International Convention for the Prevention of Pollution from Ships, 1973. This document—the 1973 IMCO Convention—was the principal product of the conference, and its future will largely determine whether or not the conference was successful. Despite 2-1/2 years of intensive preparatory meetings at IMCO, and conference attendance by more than 600 representatives from 79 nations, six other U.N. specialized agencies, and a dozen nongovernmental organizations, the conference and the convention which it drafted remain essentially unknown to other than actual participants and the marine community directly affected. In short, as U.N.-sponsored conferences go, this was not headline material, and many principals, even in the governments most directly concerned, have a vague understanding at best of the significance of the 1973 IMCO convention.

Nonetheless, it is our belief, and that of increasing numbers in industry, that this convention, once implemented, has the potential for being the most effective single international act ever devised for eventually bringing about effective control and prevention of noxious pollution from ships of all types. It is undoubtedly the most detailed set of pollution prevention standards and measures ever drafted for ships. Because of its great detail, many have already concluded that it will be many years before the new convention can be brought into force. We do not believe this need be or should be the case. We hope that by constructive and cooperative actions by both governments and industry, the 1973 IMCO convention will be effectively brought into force at the earliest practical date.

In order to analyze the above factors, this paper is divided into the following major sections:

The need for a new convention
Principal 1973 convention features
Requirements of the 1973 convention for oil tankers
Progress towards ratification.

As each of these topics is discussed, we will attempt to highlight the specific studies and actions taken by industry, with governments, to foster a realistic and cooperative approach to solving mutual problems in achievable ways.

The need for a new convention

There still are many, both in industry and government, arguing against the need for further pollution regulations. Proponents of the status quo have argued that there are more than enough regulations already. Nevertheless, oil and shipping industry critics seemingly have an inexhaustible supply of data describing the abuses under present regulations.

In our view, present international conventions and local regulations for prevention of pollution from tanker operations fail for one or more of the following reasons:

1. The 1962 amendments to the 1954 Pollution Prevention Convention fundamentally permit unlimited discharge of oil outside of its prohibited zones from all tankers constructed prior to the 1970s. For all tankers, even in the prohibited zones right up to the shore, discharges are permitted at a rate of no greater than 100 ppm (oil in water), and the total quantity is not limited. The 1954 convention as modified by the 1962 amendments represents the only present international agreement on this subject which is in force.

2. The 1969 amendments to the 1954 convention were intended to rectify the faults of the 1962 amendments by specifying a limitation on total quantity discharged per ballast voyage (1/15,000 d.w.t.), as well as a maximum rate of discharge (60 liters per mile). Both of these provisions would be applicable anywhere on the high seas, and they have been included in the new 1973 convention for all tankers other than new tankers. Nonetheless, despite initial agreement by the IMCO Assembly in 1969 and subsequent ratification by 21 nations controlling over 80% of the world's tanker tonnage, the 1969
amendments have not yet come into force since ratification by at least 32 nations is required to make them international law.

(5) The 1962 and 1969 amendments are so-called persistent or heavy oils so that aside from a few national regulations which can apply only in territorial waters, there is no present limitation on the discharge of nonpersistent light oil (gasoline, jet fuel, etc.).

(5) Neither the 1962 nor 1969 amendments specify the means or hardware by which discharge standards are to be met.

Each of these shortcomings has clearly been recognized by both industry and government advocates of the 1973 convention. To a large degree, the 1973 convention, once implemented, will correct these inadequacies. We definitely feel the new convention is needed since the shortcomings under present regulations are, unfortunately, all too evident, not only in the documents themselves, but in a continuing record of abuses under current standards.

Principal convention features

A comprehensive review of the provisions of the new convention was given in an excellent article by Admiral W. M. Benkert, published in Proceedings of the Marine Safety Council, USCG. We have taken the liberty of appending to this paper his table comparing the various provisions of the new convention with the previous 1954 convention and its various amendments. (See table 1.) Since Captain Sid Wallace has prepared a companion paper for this conference discussing the new convention, particularly in terms of its legal aspects, we will touch only briefly on these. The following key points, however, may be found useful as we discuss the convention further.

(1) Although we will be talking only of application to oil tankers, it is important to point out that the convention contains specific regulations for the prevention of pollution from ships of all types, and its coverage extends to all types of pollutants (other noxious liquid substances in bulk, hazardous substances in bulk, sewage, and garbage).

(2) For the first time an international convention has been drafted specifying not only permissible discharge standards but also the means by which discharges will be controlled. That is, not only are the objectives to be achieved specified, but also the means and hardware are clearly specified, particularly for tankers.

(3) The methods for enforcing the 1973 convention's provisions for offenses on the high seas are somewhat improved over past international agreements. However, in our view and in that of many in industry, a further strengthening is still needed. Only limited inspection rights are accorded to port states (in which foreign ships call) for alleged high-seas violations. Prosecution rights still remain solely with flag-state administrations. Various recent industry position papers, both before and after the convention, have expressed the hope that through the Third U.N. Law of the Sea Conference, stricter port-state enforcement rights will eventually be agreed upon.

(4) The new convention does contain a very powerful enforcement provision. Contracting states are permitted to deny port entry to foreign vessels (a) which are not in conformance with the convention or (b) which fly the flag of noncontracting states, thus ensuring that they do not receive more favorable treatment than vessels controlled by the convention.

(5) Finally, the new convention contains two extremely important provisions; first, in regard to being brought into force, and secondly, in regard to future amendment of its technical provisions and regulations. As stated earlier, the 1969 amendments have not become international law due to the large number of nations whose ratifications are needed to bring them into force. Recognizing this failure, the present convention will be brought into force 12 months after ratification by only 15 nations who, between them, control 50% of the gross tonnage in the world's merchant fleet. This formula offers the possibility for rapid entry of the convention into force compared to previous agreements. Furthermore, the new convention can be amended through a tacit acceptance procedure, initiated at regular meetings of permanent IMCO bodies without the need of holding future conferences. Thus, it should be possible in the future to quickly change the agreement, making it much more responsive to environmental and technological developments.

Other features of particular importance to tanker operations will be brought out as we discuss the specific convention requirements for tankers which are contained in table 1.

Requirements of 1973 convention for oil tankers

During the two years of preparatory studies at IMCO which preceded the convention, five alternative systems were examined for the control and minimization of operational pollution from oil tankers. These included:

Study I—segregated ballast tankers
Study II—membranes in cargo tanks to separate cargo oil from ballast water
Study III—retention of oil on board during ballast voyages, commonly referred to as load on top (LOT)
Study IV—cleaning of cargo tanks for clean ballast at tanker discharge port before sailing
Study V—installation of reception and processing facilities for oily ballast and slops at all tanker loading ports.

After considerable review at the preparatory IMCO meetings, the concepts of "in-tank" membranes (study II) and cleaning of dirty cargo tanks at discharge ports (study IV) were eliminated from further consideration as prime control measures at the conference itself. Each of these schemes, although theoretically promising, possessed substantial practical drawbacks, including possible adverse safety implications.

The final provisions adopted for control of operational pollution consist of a combination of the remaining three proposals (segregated ballast tankers, LOT, and reception facilities at tanker loading ports and at repair ports). These provisions, and the interaction between them will now be discussed.

The LOT system for operating ballasted tankers was developed by industry in the early 1960s and has been used since that time by an increasingly large proportion of the world's crude-oil tankers with varying degrees of success. LOT fundamentally involves carefully controlled handling of dirty ballast water and tank-washing slops in order to accumulate and retain the maximum amount of oil after gravity settling of this oil out of dirty ballast and wash water. While this operation is sensitive to the nature of the oil to be recovered, the weather encountered on a ballast voyage, and the diligence of a tanker's crew, it has indisputably been shown to be capable of recovering 98% to 99% of the oil remaining in a tanker following discharge of its cargo. In the absence of LOT, the amount of persistent oil that could be discharged to the sea in a typical ballast voyage would approximate between 0.3% and 0.6% of the tanker's d.w.t.—a quantity on the order of 1,000 tons or more for each ballast voyage of a large crude tanker. Properly conducted, LOT permits retention of this oil aboard the tanker at the conclusion of its ballast voyage. A new cargo of crude oil is "loaded on top" of these retained slops for discharge at the conclusion of its next loaded passage.

The problems encountered with LOT include the following:

(1) Since retained slops inevitably contain some sea water, these slops cannot be mixed with a new cargo in product-tanker service, as product contamination would result. Accordingly, LOT has traditionally been used only in crude service where a certain amount of water contamination is generally acceptable.

(2) A certain limited number of refineries have refused to accept crude cargoes containing water-contaminated slops resulting from the use of LOT. In such circumstance, the ballast-voyage tanker operator has no recourse other than to discharge the entirety of his oily slops to the sea prior to loading a new cargo; that is, of course, if there are no adequate slop-reception facilities at the tanker's loading port.
<table>
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<tr>
<th>Topic</th>
<th>1954 Convention (as amended in 1962)</th>
<th>1973 Convention</th>
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| Applicability as regards carriage of oil       | 1. Seagoing tankers over 180 gross tons.  
|                                                 | 2. Other seagoing ships over 500 gross tons. | 1. All tankers over 180 gross tons.  
|                                                 | 2. Other seagoing ships over 500 gross tons. | 2. All other ships over 400 gross tons including novel craft and fixed and floating platforms. |
| Dispute settlement                              | 1. Referred to International Court of Justice unless all parties agree to arbitration. | 1. Compulsory arbitration by specially formed tribunals upon application of any party to dispute. |
| Amendment procedure                             | 1. Effective only upon specific acceptance via IMCO assembly and contracting States. | 1. Procedure for annexes and appendices via IMCO Committees and tacit acceptance procedures. |
| Survey and certification                        | 1. No comparable provision.            | 1. Survey at 5-year intervals and at intermediate (mid period) intervals. |
| Definition of oil                               | 1. Limited to crude, fuel, heavy diesel and lubricating oils. | 1. Includes all petroleum oils except petrochemicals (which are regulated by annex 11). |
| Discharge criteria in prohibited zones          | 1. Prohibits discharges by all ships in concentrations in excess of 100 parts per million within the prohibited zones. | 1. Prohibits discharges which leave visible traces unless it can be established by installed instruments that the concentration discharged was less than 16 parts per million. |
|                                                 | 2. Prohibited zone generally 50 miles or greater from nearest land for tankers. Prohibited zone applies to other ships unless proceeding to a port not provided with adequate reception facilities. | 2. For tanker cargo slops, discharge is prohibited within 50 miles from nearest land. For other ships slops, and other ship slops, discharge is prohibited within 12 miles from the nearest land. |
| Discharge criteria outside of the prohibited zones | 1. No restriction on discharges from a ship less than 20,000 gross tons. Vessels over 20,000 gross tons are limited to discharges whose concentrations are 100 parts per million or less, unless when in the opinion of the master, circumstances make it unreasonable or impractical to retain the higher concentrated slopes on board. | 1. Tankers must meet all of the following conditions: a. Ship is proceeding enroute. |
|                                                | 2. Other ships must meet all of the following conditions: a. Ship is proceeding enroute. b. Oil content of the effluent must not exceed 100 parts per million. |
| Enforcement mechanism                           | 1. No comparable provision.            | 1. Requires that the monitoring and control system be in operation and a permanent record made anytime oily effluent is being discharged, except for segregated ballast. |
|                                                | 1. Provision to promote according to need of ships using ports. | 1. Segregated ballast is mandatory for new tankers of 70,000 deadweight tons and greater, and is optional for tankers of less than 70,000 deadweight tons. Note that “new” tankers are defined by calendar dates and are therefore not dependent upon entry into force of this Convention. |
|                                                | 1. Establishes basic requirement to provide oil record book and requires entries for specific operations. | 2. Retention of oil on board (LOT) is mandatory for all tankers. |
| Construction requirements to control operational discharges of oily mixtures | 1. No comparable provision. | 3. Mandatory installation of efficient monitor and control system, provision of slop tanks, and provision of oil/water interface detectors. Effluent must comply with discharge criteria or be transferred to reception facility. |
|                                                | 2. Requires that the monitoring and control system be in operation and a permanent record made anytime oily effluent is being discharged, except for segregated ballast. | 4. Other ships require sludge tank installations, oil water separator and/or filters dependent upon ship size. |
|                                                | 1. Exports ballast to undertake to ensure availability and adequacy at oil loading ports, repair ports and at other ports according to the needs of ships. | 1. Expands provision to undertake to ensure availability and adequacy at oil loading ports, repair ports and at other ports according to the needs of ships. |
|                                                | 2. Establishes damage assumptions and methods of calculation of the amount of hypothetical oil outflow for tankers. | 2. Establishes tank arrangement and size limitations for the cargo tanks of tankers. |
|                                                | 3. Establishes subdivision and damage stability criteria to be applied to tankers to increase survivability in the event of accident. | 3. Establishes subdivision and damage stability criteria to be applied to tankers to increase survivability in the event of accident. |

Table 1. Comparisons of 1973 convention with 1954 convention
(3) In the conduct of LOT, there are numerous opportunities for oil and water to comingle and, through human failing, large quantities of oil can inadvertently go over the side undetected.

Recognizing these shortcomings, several companies conducted carefully controlled tests of the LOT operation with the dual objective of determining its ultimate potential for oil recovery and developing specific shipboard procedures for assuring that the operation is properly done. These tests resulted in the publication in 1973 by the Oil Companies International Marine Forum (OCIMF) and the International Chamber of Shipping (ICS) of the “Clean Seas Guide for Oil Tankers—the Operation of LOT.” This manual is referenced in the 1973 convention in the section requiring approved operating instructions for LOT, and since publication, nearly 10,000 copies of this manual have been purchased by tanker operators.

The 1973 convention has adopted the LOT system as its primary means for pollution prevention for all older tankers; that is, tankers both ordered before December 31, 1975, and delivered before December 31, 1979. To assure proper operation of LOT, it includes a requirement for specific instructions as given in the OCIMF/ICS guide just mentioned. It contains provisions as well for adequate slop tanks and for an oil monitoring and control system to measure quantity and rate of oil discharge at sea.

The slop-tank provisions of the convention should pose little problem for either present or new tankers, and in fact, improved design of slop tanks has been under continual review by many in industry. A companion paper at this conference will report on slop-tank research by our company.

The oil-discharge monitoring and control provisions of the convention will undoubtedly pose considerably more difficult problems. In our own case, research to develop an effective oil-in-water monitor commenced in the mid-60s, and although we have spent over two million dollars in the intervening years on this subject alone, we have not developed a monitor which we consider fully capable of meeting the convention provisions. More recently OCIMF has reported to IMCO on several occasions the status of oil-in-water monitor development progress worldwide and will continue to do so, as very active developments proceed in this field.

Though seemingly a simple problem, it has proven very difficult to reliably obtain accurate real-time measurements of small quantities of oil-in-water. The problem is compounded by differences in oil makeup, weathering, and the differences between dissolved and free oil in emulsion. Despite these drawbacks, we feel that with the additional importance given to monitoring by the new convention, these problems should be capable of solution within a few years, at least for heavy or persistent oils.

In the case of nonpersistent (or light) oils, the monitoring problem is further compounded; so much so in fact that the 1973 convention contains a waiver if no monitoring instrument is available.

Additionally, the convention requirements for an automatic control and shutdown system in new tankers will require engineering development to produce workable arrangements meeting the convention requirement. While this requirement can no doubt be met without recourse to fundamentally new technology, it should be recognized that it does involve very rapid and accurate control and diversion of fluid flows often reaching several thousands of tons per hour. Accordingly, simple check valves, automatic pump shutdowns, and such will not solve these problems without fundamental changes in tankers’ cargo- and ballast-handling systems and associated control hardware.

Returning to the question of slops generated from tank washing and ballast shifting in product-tanker trades, it has already been mentioned that these slops cannot be comngled with new cargoes, since product contamination would ensue. Accordingly, to prevent discharge of these slops at sea, it will be necessary to have shore-reception and oily-water processing facilities at nearly all ports loading product tankers. In addition, it must be recognized that in product-tanker services, it is common for a product tanker to carry different cargo grades on subsequent voyages so that on intervening ballast voyages it is usually necessary to wash a very high percentage, if not all, of a ship’s cargo tanks before being ready to receive a new cargo.

It is clear that reception and processing facilities are required at product loading terminals and these are called for in the new convention. In addition, however, there are a number of other circumstances under which the new convention specifies reception facility requirements for tankers. These include the following:

(1) Crude-tanker loading-terminal reception facilities will be required where ballasted tankers will have arrived without sufficient time to have completed the LOT operation. This is specified as a ballast voyage of less than 1,000 miles or 72 hours.

(2) The new convention will make the Baltic, Mediterranean, and Black Sea “special areas” under one set of circumstances, and under a slightly different set of circumstances, the Red Sea and “Gulf’s” area will also become special areas. For the first three areas, reception facilities sufficient to receive the slops from ballasted tankers without causing them undue delay will have to be provided by (or before) January 1, 1977, at all tanker-loading ports. In the Red Sea and Gulf’s area a similar provision exists, but without a specific date. This distinction was specifically made since, particularly in the Gulf’s area, it was hoped that at major crude-exporting terminals, arriving tankers will have been able to have successfully completed LOT before arriving in the Gulf’s special area, thereby minimizing the need for reception facilities in this area. Considering the exceedingly large volumes of crude loaded in the Gulf’s area for Japan, Europe, and North America and the difficulty in providing transfer arrangements to reception facilities from offshore loading installations now commonly being used, we believe this is a crucial point in the convention. Neither the oil-producing nations nor industry want this convention requirement to result in a massive and costly installation of inflexible reception facilities in oil-producing areas.

*The term “Gulf’s” area was adopted as a compromise to describe the area known to some as the Persian Gulf and to others as the Arabian Gulf.
(3) Reception facilities are required in all repair-port areas. This also is an existing requirement in that tankers preparing for repair and dry dock must be thoroughly clean and gas free prior to arrival. This requires not only the usual LOT and slop retention but also removal and disposal of unpumpable sediments and sludge which accumulate at the bottoms of cargo tanks on crude tankers. These sediments, made up of rust, sand, water, and oil, are to be received and safely processed at repair ports if the provisions of the convention are to be met.

At this stage it would be well to recap some of the more important industry programs aimed at meeting these various requirements. Much work has been done to determine the amount and nature of unpumpable sediments in crude tankers and environmentally sound means for disposal. Most promising at the moment is a new technique of washing cargo tanks with crude oil during each discharge of this type of crude tanker as is possible. The segregated-ballast capability, requiring a very simple formula giving ballast draft as a function of ship length. It has already, however, come in for considerable criticism. We would be the first to concede that many factors influence the proper level of ballast draft, but it is clearly beyond the state of the art at this time to write a more complex formula giving proper weight to each possibly relevant factor. We therefore have continued to express a preference for a simple and unambiguous formula which would have to be uniformly applied by all as experience is gathered. Although some believe that somewhat lighter drafts could or should have been permitted, based solely on model or theoretical studies, in our view the amount to be saved through a more liberal formula is certainly not commensurate with the risks that might have to be run through building ships too lightly ballasted. For those who believe the formula is already too liberal, there is the option to simply build their ships with a slightly heavier ballast capability. The actual level chosen reflects not experimental but actual operating experience in our company, fairly closely confirmed by others over a period of several years, and we believe it provides a sound basis for further and equitable design development.

In regard to the dates of application, the principal question centered around the choice of calendar dates rather than a specified time period after the convention has been brought into force. Most in industry were of the firm opinion that for major new design requirements it would be chaotic to leave the transition dates completely uncertain, since lead time for shifting to such new designs could involve decisions as far as four or five years in the future which must be reached mutually by both owners and yards. Accordingly, the use of calendar dates in this convention for the segregated-ballast and other ship-construction type features is the right approach, whereas equipment provisions are better left specified at some date following bringing the convention into force, such as for the oil-and-water monitors.

While the main thrust of the 1973 convention is the prevention of pollution from normal operations, it includes as well regulations which are intended to minimize oil outflow in tanker accidents for new vessels. These regulations attempt to achieve their objective through specifying the size and arrangements of a tanker's compartments, so as both to minimize oil outflow immediately following an accident and also to assure necessary flotation and stability (survivability) of the tanker.

The first part of these regulations, the so-called tank-size rules, are essentially identical to the 1971 amendment to the 1954 convention which was adopted by the IMCO Assembly in October 1971. The tank size limitations are fundamentally a three-part formula controlling (1) maximum tank length, (2) maximum tank volume, and (3) "hypothetical oil outflow" calculated according to assumed bottom- or side-damage criteria. For larger tankers in the VLCC class, the hypothetical oil outflow criterion will nearly always govern. This criterion with its maximum upper limitation of 40,000 cubic meters may cause rather unusual tank configurations and possibly double bottom construction to be adopted in the forward one-third of length in tankers over 500,000 to 600,000 d.w.t. This in turn may prove to be an unfortunate result, since void spaces created by partial double bottoms near the bow, in order to meet this regulation, could represent a very detrimental feature for grounded tankers from a salvage point of view. The basic drawbacks with this type of construction have been thoroughly covered by many. For crude tankers of the sizes now being constructed (100,000 to 500,000 d.w.t.), the main effect of the tank size limitation is a greater initial cost due to the higher degree of compartmentalization which it involves. It is pertinent to recognize as well, however, that directionally, it is a detrimental feature for the prevention of operational pollution due to the far greater surface area of cargo tanks which it creates. This point is mentioned simply to show that, as with most features of ship design, some type of trade-off is
involved, and it is seldom that emphasis on one design advantage is not at the expense of another.

The survivability regulations are fundamentally an extension of those already found in Safety of Life at Sea (SOLAS) Conventions, also adopted under IMCO auspices. Fundamentally, the survivability provisions of the new convention are believed sound and a step in the right direction, in that they will require a two-compartment damage-survival standard for all larger tankers (length greater than 225 meters) and ability to survive engine room flooding in new tankers as small as a length of 150 meters. The development of these survivability regulations provides another example in which enthusiasm for a seemingly very rigorous new standard would have produced a clearly counterproductive result, had not careful technical studies shown the fallacy of certain proposals debated during the preparatory sessions. Specifically, one of the early draft requirements specifying limiting the heel of partially loaded tankers in damaged condition, having survived bottom damage forward equal to 1/10 of the ship’s length, would have provided a near impossible condition to be met consistent with the previously noted tank-size regulations. Our studies showed that the only possible way to meet this proposed criterion would be to preferentially require partially loaded tankers to retain cargo in side tanks rather than center tanks. The result would have been inevitable spillage of oil from side tanks in any collision, whereas with the more flexible set of regulations finally adopted, there may be an inducement to preferentially empty side tanks first, thereby avoiding oil outflow when such partially loaded tankers have been struck in collision. Again, this example has been cited in some detail to emphasize the need for careful study of the trade-off aspects of new regulations, so as to assure effective rather than counterproductive results.

Finally, it should be noted that the 1973 conference very carefully considered the advantages as well as the drawbacks of a mandatory requirement for full double-bottom construction in new tankers before defeating two such United States sponsored proposals by overwhelming margins. This subject is mentioned, although it forms no part of the final 1973 convention requirements, because of the continuing popular pressure, particularly from some in our Senate, for this ship construction feature. Numerous technical reports and Coast Guard and House of Representatives hearings have covered the issues involved in the double-bottom debate, so they will not be further explored here.

In addition to the specific convention provisions described above, reference should be made to Resolution 5, adopted by the conference to encourage further specific study and action on means to prevent accidental pollution. A careful reading of this resolution indicates a sense of the IMCO Conference, with which industry firmly concurs, that the principal means for preventing accidental pollution will be found in operational and possibly equipment steps aimed at preventing accidents generally. It is quite clear that further progress in this field will result not only from better standards of training, watchkeeping, and general operation of vessels of all types rather than through design features.

Progress toward ratification

At this writing, one year after the conference which adopted the 1973 pollution prevention convention, no ratifications have yet been received. Considering the complexity of the convention, portions of which have been described herein, this is not surprising. It is still difficult to make an adequate guess as to when the convention may be brought into force or as to the attitudes of various key governments whose actions might give an indication of the eventual date of bringing the convention into force. It is possible, however, to comment on some activities which may have a direct bearing on eventual ratification of the convention.

IMCO itself, or more properly those governments most active in IMCO, has already taken several steps of a positive nature. At its first meeting, the new Marine Environmental Protection Committee (MEPC) adopted a 22-point work program together with priorities of items thereon, the main thrust of which is toward completion of any technical studies considered prerequisite to effective implementation of the 1973 convention. Not surprisingly, a review of this work program will show many of the same studies described above as being key elements to the success of the 1973 convention. MEPC also decided at its first meeting that priority for the prevention of accidental pollution should remain principally with the Maritime Safety Committee (MSC), which through its existing subcommittee structure already has considerable work underway which is directly complementary with the convention objectives.

The IMCO Secretariat has taken active and positive steps to acquaint other U.N. organizations and governments around the world not only with the 1973 convention provisions, but also with all other parts of IMCO’s work program and treaties under its cognizance of which these groups should be aware. The IMCO Secretariat paper prepared in May 1974 for presentation to the U.N.’s Third Law of the Sea Conference in Caracas during summer 1974 is an excellent and comprehensive document covering the entire scope of international activities related to pollution prevention and vessel safety generally. It may be wondered why such a step is considered worthy of mention. We think it important because all too often the same governments who participate actively at IMCO adopt positions at other U.N. conferences which appear to show almost total ignorance of important IMCO activities.

Many of the contributions which industry can make toward furthering ratification have already been covered above as various technical and operational studies specific to oil tankers were described. Most important of industry’s actions at the moment seem to be OCIMF’s studies of reception-facilities guidelines, greater use of in-port inspection techniques, following progress on the development of oil-in-water monitors, and extension of the basic LOT technique in a safe way to nonpersistent-oil tankers. Additionally, several industry bodies will, by the time this paper is published, have come out with strong positive statements urging nations to ratify the 1973 convention at the earliest practicable time, pledging continued industry support with technical studies at IMCO. Additionally, industry (principally OCIMF as a representative industry group) have made their views known to the U.N.’s Law of the Sea Conference as well, and stressed that this new conference in no way need conflict with the positive work already undertaken by IMCO for the 1973 convention.

One further factor about industry activities and their limitations must be stressed. We have often heard calls, sometimes from the public, sometimes from people in government, for industry to police itself. There seems to be little understanding that many companies are individually policing themselves already and following self-imposed programs to avoid oil spills and pollution damage. But we emphasize that this is, and probably must remain, a company-by-company practice. Certainly for companies with U.S. operations, the antitrust laws lay down certain limitations upon the degree of cooperation which is permissible among companies on such matters as any sort of industry-wide enforcement program, even if directed at environmental protection. For example, affiliates of my own company have for years made it a practice carefully to inspect vessels which they are considering for charter and also have typically monitored the performance of chartered vessels when carrying oil. Experience has shown that this practice tends to make available high quality vessels and to minimize oil pollution. However, if our affiliates were to pass this kind of information on to other companies chartering vessels or arrange with other companies to exchange such information, this might be misconstrued as an attempt to create some sort of blacklist or boycott of undesirable vessels or owners. The laws of other countries relating to trade regulation probably impose similar restrictions. Environmentalists should be aware of such restrictions on industry activity and should recognize that effective enforcement of uniform standards requires governmental action.

Lastly, there is the question of what actions governments can take to assure bringing the 1973 convention into force rapidly. Considering that only 15 nations need to ratify, and that 71 nations participated in the drafting of the convention, this would seemingly be a fairly simple process. Recognizing, however, that these 15 nations must between them control 50% of the world’s gross registered tonnage, it is interesting to look at the tonnage of the 10 largest nations in the world at the moment:
<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Liberia</td>
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From this list, it appears that it will be necessary to get at least three of the first four or five nations listed above to ratify the convention before it can come into force. Or put another way, failure of two or more of the nations at the top of this list to ratify would almost certainly prevent the convention from ever coming into force. Accordingly, it is hoped that very serious priority consideration will be given to the convention by these and other major maritime powers.

Although not so prominent as shipowning nations, the actions of various nations who were among the prime movers for and at the 1973 conference will undoubtedly be watched very closely. Principal among these in our view would be the United States, Canada, and the Soviet Union. While it may surprise some, it is our view that the attitude displayed at the conference by the U.S.S.R. was in some respects more flexible and more international than that displayed by several of the free world nations. We hope this bodes well for future positive action on the convention.

There was lengthy and considered debate at the conference over a so-called sovereignty article under which nations ratifying the 1973 convention would have agreed to limit their own national regulatory powers over the design, construction, and equipment of foreign vessels entering their ports. Regrettably this sovereignty provision failed to be adopted by the needed two-thirds majority, although it did achieve a simple majority approval of the nations present. In our view, failure of the United States to support the final compromise proposal on this issue represents a fence-straddling attitude which is unacceptable in regulating the fundamental design of vessels in an international business such as shipping. If each nation which professes a desire for strong international regulation is to continually reserve its own right to set differing regulations of its own, there will be little future for the international regulation-making process generally.

A further disturbing factor in regard to the prospects of bringing the 1973 convention into force is the amount of time taken by nations to set their ratification machinery into motion. There are innumerable examples of well-conceived international treaties which once drafted lay on the shelf for many years before being considered for eventual ratification. In the case of the United States, we need only look at several recent pollution-related measures including the 1969 and 1971 amendments to the 1954 convention, the 1969 Civil Liability Convention, and the 1971 International Compensation Fund Convention. The U.S. was a prime mover in the drafting of each of these agreements, but it has only been within the last year that our Senate has finally considered them, and then all too frequently the record shows their inclination to criticize the work of IMCO and to start drafting new legislation of their own. Actually, a careful reading of the reports of the Senate Commerce Committee in regard both to the U.S. Ports and Waterways Safety Act of 1972 and the report of the U.S. delegation to the IMCO 1973 conference, shows a discouraging lack of faith in IMCO and the international legislative process generally. Various comments in these committee hearings indicated an unwillingness to listen to the productive and constructive steps being taken around the world, often with a better basis technically than that available in the United States. Accordingly, it is our earnest hope that when the 1973 convention is considered in the Senate, it will be viewed objectively and realistically for the positive step forward that it represents. In this respect, the testimony before the Senate Commerce Committee in November 1973, immediately following the IMCO conference, set the proper note for consideration of this potentially historic convention. The delegation's leader, Judge Russell Train, now head of EPA, testified that the conference had achieved more than the U.S. delegation had had any right to expect and that he viewed it as an historical step forward for the world. In supporting testimony, Admiral Chester Bender, then Commandant of the U.S. Coast Guard, who was vice chairman of the delegation, reinforced these remarks and noted as well that the new convention contains all the necessary machinery for rapid further amendment or change as future events may dictate advisable. He stressed the hope that the U.S. government would put its faith in this convention and give it its wholehearted backing. We believe many in industry share this hope and do not think it will be misplaced.