



TOUCH OF **CLASS**

NOVEMBER 2014



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From the Chairman's Desk

Dear Reader,

Industry is always innovating to provide unique and better solutions to various problems posed by the environment we work in. Innovations are the way forward, be it commercial, technical or environmental.

Large amounts of money and efforts are being invested towards improving all aspects of the industry, right from 'conception to completion'.

The present downturn is a challenging one, forcing the industry to continuously improve, adopt new technologies and to innovate.

We at IRS, are continuously upgrading our knowledge, technology and services to keep pace with the developments, so as to assist all the stake holders in their zeal to achieve their targets. Some of these go beyond the traditional classification services. I am certain that our clients are already experiencing these services.

I am sure you will find this edition of 'Touch of Class' useful and wish you pleasant reading.



Mr Arun Sharma

Chairman & Managing Director



IRClass Systems and Solutions: Beyond Class

Indian Register of Shipping (IRClass) has completed an extensive internal restructuring aimed at streamlining its business verticals in line with the needs of the industry.

IRClass, which is a member of the International Association of Classification Societies (IACS), has promoted a new company named IRClass Systems and Solutions Private Limited (ISSPL), which will focus on Inspection Services, Training and Quality & Environmental System Certification.

ISSPL will enable IRS to diversify into other areas such as the oil and gas sector, as well as, design related services, technical advisory, consultancy, training and education for the marine and non-marine sectors. Hence, the motto is aptly “beyond class”.

The newly formed company has been tasked with seeking out opportunities to work with other service companies and to expand the portfolio of services being offered currently to its own clients, in addition to exploring blue ocean opportunities.

IRClass Chairman and Managing Director Mr Arun Sharma said: “I am delighted to announce the formation of IRClass Systems and Solutions, a new company that will enable IRS provide services beyond the traditional classification and will provide a one stop solution to all our clients”.

Mr Arun Sharma added, “We aim to grow the new division organically and, if need be, through acquisitions. The rapid development of India’s industrial and technological bases in recent years has produced an exciting array of small to medium sized specialist service companies and IRClass already works with several such companies”.





Quality Service Division Attains Energy Management Systems Accreditation

The Quality Services Division of IRClass, Indian Register Quality Systems (IRQS), has been providing quality certification services globally, since 1993.

The division has been awarded the accreditation for Energy Management System-ISO 50001 by ANAB (ANSI-ASQ National Accreditation Board -America). IRQS is the first Indian company to have been accredited.

IRQS will be the only certification body in India to obtain the coveted accreditation from NABCB for Energy Management Systems.

Both ANAB and NABCB accreditation will boost the IRQS certification portfolio with energy management systems which will be the priority for energy intensive industry sectors like steel, cement, chemical, mining, fertilizers, textiles etc.

Further, IRQS is accredited for certification of OHSAS18001:2007 by NABCB.

IRQS has obtained a provisional license for offering Food Safety System Certification FSSC 22000. FSSC 22000 is a Global Food Safety Initiative (GFSI) and a blend of ISO 22000 & PAS 220 / ISO 22002 requirements, which will be a prerequisite for exporting food items.

HACCP accreditation from APEDA (Agricultural product export development authority) has been initiated which will also be imminent for export promotion of agricultural products.

IRQS has initiated accreditation for ISO 20000:2011 certification scheme with APMG group, UK for IT service management.

IRQS certification services, QMS, EMS and OHSAS have been appreciated by our clients globally, strengthening our endeavour to serve the industry in improving the quality of their products, with minimum effect on the environment.

Ballast Water Treatment Boat (BWTBoat)

An Economical & Viable Alternative
for Ballast Water Management

Author- Sandip V. Patil, Surveyor, Research Division

Introduction

At first instance it doesn't bother us whether there can be negative effects on environment due to mixing of water from various locations. But problems came up when some fish types which used to be the livelihood for coastal people suddenly started vanishing, water pumps and pipes started clogging due to some species. The reason was unknown until extensive research was carried out. Ultimately, it was found that this negative effect is not happening because of native species or human intervention but due to invasive species from water of other locations in the world being carried by the ship. Chinese Mitten crabs were eating the eggs of fishes, where as pipes were covered by zebra mussels transported through ballast water from other sea areas. The cholera disease, we see today, was originated and spread through ballast water only and has been responsible for death of thousands of people around the world.

Every year almost more than 10 billion tons of ballast water is exchanged between different ports through International Shipping trade. As design of ballast free ships is being explored, the only solution in front of world environment community was to treat the ballast water before discharging.

In 1992 UN Conference on Environment (UNCED) and 2002 World Summit on Sustainable Development (WSSD), IMO had been requested to develop rules on ballast water discharge. Thus with united efforts of different countries, the **International Convention for the Control and Management of Ships Ballast Water & Sediments** was adopted by consensus at a Diplomatic Conference at IMO in London on Friday, 13 February 2004.

Current Method of Ballast Water Management

As the only source of ballast water is ships, one unanimous solution emerged as a practical measure, that ships would be fitted with onboard Ballast Water Treatment System (BWTS). Thus in coming years almost 75000 ships need to be fitted with BWTS to treat water before discharge. The retrofitting cost along with BWTS installation can range from USD 1 to 1.5 million per ship. There are number of problems yet to be resolved with respect to convention's implementation in real world scenario. The main problems are related to real world efficacy of systems, effective implementation of convention and economics. Due to these challenges the ratification is still pending.



Left photo shows the spread of zebra mussels inside pipe

Every year almost more than 10 billion tons of ballast water is exchanged between different ports through International Shipping trade.

and right one shows the growth of mussels on pipe over a period of time



Need for Alternative Method & Contribution by IRS
 IRS as a responsible Classification Society has been carrying out extensive information programs to guide shipping community for complying forthcoming BWM Convention. But it has always been a matter of concern for IRS regarding financial burden over ship owners in the downturn of the shipping industry as well as proper implementation of Convention from Port State point of view. Keeping the interests of ship owners, treatment manufacturers, shipyards, port states, Class and IMO in mind, Research Division of IRS developed an Innovative solution of port based mobile Ballast Water Treatment Boats (BWTBoats) to overcome above challenges. The viability of the BWTBoat in comparison with present approach of convention is described in the following sections of the article.

Basic theme & overview of BWT Boat Concept

As the number of ports, in turn number of berths there in, are quite less than the total number of ships in the world and as most of the ships are spending considerable time at sea than at the ports, it is possible to provide port based mobile ballast water treatment boats for Ballast Water Management on shared basis.

Thus it eliminates the option of onboard fitment of Ballast Water Treatment Systems (BWTs) on as many 75000 ships. In addition to this, from technology point of view, as the Ballast Water Treatment Systems fitted on the BWT Boat can be customized with respect to port water qualities, there will be lesser chances of non-compliance and better protection of marine environment against bio-invasion.

Description for New Approach

In this concept, when ship arrives at port for simultaneous cargo unloading and ballast operation, one boat called Ballast Water Treatment Boat (BWTBoat) will come along side the ship. There will be a modular ballast water treatment system along with control panel, powering generator and necessary piping hose connections on this boat. The crew on the boat will connect the pipe hoses to the suitable ballast water discharge valve on ship deck with flexible pipes. After mooring, piping connection and priming, ship ballast pumps will perform ballasting via this boat. So, during the passage of ballast water over the boat, the treatment would be carried out to comply with D-2 standard of BWM convention. Here UV based treatment system is taken for example only.

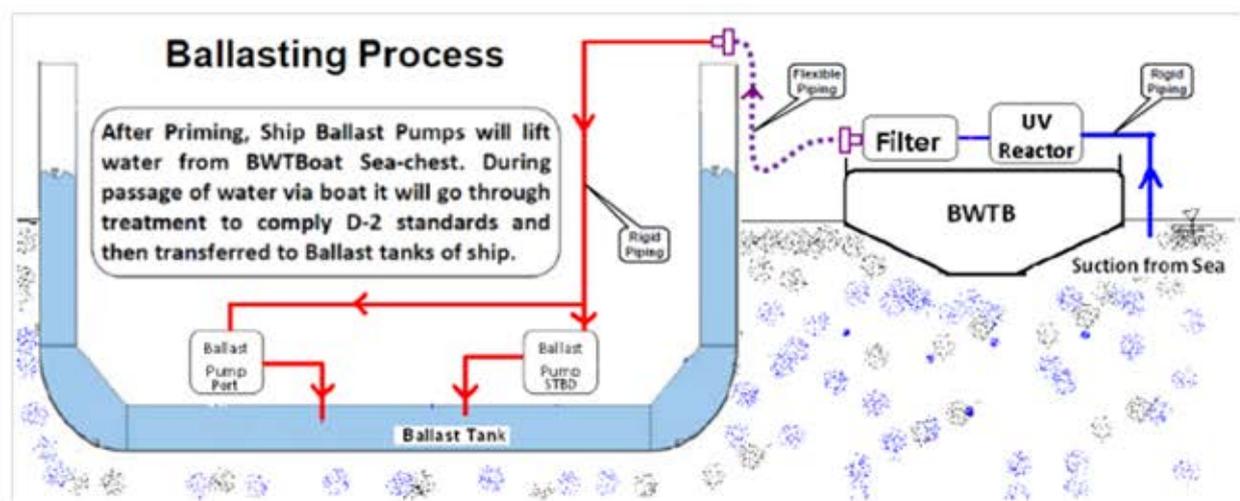


Figure 2- Schematic diagram shows the process of Ballast Water management using BWTBoat

Customisation of Treatment System- Best feature of BWTBoats

In the current approach of BWM convention, treatment systems are getting type approval on the basis of testing with virtually prepared samples covering different range of salinities, temperatures and suspended solids, but not with real sea water. The biggest hurdle for investment by ship owners is that, whether these type approved systems will be able to treat all port waters successfully. Solution to this problem is customisation and BWTBoats can be deployed on this principle.

While deploying a BWTBoat for a particular port, the treatment system filters or disinfection units like electrolysis or UV can be chosen or customised with respect to the subject port water. Thus, it ensures better protection to environment as well as no fear of non-compliance.

BWTBoat Deployment Options

Based on cargo operation & treatment technology, the options are as follows:

Option 1- {Filtration + Electrolysis/Cl2} Boat at ballasting site + [TRO Neutralizer + UV (optional)] Boat at deballasting site

Ships can also fit TRO-neutralizer unit onboard to avoid dependency over deballasting port facility. This option can be utilised for Oil Tankers and Bulk carriers.

Option 2- {Filtration + UV} Boat @ballasting site + {Filtration + UV} Boat @deballasting site

Ships such as container ships, general cargo vessel and car carriers having lesser voyage time and frequent loading & unloading, need a treatment system which can provide immediate disinfection. UV radiation treatment is the best option for this purpose. Various customized options can also be arranged based on the ship-segment and port characteristics by adopting this approach.

Number of BWTBoats & Investment for Global Implementation

The number of BWTBoats depends on the number of berths in a given port. There are approximately 2500 ports in the world connected with International Trade. Study of the world's top 150 busiest ports with respect to cargo handling is carried out. Total number of berths in all global ports, is calculated as follows: 10650 (for 150 busiest ports) + 23500 (for remaining 2350 ports) => 34150 berths. Based on the study, an average of 63% berth occupancy has been observed. Hence number of BWTBoats required globally (approx.) = $10650 * 0.63 + 23500 * 0.63$ => 6603 + 14570 => 21173. This number is much lesser than the onboard fitment of the BWTS over the 75000 vessels. Hence by adopting this approach, successful compliance can be achieved with a considerably lower investment.

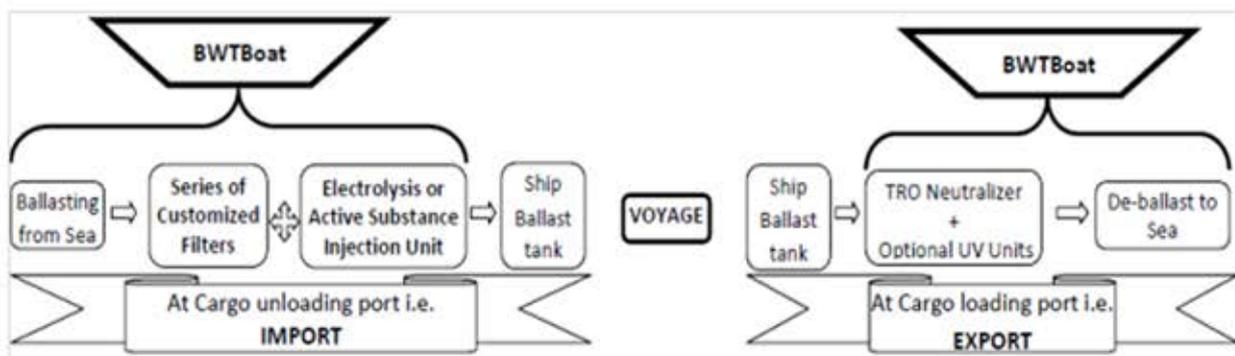


Figure 3 Details of treatment system on BWTBoat with respect to port & overall process

Presentation of Concept at GST 2013, Hamburg

This concept was presented in the conference on 'Green Ship Technology' held in Hamburg, Germany and was well received and appreciated. Additionally, the event managers invited us to present our views in the industry stakeholder panel.

MEPC 65 Submissions and Outcome

A concept paper was submitted to IMO through DG Shipping, Indian Flag Administration, as an official entry from INDIA on 22nd March 2013 (paper ref. no is MEPC65/2/20). The countries which supported this concept include New Zealand, Netherlands and Indonesia. Ballast Water review group invited INDIA to submit detailed report with operational details, suitability of the concept and survey & certification of BWTBoat.

After MEPC 65, IRS had fruitful meetings with Singapore Ship Owners Association (SSA), Singapore Maritime Port Authority (MPA), Damen Shipyard, Dutch Maritime Authority, World Maritime University and renowned German Scientist Hanno Seebens.

MEPC 66 Submission and Industry contact for consensus.

Apart from submission of a detailed report to MEPC 66, INDIA got support from around 15 countries during proceedings in MEPC 66 held in March 2014. MEPC 66 submissions had two papers MEPC 66/2/8-Regulatory Requirements for Implementation of BWTBoats concept and other is MEPC 66/INF.17-Suitability of BWTBoats concept for Coastal and Regional Implementation.

It was found that around 2400 BWTBoats will be required to be deployed in 600 ports spread over 26 countries (in figure 4 map) to cater to around 18000 vessels which are mostly plying in the area indicated in Figure 4, for most of their voyages. Hence, this

concept is beneficial to be implemented regionally along the coast for ships operating on fixed trade pattern and for smaller ships.

Indian Shipping Scenario wrt BWM convention

As per applicability of BWM convention around 919 Indian Flag vessels need to comply with the convention. As per our data analysis, 103 vessels ply internationally, 272 vessels ply among regional ports only (shown above) for more than 95% time of yearly voyages and remaining 560 follow domestic coastal trade. All these vessels require to be installed with ballast water treatment systems onboard. As it is hard to ensure global network of BWTBoats, a co-operation among the regional port states over the provision of sufficient BWTBoats in all major Asian ports may be agreed, so that ships trading among these ports can be exempted from on board fitment of ballast water treatment system.

MEPC 66 Outcome and further steps

We are happy to share that **MEPC during the Plenary has accepted this concept of BWTBoat** to be in full compliance with the Convention, paving way towards implementation of this concept on coastal and regional basis in co-ordination with all the stakeholders.



IRS Visit to Damen Shipyard- from Left P.K. Mishra, Sandip Patil, German Scientist Hanno Seebens and Damen Ballast Group head Mattheijs

Figure 4- Map shows area chosen for Regional data Analysis i.e. Persian Gulf-Red Sea-Asia-Oceania



Use of Low-Flashpoint Fuels on ships - The IGF Code and the Revised IGC Code

M.V. Ramamurthy - Chairman,
IRS Technical Committee

Introduction:

MARPOL 73/78 evolved with the primary concept of regulations for the prevention of pollution of sea water by oil, noxious liquid substances in bulk, harmful substances in packaged form, sewage and garbage, generated from the operational wastes and cargo on the ships. These regulations are contained in the first Five Annexes as Annex I to Annex V of MARPOL. Each of these Annexes came into force over a period of time and also has been going through various amendments till date.

The control of air emissions of Oxides of Sulphur (SO_x), Oxides of Nitrogen (NO_x), Volatile Organic Compounds (VOC) and Ozone Depleting Substances (ODS) was a later addition to the MARPOL as Annex VI. SO_x emissions are from the high-sulphur residual fuel oil, VOC is from the cargo on tankers and the ODS are from the CFC and HCFC refrigerants. Reduction of the NO_x emissions in the diesel engines to Tier II levels can be achieved by engine design and its operational tuning and to Tier III levels by additional measures.

SO_x emissions are due to sulphur in the fuel oil, which can be reduced by limiting the sulphur content in the fuel oil or alternatively by scrubbing-out the sulphur oxides with sea water before its exhaust to the atmosphere. The global sulphur limit is already at 3.5% m/m and will be limited to 0.5% m/m by year 2020, with a grace

period of maximum 5 years if the refineries face difficulties in achieving this sulphur limits in the fuel. For the Emission Controlled Areas (ECA), the sulphur limits will be 0.1% m/m by year 2015. Several countries have also come out with other stringent regulations unilaterally to curb the SO_x pollution. Global limits for NO_x emissions commenced as Tier I in year 2000 and the Tier II limits came into force in year 2011. The more stringent Tier III limits for ECA will come into force in year 2016.

Apart from the above air-pollutions, the Greenhouse Gas (GHG) emissions are of great significance to the marine transportation. CO₂ being the largest of the GHG pollutants, though not the most potent, can be reduced only by energy efficient design of ships, attributable to the design of engines, hull-form as well as the propeller (EEDI regulations).

Presently, residual oil is the common global fuel for long sea voyages for the propulsion as well as auxiliary purposes on ocean-going merchant ships and ultra-low-sulphur distillate fuel has found the acceptance in ECA. Reduction of SO_x, NO_x and GHG emissions is possible by the use of alternative fuels to the residual oil for propulsion and auxiliary purposes. Renewable energies can also be used for selective applications on ships as far as practicable.

From the above perspective, there is a need for the replacement of the commonly used residual oil on the ships to a more emission-friendly fuel and in this context natural gas has found its acceptance for ships as a source of energy as it has no sulphur, eliminating the cause for the SOx emissions and hence also mostly the emissions of particulate-matter. Natural gas also has less emissions of NOx and CO2 for the same energy delivered compared to the residual oil, though it has its drawbacks in respect of fuel storage volume on ships, considerably reducing the ship's endurance and needing more frequent re-fuelling, shortage of re-fuelling facilities and its hazard as a low-flash point gas.

SOLAS 74 has provision for the usage of only fuel oil with flashpoint exceeding 60 degree C when used in machinery spaces or stored adjacent to these spaces, except for storage outside the machinery spaces for emergency applications (limit in this case being 43 degree C and minimum difference of 10 degree C with the ambient temperature).

The usage of natural gas as fuel in propulsion spaces in fact started due to the need to deal with the boil-off gas in the LNG carriers. The IGC Code, which is part of the SOLAS and which came into force in the year 1986, allowed the usage of only the natural gas (among the other low-flash point gas cargoes in Gas Carriers) as fuel in machinery spaces due to the fact that only the vapour density of the natural gas is lighter than air and hence, in case of accidental leakages, the danger of the hazardous vapour accumulating at the bottom of these spaces is restricted. Among the cargoes listed in the IGC Code, apart from ethylene vapour which is almost as dense as air (but ethylene is a petrochemical gas and not used as fuel), the vapour densities of all other hydrocarbons are heavier than air, the ethane vapour being just heavier than air.

However, the need for using in non-gas carriers the natural gas as well as other low-flashpoint fuels arose due to the necessity of having an alternative

environmentally cleaner fuel to the residual oil for reducing air emissions due to SOx, NOx and CO2. Thus the work in IMO commenced on the International Gas Fuel Code (IGF Code). MSC.78 in May 2004 approved a new programme item on the "Development of International Regulations for Gas-fuelled Ships", based on the proposal from Norway. BLG.9 in 2005 proceeded with a two-step approach with the Development of an IGF Code for utilising low-flash point fuels in the ship's machinery spaces along with the development of Interim guidelines for gas-fuelled ships. Prior to this, BLG.8 in 2004 established a correspondence group under the coordination of Norway.

Further, in gas carriers carrying low-flash point cargoes other than the natural gas, some of these cargoes have also the potential for use as fuel. Hence IMO also took to amending the existing International Gas Code (IGC Code) to serve this purpose.

Progress at IMO on IGF Code

The initial requirement towards an IGF Code for low flash-point fuels on ships was to develop the safety standards for the design of engine installation and associated equipment for natural gas-fuelled ships. Then, this would form the basis for other low flash-point gases and liquids as fuels. BLG.13 in the year 2009 agreed to draft the interim guidelines in this respect and it was subsequently approved in MSC.86 in year 2009, as "Interim Guidelines on Safety for natural gas-fuelled engine installation in ships".

In fact only In BLG.14 in year 2010, the Draft IGF Code was developed for extending the scope to cover other low-flashpoint fuels and this was agreed in MSC.87 in the same year. Further development of the Draft IGF Code in BLG.15 in the year 2011 preliminarily included the following low flash-point fuels based on the cargoes now transported on ships and the fuels of promise for the future.

| | | | |
|--------------------------|-----------------------|-----------------|-----------------------|
| Natural Gas: | Liquid and Compressed | Ethanol: | Liquid |
| Propane: | Liquid and compressed | Methanol: | Liquid |
| Butane (iso and normal): | Liquid | Hydrogen: | Liquid and Compressed |
| Propane/Butane Mixtures: | Liquid | Dimethyl-ether: | Liquid |

Properties of the low-flashpoint gas & liquid fuels:

| Fuel | Liquid Density MT/cum | Vapour Density Relative to Air | Atm. Boiling Point Deg C | Critical Temp Deg C | Flash Point Deg C | Higher Heating Value KJ/kg | Lower Heating Value KJ/kg |
|----------------|-----------------------|--------------------------------|--------------------------|---------------------|-------------------|----------------------------|---------------------------|
| Methane | 0.427 | 0.554 | -161.5 | -82.5 | -188.0 | 52225 | 47141 |
| Ethane | 0.540 | 1.048 | -88.6 | 32.1 | -135.0 | 51900 | 47800 |
| Propane* | 0.583 | 1.550 | -42.3 | 96.8 | -104.0 | 50235 | 46296 |
| n-Butane* | 0.600 | 2.090 | -0.5 | 153.0 | -60.0 | 49210 | 45277 |
| i-Butane* | 0.596 | 2.070 | -11.7 | 133.7 | -60.0 | 49210 | 45277 |
| Methanol | 0.796 | 1.100 | 64.6 | NA | 11.0 | 22884 | 20094 |
| Ethanol | 0.789 | 1.590 | 78.3 | NA | 12.0 | 29847 | 26952 |
| Hydrogen | 0.071 | 0.069 | -252.8 | -239.8 | NA | 142180 | 120210 |
| Dimethyl Ether | 0.730 | 1.590 | -24.0 | 126.9 | -41.0 | 31681 | 28882 |

* Propane–Butane mixtures are also acceptable.

It may be noted that, the residual oil has a lower heating value of approximately 40600 KJ/kg (depending upon the sulphur content). Hence, apart from hydrogen, only the gaseous low-flashpoint fuels (saturated hydrocarbon gases) of methane (natural gas), ethane (though not yet listed in the Draft IGF Code), propane and butane have a superior heating value by weight compared to the residual oil. low-flashpoint liquid fuels mentioned in the Draft IGF Code have a much lesser heating value than the residual oil.

In the case of low-flashpoint gaseous fuels, though the heating value is higher than the residual oil, because of their low liquid density, the fuel storage volume compared to residual oil increases for equivalent heating value on fuel weight and the ship's endurance reduces for the same volume of fuel storage.

Even for the low-flashpoint liquid fuels, taking into account also their lower liquid density and heating value compared to the residual oil, the storage volumes for these fuels can be between 1.8 to 2.5 times the residual oil for equivalent heating values on fuel weight. This can have a bearing on their global usage on longer voyages.

It is initially expected that a particular low-flashpoint fuel, other than the fuel from the cargo carried on the gas carriers, may be used selectively on ships with short endurance based on the regional availability of that particular fuel and the refuelling facilities. Global availability with re-fuelling facilities for some of these low-flashpoint fuels along with the cost considerations may enable them to compete with natural gas as future cleaner fuels.

The Draft IGF Code

(Reference is made to the "Draft IGF Code – CCC 1/4-Report of the Correspondence Group")

The Code is structured into three parts:

Part A: Design including sub-parts A-1 to A-7 for the various fuels addressed by this Code;

Part B: Manufacturing, Workmanship & Testing; and

Part C: Training & Operational Requirements.

It is important to note that the purpose of the Draft IGF Code is to provide an international standard for non-gas cargo carriers to use gaseous or liquid low-flashpoint fuels, but not intended for vessels covered by the Amended IGC Code, as the Amended IGC Code allows the vessels under this Code also the use of their cargoes as fuels.

The basic philosophy of the Code is to provide mandatory criteria for the arrangement and installation of machinery, equipment and systems for vessels operating with gas or low-flashpoint liquids as fuel to minimize the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.

Throughout the development of the Code, it was recognized that it must be based upon sound naval architectural and engineering principles and the best understanding available of the current operational experience, field data and research and development. Due to the rapidly evolving new fuels technologies, the IMO will periodically review the Code, taking into account both the experience and technical developments.

The Code addresses all areas that need special consideration for the usage of the gas or low-flashpoint liquids as fuel. The basic philosophy of the IGF Code is the goal based approach (MSC 1/Circ. 1394). Therefore, goals and functional requirements were specified for each section forming the basis for the design, construction and operation.

The Code will apply to other gases and low-flashpoint fuels other than listed above, provided their compliance with the IGF Code on

Functional Requirements, Risk Analysis, Explosion Consequences and Alternative Design Analysis according to Part A of the Code has been approved by the Flag Administration. The fuels are to be designated at New-building or Conversion and may require the agreement of the Administration for any change during service period of the vessel.

The Code addresses the following areas of ship & equipment design and operation:

- Material and pipe design
- Power generation including gas safe machinery space and Emergency Shut Down protected machinery space
- Fuel storage
- Fuel supply to consumers
- Refuelling
- Ship structure
- Fire safety
- Explosion protection
- Ventilation
- Electrical installations
- Control monitoring and safety systems
- Alternative design
- Operational requirements

The safety standards of the Code closely follow the IGC Code for the above requirements and will apply to cargo vapour or boil-off gas utilisation in machinery spaces of Category A for boilers, low and high pressure IC Engines, Gas Turbines as well as Fuel Cells.

Amendments to the IGC Code

As mentioned earlier, the purpose of the Draft IGF Code is to provide an international standard for ships operating with gas or low-flashpoint liquids as fuel, but not intended for vessels covered by the Amended IGC Code, as the Amended IGC Code covers the applicable gas vessels also for use as fuels their low-flashpoint cargoes. The existing IGC Code has been under revision and the Amendments to the existing IGC Code have been submitted to the MSC.92

in July 2013 with the view on complete replacement of the existing IGC Code with the Amended Code. The amendments are mainly on cargo tank protective location with respect to the distance from the ship's outer hull and the protective distances are indicated depending upon the tank types, viz., Independent prismatic tank, semi-membrane tank, membrane tank, spherical tank and pressure type tank. The measures are to prevent uncontrolled release of hazardous cargo from damages to the cargo tanks due to severe collision and stranding. Some more gas cargoes are also added to the list in the Amended IGC Code and in general, the contents of the Amended IGC Code follow the existing IGC Code.

From the point of view of using low-flashpoint fuels other than the natural gas, Chapter 16 of the Amended IGC Code will apply to cargo vapour or boil-off gas for its utilisation in machinery spaces of Category A for boilers, inert gas generators, gas combustion units, Internal Combustion Engines and Gas Turbines. The Chapter provides the necessary safety standards for LNG carriers only when the cargo vapour or boil-off gas of natural gas is used as fuel. However, the Code also allows the use of other cargoes as fuel, providing that this is acceptable to the Administration of the Flag of the Vessel and the same level of safety as natural gas is ensured for these cargoes as provided for the LNG in the Code, except that the use as fuel of toxic cargoes as identified in the Code will not be permitted.

The Draft IGF Code and the Draft Amendments to the IGC Code - some thoughts

There are 37 cargoes listed in the Amended IGC Code, out of which 20 are identified in the Code as toxic, including Dimethyl Ether. Hence, as per the Amended IGC Code, only the cargoes of Methane (LNG), Ethane, Propane, n-Butane, i-Butane, Propane-Butane mixtures carried on liquefied gas carriers can be considered for use as fuel and the IGC Code will apply for these cargoes not only for their carriage as cargo, but also to their utilisation on the vessel as fuel.

It is not clear whether the gas carriers complying with the Amended IGC Code will be allowed to use as fuel a low-flashpoint gas or liquid other than the cargo carried. The situation may arise, when LNG may be considered as fuel in a gas-carrier (not being the cargo) with separate LNG fuel tanks, when carrying other gas cargoes in the gas carrier. Since, the amendments to the IGC Code specifies the use of only its cargo vapour or the boil-off gas as fuel and not any other low-flashpoint fuel carried solely for the purpose as fuel and not as cargo, this matter needs to be addressed under Chapter 16 in the Amended IGC Code or it is to be clarified whether it is necessary for the gas-carrier to also additionally be certified under the IGF Code.

Further, the use of methanol and ethanol are considered as low-flashpoint liquid fuels by the Draft IGF Code, whereas the Draft IGF Code expresses the intention that the Code will not apply to Gas Carriers. Hence, when these are used as fuels in gas carriers, apart from the compliance of IGC and IGF Codes, in this case, for the carriage of methanol or ethanol in ship's tanks, the relevant requirements of IBC Code may also apply.

The Draft IGF Code considers also Dimethyl Ether under low-flashpoint fuel for use on non-Gas Carriers, though it is identified as a toxic gas under the IGC Code. This may need further clarity.

Conclusion

Technological advancement are to be proven and the necessary safety standards are to be established by the machinery makers and shipyards for using the low-flash point fuels in machinery spaces, primarily for propulsion purposes and further for auxiliary purposes as necessary. These are to be approved by the Administration and the Classification Societies as per the IMO Regulations.

Since the IGF Code lists usage of the low flashpoint fuels both in the gaseous and the liquid modes, the fuel systems from the fuel storage tanks to the fuel

injectors on the engines need to be designed specifically for the particular fuel in the particular mode. The combustion process in the engine also is required to adapt to this mode, may be with pilot fuel oil injection or spark ignition. The dual-fuel diesel engines operating today on natural gas and residual fuel are already established for their safe and reliable operation and it is only a matter of time before engines are designed to operate safely and efficiently on other low-flashpoint fuels.

It is needless to mention that the training of seafarers for operating these vessels should also be undertaken simultaneously.

It is hoped that the Draft IGF Code and the Amended IGC Code will pave the way for cleaner fuels on board ships.

With continuous progress on this matter at IMO, it is expected that the IGF Code will be adopted at MSC 95. The revised IGC Code has already been adopted vide MSC resolution 370 (93) and will be applicable for ships constructed on or after 1st July 2016.

The reference made to the IMO Documents is gratefully acknowledged.

IRClass – Our Work at IACS

IRClass plays Central Role in the technical work of IACS

IRClass is playing an active role in the technical work of the International Association of Classification Societies.

Currently, IRClass is chairing two of the important committees where it is playing a proactive role. Mr Arun Sharma, CMD, is currently the Chairman of the IACS Small Group on Quality Policy, which has been constituted by the IACS Council to facilitate speedy decisions and approval of quality related issues. It also discharges a strategic role on quality initiatives for the Quality Committee to follow through.

Mr Vijay Arora, Chief Surveyor, is the present Chairman of the Safety Panel. The IACS Safety Panel comprises of representatives from each IACS member society and the Panel Chair finalises the Agenda, convenes and presides over meetings and also briefs the General Policy Group and the Main council of IACS on the developments/issues being dealt with by the Safety Panel.

As the Chair of the Safety Panel there are several tasks which Mr Arora oversees, in particular the maintenance of IACS resolutions and the annual review of the implementation of all IACS resolutions with a view to removing any impediments to their effective and uniform implementation. As the Chairman of this Panel, he also liaises with external organisations.

Our aim is to work towards continuous improvement of quality standards of all classification societies and to further improve the safety of life at sea, property and the environment.

The IRClass ethos of chairmanship on the panels to date has been to evolve consensus on issues and this is something Mr Arora has pursued since day one.

Although IRClass has the authority to set the agenda, we feel that the same should be flexible and inclusive at all times to allow other members to add agenda items which are in the interest of the maritime fraternity.

The idea behind this philosophy is that if all panel and committee members are heard and their views are taken account of, then IACS as a body will ultimately have greater chance to succeed in its goal of unified implementation of initiatives, which would serve to benefit the industry as a whole.





Comprehensive Inspection Programme (CIP)

IRClass has been actively involved in the entire process of development of CIP

The DG Shipping's traditional monitoring mechanism of academic council audits for the maritime training sector, that ensures quality and uniformity, has admittedly been impacted over past 10 years by the pacing numbers of maritime institutes and the voluminous increase in the responsibility of the Maritime Administrations towards implementation of new international convention requirements. Even a proactive adoption of quality certification and rating systems by institutional bodies could not yield the desired results, apparently, due to lack of domain expertise of the certifying agencies in the maritime field.

Concurrent to the saying "the ships are only as good as the people who man them", it had become increasingly important to measure on an even keel the quality and standard of the institutions that inject nearly 1500 candidates every year into the veins of international shipping.

In its efforts to integrate the multiple inspection regimes and establish a single comprehensive gradation system, DG Shipping developed the Comprehensive Inspection Programme (CIP), with broad contributions from IRClass and a few selective recognized organizations. The CIP clearly defines the guidelines and assessment checklist against which every institute shall be graded on an annual basis. CIP has been initially applied to institutes conducting pre-sea training as stated in the guidelines.

Only authorized Classification Societies acting as Recognised Organisations (ROs), such as IRClass, can carry out this inspection, gradation and certification. On completion of initial inspection, the institute shall be awarded "provisional grading" under CIP, which shall be confirmed, upgraded or downgraded during the subsequent annual inspection. The training institutions may also be subjected to unscheduled inspections by DGS or its field officers as required.

IRClass has been actively involved in the entire process of development of CIP from the beginning including development of checklists etc and is currently in the process of inspecting 35 maritime training institutes. It is heartening to note that our inspections are resulting in tangible improvements in the quality of training and living conditions for trainees and overall enhancements in infrastructure.

IRCLASS in Posidonia 2014

This year IRClass successfully made its presence felt at the 'Posidonia 2014' exhibition that attracted the attention of the global shipping community.

Our elegant stand welcomed over 200 visitors and it was also visited by several dignitaries such as the Prime Minister of Greece, President of Greek Shipping Association and Mayor of Piraeus.

This opportunity was well-utilised to gain competitor insights, make key industry contacts, and to further strengthen our relationships with our current customers. The mood was noticeably optimistic with the thought that the bottom of the market is behind us, and the debate centered on the recovery.

The exhibition left an indelible impact on us in igniting our spirits to prepare for greater challenges and to ride ahead of our competitors.



IRCLASS in Posidonia 2014



IRClass Academy

Marking the Foundation Stone of IRClass Academy

Many of IRS' clients seek to benefit from IRS by tapping into its knowledge base. In other words, there exists a strong 'pull' for knowledge-sharing with the industry. Establishing an Academy of one's own and offering training as service has been a part of the growth story for every major Class society.

Asia in general and India in particular have been leading providers of educated and skilled human resources for the entire world with a the Asian seafarers forming a substantial proportion of deck officers, marine engineers and crew across a variety of flags. To them, maritime education and training represent a great opportunity. In addition, substantial number of non-sea farers seeking jobs in shipping or other industries can also be considered as potential knowledge seekers.

The IRClass Academy has been established to focus on "job-specific" training and specialist education – beyond the pre-sea and other mandatory courses. The courses offered by the Academy aims at minimizing operational and business risks for targeted industries by enhancing the job specific knowledge of employees/ potential employee and will also address the aspirations of individual students. The value proposition of the Academy is a

combination of improved on-job performance and industry-recognized qualifications. The Academy aims at developing partnerships with the industry and also collaborating with leading institutions/universities, educational technology providers and content developers. With use of educational technologies, the Academy aims at positioning itself at the forefront – in line with India's reputation in IT-enabled services.

Activity highlight of IRClass Academy in the quarter July-Sept'14

Customized Training Program

- ISM Awareness

Client: shore-based staff of Global Offshore Services Ltd

Date: 6th September 2014

It was first of the customized programmes delivered by the Academy.

Remark by participant:

"All participants found the course contents and delivery to be very relevant and useful to their respective roles in the organization".

- Capt. Kapil Kekre

IMO Regulatory Awareness

- Managing the Risk of Wreck Removal Liability

Participants: P&I correspondents, insurance brokers, ship owners, ship managers, Oil & Gas field operators, flag administration, navy and coast guard, authority of inland waterways, port authorities.

Date: 13th September 2014

The one-day seminar illustrated the impact of the new legislation on various segments of the maritime sector with cases and examples from the industry. The lecture was delivered by the highly experienced and qualified speaker Prof. Tony Fernandez. The event received an overwhelming response from a wide range of maritime segments.

Internal Training:

- Internal Auditing Process: Quality being DNA of IRS, an intensive 3-day workshop specially designed for strengthening the internal auditing processes was conducted successfully.
- Specialist Training Program
 - o Inspection of Marine Components
 - o ISM and ISPS Audits and
 - o Fixed and Floating Offshore Structures
- Soft skills development Programs
 - o Time Management,
 - o Customer Relationship Management and
 - o Marketing Skills
- Special courses
 - o Distortion prediction and control of large ship structural units (organized in collaboration with IIT, Kharagpur)

At IRClass Academy, it is our continuous effort to impart the best training & education in a variety of marine and industrial aspects to add value to the business of our stakeholders including a responsible and environment friendly future.

News from Colombo

News from Colombo

Two passenger vessels of 400 passenger capacity each are being constructed at Colombo Dock Yard, Colombo. These vessels are owned by the Administration of Union Territory of Lakshadweep, Government of India. The vessels are designed to transport passengers and cargo between the Islands and the main land. The first vessel (M.V Coral) has already been completed and delivered.

Fast interceptor crafts for Indian Navy are under construction at SOLAS marine, Colombo. These crafts are designed for a speed of 45 knots and are to be deployed along the Indian coast.

Further, IRCLASS is undertaking the certification of Recruitment and Placement Service companies towards compliance with Maritime Labour Convention 2006 (MLC 2006).

IRClass has been selected by the National Institute of Fisheries and Nautical Engineering (NIFNE / Ocean University) for the audit and certification of its colleges. and the same is in progress.

The Quality Services Division of IRClass continues to provide certification services and will extend these services to cover newer areas such as Food Safety and IT systems.



Industrial Division News

IRClass Industrial Division has been awarded the "Best Inspection Agency of the Year" by Bharat Petroleum Corporation Limited (BPCL).The award was accepted by Mr. Y.V. Dharmadhikari, Head of Industrial Division at the Premier Vendors' Workshop organised by BPCL at the Mumbai Cricket Association (MCA).

Mr.Dharmadhikari said: "It is a matter of great pride that IRClass – Industrial Division has been recognised and honoured." He further added that this is a result of team work and commitment of IRClass towards service to our clients.



 **PREMIER
VENDORS'
WORKSHOP**

30th October, 2013 Mumbai
*"Confidence by Influence
Procurement through Good Governance"*

**BEST
INSPECTION
AGENCY
OF THE YEAR**

**M/s. INDIAN REGISTER
OF SHIPPING (IRS)**

IRS Industrial Division wins the award of "Best Inspection Agency of the Year" from M/s BPCL

Social Initiatives

Social Initiatives

In line with IRClass' mission of being a greener organisation, it has recently planted 500 saplings on its head office compound in Powai, Mumbai. The trees shall provide the much needed plant cover to the surrounding flora and fauna which will allow the re-homing of various species of birds whose habitats are being lost due to the rapid urbanisation.

These trees will also help in maintaining and increasing the ground water table in and around the area.

IRClass is also taking steps to conserve water by rainwater harvesting and channeling the rainwater into a common pit, where the water can be cleaned and stored for further usage.

Although these seem like small steps, IRClass believes that this will go a long way in conserving and sustaining our environment.

IRCLASS
Indian Register of Shipping

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