The ClassNK Mission

ClassNK is dedicated to ensuring the safety of life and property at sea, and to preventing pollution of the marine environment. To achieve this mission, ClassNK will:

- Focus on delivering the highest quality classification services, by the highest quality personnel while maintaining its totally independent third party, non-profit status;
- Focus on the development of relevant rules, guidances and procedures, and maintain and develop its commitment to scientific and technological research and development; and
- Maintain and develop its global operations in line with the needs of those using its services.
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ClassNK

Founded on 15 November 1899, Nippon Kaiji Kyokai, better known as ClassNK or simply NK, is a ship classification society dedicated to safeguarding life and property at sea and to preventing marine pollution. ClassNK offers a broad spectrum of services as a totally independent third party, non-profit organization. The principal work of the Society’s expert technical staff is to conduct surveys of new and existing ships and other marine structures, including hull structures, propulsion systems, electrical and electronic systems, safety equipment, and cargo handling gear, among numerous other areas, to ensure their full compliance with classification rules developed by the Society. It also conducts a wide range of statutory surveys on behalf of more than 100 flag States around the world. Other activities include the audit and certification of safety management systems based on the ISM Code, quality and environmental system assessments based on ISO standards, technical consulting, and an extensive range of cutting-edge R&D projects.

Since its founding 111 years ago, ClassNK has worked tirelessly to fulfill its mission of protecting human life, maritime property and the marine environment. An unmatched commitment to technical excellence and providing the highest level of service has made the Society a world leader in ship classification. As a result, by the end of 2010, the NK register listed 7,347 ships totaling over 179 million gross tons. This number represents some 20% of the world’s merchant fleet under class.

Although based in Japan, ClassNK has global representation through a network of 118 exclusive surveyor offices. ClassNK’s surveyors work in shipbuilding and repair yards and at ports around the world, wherever they may be called upon to examine the condition of a ship, to ensure that all of the Society’s services are available 24/7, worldwide.
ClassNK offers a broad range of services that encompass every aspect of ship classification from the approval of vessel and machinery plans to the survey and registration of the ship and ship installations, approval of materials, equipment and outfitting gear, as well as the assessment and registration of ship safety management systems and security systems.

As part of our classification activities, ClassNK has long been involved in the certification of shipyard and manufacturer quality assurance systems. Utilizing this experience, ClassNK has since expanded these activities to include registration and assessment in accordance with the ISO 9001 and ISO 14001 standards. ClassNK’s ISO registration activities are accredited by leading accreditation bodies both in Japan and internationally, and ClassNK ISO registration is recognized as a mark of quality throughout the world. The Society has recently added OHSAS certification services to these services, as well.

ClassNK also offers a wide variety of consulting and support services based on the technical expertise we have developed over more than a century of classification experience. These services include technical consulting, appraisal and certification of ships and offshore structures, newbuilding superintendence, inspection of industrial machinery and equipment, tonnage measurement and certification, as well various types of testing, research, and computer analysis.

ClassNK makes its extensive experience, expertise, and technical knowledge available to the entire maritime community via a number of different educational and training programs. These include training programs carried out at the request of the Japanese government and other flag and port administrations, as well technical seminars and the ClassNK Academy Program of courses. ClassNK is constantly expanding its educational and training activities for a broad spectrum of people, from those new to the industry to specialized experts, as part of its efforts to further contribute to the growth and development of the maritime community.

As a global organization, ClassNK maintains membership in a number of international decision and rule making bodies, and contributes to numerous maritime bodies around the globe. ClassNK is an active participant in the International Association of Classification Societies (IACS), and greatly contributes to the formulation of rules and regulations, such as the IACS Unified Requirements (UR) and Unified Interpretations (UI). ClassNK also dispatches experts and researchers to meetings of the International Maritime Organization (IMO), both as representatives of IACS and the Japanese government, among other international activities conducted by the Society.
Chairman’s Message

ClassNK continually serves the interests of the maritime community and environmental protection through its resolve to provide customers with meticulous services of the highest quality and pursue research and development of advanced technologies that enhance the technical capabilities supporting those services.

Maritime Industry and Global Trends in Fiscal 2010

The global economy in 2010 continued its slow transition towards recovery which started in 2009 as a result of the massive economic stimulus measures introduced by countries around the world to address the global recession that occurred after the Lehman shock in 2008. Against such conditions, it was also a year in which greater attention had been paid to newly emerging countries such as China, India, and Brazil, each of which exhibited strong economic growth compared with developed countries in the European region that continued to face destabilizing factors such as instability in their financial sectors.

The shipbuilding sector also underwent a major shift during the year with China overtaking Korea for the first time in terms of the volume of newbuildings completed. In fact, China emerged for the first time as the world’s largest shipbuilding nation in the world, based on the three major shipbuilding indices of volumes of orders received, completions delivered, and orders in hand being filled. In addition, the expansion of new shipbuilding in China has raised the total global volume of new ship construction to about 100 million gross tons for 2010, an increase of some 30% over the previous record of 77 million gross tons recorded in 2009.

Summary of Activities in Fiscal 2010

Against this background of new global shipbuilding records, the Society also set new records of its own with the entry into class of 585 newly built ships of 17.81 million gross tons during the year, the ninth straight year of record breaking growth. Thanks to the dedicated efforts of all concerned, ClassNK led all other classification societies by breaking the 170 million gross tons under class mark for the first time ever in March 2010. By the end of December 2010, ClassNK listed a total of 7,347 ships under class with a total tonnage of 179,478,084 gross tons. This represents some 20% of the total gross tonnage of the global merchant fleet under class. The total gross tonnage on the NK register is expected to break the 180 million ton mark in early 2011.

The Society has also been putting great focus on enhancing its survey and audit system in recent years in order to provide high quality service to the entire world more rapidly and precisely. The past year has been no exception. Nine new offices were established in various locations across the globe, including in Syria, Peru, Sri Lanka, and Russia, bringing the total number of exclusive surveyor offices in the ClassNK global network to 118 by the end of 2010. In addition, much effort has also been put into further improving the quality of our survey services, which form the core foundation of the work of the Society. This has been done by proactively enhancing the quality and competency of the surveyors themselves with the conduct of more extensive training and guidance both in Japan and around the world.

The Society has also been very active in its international activities. Since assuming the chairmanship of the International Association of Classification Societies (IACS) in July 2010, ClassNK has worked closely with IACS to step up its technical contributions to the maritime community, while promoting greater transparency of its operations, and gaining a better grasp of the views and needs of the maritime community as a whole from a broader and more balanced perspective. This has included engaging in wide ranging discussions with a host of parties across the maritime world to find practical solutions for numerous topics of concern. In
addition, the Society played an advisory role in the formal establishment of the Association of Asian Classification Societies (ACS) in February 2010. At the same time, the Society is actively working to develop cooperative relations with various members of the maritime community across the globe. The Society also works with the maritime community through various avenues to achieve the smooth development, abolishment, entry into force, and effective implementation of a raft of new conventions and requirements, including those concerned with ship recycling, ballast water management, and the reduction of greenhouse gases.

ClassNK also engages in many research and development projects that are directly related to our ship classification activities. These medium-term projects are carried out as part of a practical R&D program. Much of this work centers on applications to container ships, LNG carriers, and the marine environment. The results of this work are reflected in the Rules and Guidance of the Society. Their release to the public in this and other ways contributes to the mission of the Society of ensuring the safety of life and property at sea and preserving the marine environment through cutting edge technical research and development.

As the world’s largest classification society on a gross tonnage basis, we not only consider protecting the marine environment as a key task but also view protecting the global environment as an essential matter of concern. Consequently, the Society participates in a national program of projects aimed at developing a host of new technologies for reducing GHG emissions. As such, we are proactively working to reduce the environmental loads associated with the marine industry and improve the environment through joint research and development of such technologies in partnership with various organizations throughout the industry.

This year’s annual report describes in more depth various aspects of the many operations, international activities, as well as research and development activities undertaken by the Society during 2010.

Serving the Interests of the Maritime Community and Environmental Protection

I sincerely believe that the remarkable achievement of having the largest amount of gross tonnage of ships under class is a testament to the depth of trust that the Society has been able to build over our 111 year history. In order to deepen this trust even more in the future, we will rigorously strive to respond quickly and courteously to our clients while providing detailed service of the highest quality and care possible that best meets their needs. In addition, we will continue to pursue the research and development of advanced technologies in order to enhance the technical capabilities that support our services, as well as contribute to the marine industry and protection of the environment.

In closing, on behalf of everyone at ClassNK, I would like to take this opportunity to convey my sincerest appreciation to everyone for your continued patronage and support of our Society. We also look forward to your continued cooperation and support in the future.

Noboru Ueda
Chairman and President
ClassNK at a Glance

Winner of the “The Classification Society Award” at the Lloyd’s List Asia Awards 2010

The Lloyd’s List Asia Awards 2010 ceremony was held in Singapore on 7 October 2010. The awards are presented to selected companies and organizations that have made significantly outstanding contributions to the marine industry in Asia during the previous year. The extent and superior excellence of the activities and services of the Society in the Asian region during the period leading up to the award were most highly regarded, resulting in ClassNK being awarded the “Classification Society Award.”

New Technical Guidelines

As part of its ongoing efforts to improve the safety and reliability of ships at sea, the Society published numerous new technical guidelines in 2010, including those listed below. These and other guidelines can be downloaded from the “PDF Publications” page of the ClassNK website:

- Guidelines on Corrosion Resistant Steel for COT
- Guidelines on Friction Stir Welding
- Guidelines on the Installation of Ballast Water Treatment Systems
- Guidelines for Performance Standard for Protective Coatings Contained in IMO Resolution MSC.215 (82)
- Guidelines on Laser Beam Arc Hybrid Welding
- Guidelines for the Prevention of Human Error Aboard Ships
- ClassNK Technical Bulletin Vol. 28

International Exhibitions

The Society participated in eighteen major international maritime exhibitions in 2010:

- VIETSHIP 2010
  - Date: March 17–19
  - Location: Hanoi, Vietnam
- CMA Shipping 2010
  - Date: March 22–24
  - Location: Stanford, Connecticut, USA
- Asia Pacific Maritime 2010
  - Date: March 24–26
  - Location: Singapore
- ShipTek 2010
  - Date: April 18–19
  - Location: Dubai, UAE
- LNG 16
  - Date: April 18–21
  - Location: Doha, Qatar
- Sea Japan 2010
  - Date: April 21–23
  - Location: Tokyo, Japan
- China International Marine, Port & Shipbuilding Fair
  - Date: May 19–21
  - Location: Nanjing, China
- Posidonia 2010
  - Date: June 7–11
  - Location: Athens, Greece
- Navalshore 2010
  - Date: August 11–13
  - Location: Rio de Janeiro, Brazil
- SMM Hamburg 2010
  - Date: September 7–10
  - Location: Hamburg, Germany
- Indonesia Maritime Expo 2010
  - Date: September 29–October 1
  - Location: Jakarta, Indonesia
- Asia Maritime & Logistics 2010
  - Date: October 11–12
  - Location: Kuala Lumpur, Malaysia
- Techno-Ocean 2010
  - Date: October 14–16
  - Location: Kobe, Japan
- Seatrade Middle East Maritime
  - Date: October 26–28
  - Location: Dubai, UAE
- Shiptec China 2010
  - Date: October 26–28
  - Location: Dalian, China
- National Congress of Merchant Marine
  - Date: November 5–12
  - Location: Mexico City, Mexico
- China Zhoushan International Maritime Expo 2010
  - Date: November 11–13
  - Location: Zhoushan, China
- EXPONAVAL / TRANSPORT 2010
  - Date: November 30–December 3
  - Location: Valparaiso, Chile
Record Number of Newbuildings Added to Register

The number of newbuildings classed with the Society reached a total of 585 ships amounting to 17,807,446 gt in 2010, surpassing the previous record for the Society set in 2009 for total newbuilding tonnage added to the register during the year. At the end of December 2010, the Society listed a total of 7,347 ships under class with a total tonnage of 179,478,084 gross tons.

Breakdown of NK Fleet by Flag

- Panama: 56%
- Japan: 7%
- Liberia: 6%
- Singapore: 6%
- Hong Kong: 5%
- Marshall Islands: 4%
- Indonesia: 0.5%
- Others: 14%

Breakdown of NK Fleet by Ship Type

- Bulk Carrier: 54%
- Oil Tanker: 15%
- Container Carrier: 11%
- Vehicle Carrier: 8%
- Chemical Tanker: 3%
- LNG Carrier: 3%
- General Cargo: 2%
- LPG Carrier: 2%
- Refrigerated Cargo Carrier: 1%
- Others: 2%

ClassNK Fleet

- Newbuildings: 17.81 mgt 585 ships
- Total: 19.65 mgt 664 ships

GT and No. of Ships Newly Classed

- Newbuildings: 17.81 mgt 585 ships
- Total: 19.65 mgt 664 ships
In order to further improve customer service and expand its worldwide service network, ClassNK established nine new exclusive surveyor offices in 2010. By the end of the year, the number of ClassNK exclusive surveyor offices grew to 118 in total, including 21 offices in Japan and 97 offices outside Japan.

**Service Network Expansion**

- **July 1** Tartous, Syria (under jurisdiction of Istanbul Office) Exclusive surveyor sub-office established
- **July 1** Sibu, Malaysia (under jurisdiction of Kota Kinabalu Office) Local Area Representative office established
- **July 1** Callao, Peru (under jurisdiction of Valparaiso Office) Local Area Representative office established
- **July 15** Cardiff, United Kingdom (under jurisdiction of London Office) Local Area Representative office established
- **October 1** Dunkerque, France (under jurisdiction of Marseille Office) Local Area Representative office established
- **November 1** Ferrol, Spain (under jurisdiction of Bilbao Office) Local Area Representative office established
- **December 15** Kolkata, India (under jurisdiction of Mumbai Office) Local Area Representative office established
- **December 30** Colombo, Sri Lanka (under jurisdiction of Mumbai Office) Local Area Representative office established
- **December 30** Saint Petersburg, Russia (under jurisdiction of London Office) Local Area Representative office established

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<th>Country</th>
<th>Code</th>
<th>Office Type</th>
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<td></td>
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<tr>
<td>Overseas</td>
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Total Number of Surveyor Offices: 118 (Established in 2010)
**Branches in Japan**

- Tokyo/Chiba (Head Office)
- Hakodate
- Hachinohe
- Sendai
- Tokyo
- Yokohama
- Shimizu
- Kobe
- Nagoya
- Sakaide
- Okayama
- Aioi
- Kochi
- Innoshima
- Usuki
- Hiroshima
- Imabari
- Onomichi
- Kitakyushu
- Sasebo
- Nagasaki
- Sasebo
- Nagoya
- Yokohama
- Tokyo

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**LIBRA TRADER**
- A 310,339 dwt VLCC built by MITSUI ENGINEERING & SHIPBUILDING CO., LTD., CHIBA SHIPYARD for LEGEND TRANSPORT INC.

**STEEL HUB-19**
- A 6,299 dwt barge built by DALIAN SHIPYARD INDUSTRIAL DEVELOPMENT GENERAL CORPORATION, CHANGXING SHIPYARD for STEEL HUB CO., LTD.

**CHESAPEAKE HIGHWAY**
- A 21,643 dwt vehicle carrier built by NANTONG COSCO KHI SHIP ENGINEERING CO., LTD. for KAW1652 SHIPPING S.A.

**INCE KARADENIZ**
- A 56,956 dwt bulk carrier built by COSCO (ZHOUSHAN) SHIPYARD CO., LTD. for INCE DENIZCILIK VE TICARET A.S.
As of the end of December 2010, ClassNK listed a total of 7,347 ships under class, a net increase of 159 ships over the year-end total for 2009. The total tonnage on the NK class register as of the end of 2010 was 179,478,084 gross tons, a net increase of 10,613,799 gt over the end of 2009.

By the end of 2010, the number of NK classed ships flagged outside of Japan stood at 6,391 vessels, or some 87% of the ships registered with the Society. These ships comprised 166,448,570 gross tons or 93% of the Society’s total fleet. Ships registered with the Society continue to bear the flags of many different nations and territories, with NK classed ships registered to 73 different flag administrations. In addition, the average age of the NK fleet lessened slightly to 9.9 years.

A total of 664 ships of 19,650,486 gross tons were added to the register during the year 2010. Of these, a total of 585 ships consisted of newbuildings comprising 17,807,446 gross tons, a significant increase over the 2009 record total of 16,703,104 gross tons. In terms of ship numbers, newbuildings accounted for 88% of all ships added to the register in 2010, while on a gross ton basis, these newbuildings accounted for 91% of the total gross tonnage added to the register.

Domestic Newbuilding Highlights

Given that newbuilding registrations reached record levels again in 2010, it was no surprise that ClassNK’s 21 offices in Japan had a very busy year. Though it would not be possible to list all of the newbuildings constructed under the auspices of our Japanese offices in this annual report, a brief overview of the year’s highlights is presented below.

Hakodate Branch

During the year, the Hakodate Branch office had a total of 11 ships of 183,495 gross tons in total enter NK class in 2010. Representative of these ships was the 7,981 dwt cement carrier, Pacific Breeze, built by Hakodate Dock Co., Ltd. (Muroran Manufactory) for Taiheiyo Kisen Kaisha, Ltd. and Japan Railway Construction, Transport and Technology.

Tokyo Branch

During the year, the Tokyo Branch office saw a total of 19 ships of 778,720 gross tons in total enter NK class. Among the many ships built under the watchful eye of the surveyors of the Tokyo Branch Office was the LIBRA TRADER, a 310,339 dwt VLCC built by Mitsui Engineering & Shipbuilding Co., Ltd., Chiba Shipyard for Legend Transport Inc. Two other vessels of particular note included the 217 dwt cargo-passenger ship, LADY SAMOA III, built for the Independent State of Samoa, and the 564 dwt cargo-passenger ship, OTUANGA OFA, built for the Kingdom of Tonga. Both ships were built by the ISB Corporation through Official Development Assistance (ODA) provided by the Japanese government.
Nagoya Branch

In 2010, the Nagoya Branch Office oversaw the construction of 12 newbuildings totaling 1,060,258 gross tons. Notable newbuildings in the region built to NK class include the OITA MARU, a 297,736 dwt ore carrier built by Universal Shipbuilding Company’s Tsu Shipyard for Fair Wind Navigation S.A., the BESS, a 18,013 dwt, 6,300 unit car carrier built by Shin Kurushima Toyohashi Shipbuilding Co., Ltd. for e.A. Car Carriers (Panama) S.A., and the ATLAS LEADER, a 21,323 dwt, 6,400 unit pure car carrier also built by Shin Kurushima Toyohashi Shipbuilding Co., Ltd. for Fi Kiwi Leasing Ltd. and Kialoa Leasing Co., Ltd.

Kobe Branch

The Kobe Branch Office oversaw the construction of 19 newbuildings totaling 598,844 gross tons in 2010. Representative of these ships was the MOL MAEDEST, a 79,423 dwt container carrier built by Mitsubishi Heavy Industries Ltd., Kobe Shipyard, for SNC Hugo. In addition, the Kawasaki Shipbuilding Inspection Co., Ltd., Kobe Works, built the OCEAN COLOSSUS, a 58,831 dwt bulk carrier, for K-Noble Pte., Ltd. The vessel was also the first ship to be built by the yard in accordance with the Common Structural Rules (CSR) and the Performance Standard for Protective Coatings (PSPC).

Okayama Branch

In 2010, the Okayama Branch Office oversaw the construction of 22 newbuildings totaling 858,719 gross tons built to NK class. A notable example handled by the office was the MAPLE ISLAND, a 55,610 dwt bulk carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. (Tamano Works) for Soyo Shipping Inc. Another ship was the FISKARO, a 83,448 dwt bulk carrier built by Sanoyas Hishino Meisho Corporation for Leggero Shipmanagement SA.

Onomichi Branch

The year was another busy year for the NK Onomichi Office. The Office oversaw the construction and entry into NK class of 35 newbuildings totaling 1,654,708 gross tons in 2010. Representative of these was the MAERSK MUROTSU, a 50,093 dwt oil carrier built by Onomichi Dockyard for Rich Ocean Shipping, Inc. Another notable ship newly built to NK class through the office included the SHAGANG FIRST ERA, a 181,447 dwt bulk carrier built by Koyo Dockyard Co., Ltd. for Osprey Maritime Co., S.A. and Yuying Maritime Co., S.A. Both ships were the first to be built by the respective yards in accordance with the CSR. In addition, the 82,194 dwt bulk carrier, TORM ISLAND, was built by Tsuneishi Holdings Corporation, Tsuneishi Shipbuilding Co. Ltd. for Ambitious Line, S.A.
Hiroshima Branch

In 2010, the Hiroshima Branch Office oversaw the construction of 29 newbuildings totaling 1,172,234 gross tons. IHI Marine United Inc., Kure Shipyard built the NYK ALTAIR, a 89,692 dwt, 9,300 TEU container carrier, for Qimen Shipholding S.A. Elsewhere, the IVS KNOT, a 33,143 dwt general cargo ship, was built by Kanda Shipbuilding Co., Ltd. for IVS Bulk 511 Pte., Ltd., while the Shin Kasado Dockyard Co., Ltd. built the IKAN SENYUR, a 61,494 dwt bulk carrier, for E.K. Line S.A. and Ehime Kaiun Co., Ltd.

Sakaide Branch

The Sakaide Branch Office oversaw the construction of 46 newbuildings totaling 1,688,015 gross tons during the year. Kawasaki Ship Building Inspection Co., Ltd. built the first of a series of 58K bulk carriers, the 58,713 dwt KOREAN LILY. The yard also built the TAITAR NO. 4, a 77,053 dwt LNG carrier with a cargo capacity of 147,000m³. In addition, Imabari Shipbuilding Co., Ltd. (Marugame Headquarters) built the 95,790 dwt DOUBLE FORTUNE, the first of a new type of bulk carrier, for Catalina Shipping S.A.

Imabari Branch

The Imabari Branch Office had another busy year in 2010 overseeing the construction and entry into NK class of 82 newbuildings totaling 2,159,626 gross tons. Notable among these ships were the SPRING ZEPHYR, a 181,725 dwt bulk carrier built by Imabari Shipbuilding (Saijo Shipyard) for Primavera Montana S.A., and the MAR CAMINO, a 53,862 dwt combined ore and sulfuric acid carrier. The SPRING ZEPHYR was also the first to be built at the yard in accordance with the CSR. Also in the same region, Shin Kurushima Dockyard Co., Ltd. built the ALPACA I, a 33,755 dwt chemical tanker for Isidora Shipping Inc.

Kitakyushu Branch

The Kitakyushu Branch Office oversaw the construction of 12 newbuildings totaling 197,073 gross tons in 2010. Representative ships included the TRANS FUTURE 8, a 6,220 dwt car carrier built by Mitsubishi Heavy Industries, Ltd., Shimonoseki Shipyard & Machinery Works for FENG LI MARITIME CORPORATION.
Nagasaki Branch

In 2010, the Nagasaki Branch Office oversaw the construction of 20 newbuildings totaling 1,416,831 gross tons. One of the notable ships built to NK class was the YAMATAI, a 19,818 dwt modular carrier equipped with an air lubrication system. The ship was built for FGL Sunrise Panama S.A. at the Nagasaki Shipyard of Mitsubishi Heavy Industries, Ltd. The air lubrication system is one of the projects being supported by the Society’s cooperative project with the Japanese government on the research and development of technologies for reducing CO₂ emissions from ships.

Sasebo Branch

During the year, the Sasebo Branch Office oversaw the construction of 35 newbuildings totaling 1,834,661 gross tons. Representative of these ships was the DUBAI SUN, a 61,344 dwt bulk carrier built by Oshima Shipbuilding Co., Ltd. for Sun Maritime Inc., and the IZUMI MARU No. 10, a 1,056 dwt electric powered LPG carrier built by Maehata Shipbuilding Co., Ltd. for Nippon Gas Line Co., Ltd. and Japan Railway Construction, Transport and Technology.

International Newbuilding Highlights

As the global network of the Society continues to grow, the number of surveys, including newbuilding surveys, overseas has been steadily on the rise. A brief summary of international newbuilding highlights for some of ClassNK’s 97 exclusive surveyor offices overseas during the year 2010 is given below.

China

The Society currently has 8 offices in China. The number of newbuildings classed by the Society in China has continued to grow, increasing by nearly 60% over the previous year.

The Society’s Zhoushan Office in particular had the greatest number of newbuildings enter NK class in the China region during the year. Some key examples include the KeY ACTION, an 82,168 dwt bulk carrier built by Tsuneishi Group (Zhoushan) Shipbuilding Inc. for Squirtle Maritima S.A., and the INCE KARADENIZ, a 56,956 dwt bulk carrier built by COSCO (Zhoushan) Shipyard Co., Ltd. for Ince Denizcilik Ve Ticaret A.S.

The Society’s Nantong Office oversaw the construction of the CHESAPEAKE HIGHWAY, a 21,643 dwt pure car carrier capable of carrying 6,200 vehicles, the largest ship of this type to be built in China, for KAW1652 Shipping S.A., and the BAO MIN, a 297,844 dwt ore carrier for Sea Green Shipping, S.A., both built by Nantong COSCO KHI Ship Engineering Co., Ltd. (NACKS).
Elsewhere in China, the Society’s Shanghai Office oversaw the construction of the 53,360 dwt bulk carrier *THRASHER*, built by Yangzhou Dayang Shipbuilding Co., Ltd. for Thrasher Shipping LLC, while the Dalian Office oversaw the construction of the 6,296 dwt barge *STEEL HUB*-20, built by Chang Xing Shipyard for Steel Hub Co., Ltd. The Society’s Guangzhou Office conducted a newbuilding survey for the 56,810 dwt bulk carrier *FLAG ALEXANDROS*, built by COSCO (Guangdong) Shipyard Co., Ltd. for Southport Faith S.A.

**Korea**

The Society’s Pusan Office oversaw the construction of the *FRONTIER BONANZA*, a 179,435 dwt bulk carrier built by Hyundai Heavy Industries Co., Ltd., Gunsan Shipyard for Dumun Navigation S.A. The office also oversaw the construction of the 65,883 dwt container ship *NYK ROMULUS*, built by Hyundai Samho Heavy Industries Co., Ltd. for Rishiri Shipping Pte. Ltd. In addition, STX Offshore & Shipping Co., Ltd. built the *BUNGA ANGELICA*, a 38,001 dwt chemical tanker for MISC Berhad.

Among the many ships handled by the Society’s Ulsan Office during the year, the office oversaw the construction of the 52,055 dwt container carrier *BROOKLYN BRIDGE*, capable of carrying 4,500 containers. The ship was built by Hyundai Heavy Industries Co., Ltd. for KLB2124 Shipping S.A.

**The Philippines**

The Society’s Cebu Office oversaw the construction of the 180,630 dwt *TENSHU MARU*, the first capesize bulk carrier to be built in the Philippines. The ship was built by Tsuneishi Heavy Industries (Cebu) Inc. Other ships include the *PEARL HALO*, a 58,096 dwt bulk carrier built for Sun Lanes Shipping S.A., and the 58,091 dwt bulk carrier *DORIC VICTORY*, built for Ocean Harmony Navigation Inc. Both vessels were also built by Tsuneishi Heavy Industries (Cebu) Inc.

**Malaysia**

ClassNK established a new office in Sibu during the year, adding to the existing offices in Kuala Lumpur, Kota Kinabalu, Johor Bahru, and Miri in the country. During the year, the five offices in Malaysia oversaw the construction of primarily barges and tugboats newly built in the country.

**Indonesia**

The Society currently has four offices in Indonesia: Jakarta, Batam, Surabaya, and Balikpapan. All told, the offices oversaw the new building of mostly barges and tugboats in the country during the year.
Class Maintenance and Statutory Surveys

2010 was once again a very busy year for ClassNK in terms of surveys of existing ships. Over the course of the year, the Society carried out a total of 13,651 surveys. Of these, 3,063 surveys were conducted in Japan, while 10,588 surveys were carried out overseas.

At present, a total of 106 government Administrations around the world recognize and authorize ClassNK to act on their behalf to conduct surveys and issue certificates in accordance with international conventions and codes, as well as national requirements pertaining to ship safety and the prevention of marine pollution. In 2010, the Society carried out inspections and issued more than 32,000 statutory certificates based on these authorizations as follows:

- International Load Line certificates: 2,821
- SOLAS related certificates: 16,492
- MARPOL related certificates: 11,263
- Anti-fouling system certificates: 2,404

Inspection and Approval Services

The Society provided a range of company approval related services including testing and measurement services related to class and equipment maintenance surveys as well as for maintaining the registration of approved firms during the year. Firms providing the following types of services were approved by the Society in 2010:

1. In-water survey of ships: 19
2. Thickness measurements of ships: 20
3. Radio inspection services: 33
4. Maintenance of fire fighting systems and equipment: 33
5. Maintenance of life saving equipment and appliances: 16
6. Voyage data recorder performance testing: 35
7. Hatch tightness testing: 3
8. Coating system testing: 2
Port State Control (PSC)

As with previous years, the Society continues to work with the managers and owners of detained vessels to help improve ship conditions and increase safety awareness. To this end, the Society’s Survey Department published the Annual Report on Port State Control 2009, a compilation and analysis of PSC related statistics for the previous year, and distributed it to ship owners, ship managers, and other concerned parties. It also created and released the “Port State Inspections Pocket Checklist,” with the aim of helping to promote the maintenance and strengthen the management of such ships. In addition, high-ranking members of the Society visited key maritime authorities around the world, including the Australian Maritime Safety Authority (AMSA), China MSA, Transport Canada, and the USCG during the course of the year. ClassNK also sent representatives to bilateral China–Japan and Korea–Japan meetings on inspection related matters and gave presentations on the Society’s efforts being made to reduce the detention ratio of NK classed ships.

Audit and Registration of ISM Code and ISPS Code related Systems

In 2010, ClassNK had another busy year conducting ISM Code and ISPS Code related audits as a Recognized Organization on behalf of various flag Administrations. Over the course of the year, the Society registered 47 new companies in accordance with ISM requirements, bringing the total number of companies registered with the Society to 601. Safety Management Certificates (SMC’s) were issued to 828 ships in 2010, bringing the total number of vessels registered with the Society to 4,579. As of the end of 2010, NK conducts ISM authorizations on behalf of 64 Administrations. The Society also registered 768 ships to ISPS Code requirements during the year, bringing the total number of ships registered with the Society under the ISPS Code to 3,880. NK currently conducts ISPS authorizations on behalf of 50 Administrations. A breakdown of the number of vessels by flag state is shown in the following table.

<table>
<thead>
<tr>
<th>Flag</th>
<th>No. of Ships</th>
<th>Flag</th>
<th>No. of Ships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panama</td>
<td>2,301</td>
<td>Saint Vincent and the Grenadines</td>
<td>14</td>
</tr>
<tr>
<td>Singapore</td>
<td>334</td>
<td>Malaysia</td>
<td>8</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>226</td>
<td>United Arab Emirates</td>
<td>4</td>
</tr>
<tr>
<td>Japan</td>
<td>171</td>
<td>Saudi Arabia</td>
<td>4</td>
</tr>
<tr>
<td>Liberia</td>
<td>155</td>
<td>Dominican Republic</td>
<td>4</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>160</td>
<td>Switzerland</td>
<td>3</td>
</tr>
<tr>
<td>Malta</td>
<td>123</td>
<td>Bermuda</td>
<td>2</td>
</tr>
<tr>
<td>Bahamas</td>
<td>111</td>
<td>United Kingdom</td>
<td>1</td>
</tr>
<tr>
<td>Cyprus</td>
<td>59</td>
<td>Kiribati</td>
<td>1</td>
</tr>
<tr>
<td>Turkey</td>
<td>55</td>
<td>Tuvalu</td>
<td>1</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>46</td>
<td>Barbados</td>
<td>1</td>
</tr>
<tr>
<td>Greece</td>
<td>45</td>
<td>The Isle of Man</td>
<td>1</td>
</tr>
<tr>
<td>Philippines</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>32</td>
<td>Total (26 Flag States)</td>
<td>3,880</td>
</tr>
</tbody>
</table>
Assessment and Registration of Quality, Environmental Management, and Occupational Health & Safety Management Systems

ClassNK also conducts registration of quality management systems under the ISO 9001 standard, as well as assessment and registration of environmental management systems under the ISO 14001 standard. In 2010, a total of 11 organizations were newly registered under ISO 9001, bringing the total number registered with the Society to 372. The Society also registered 5 organizations to the ISO 14001 standard during the year, bringing the total number to 105.

The Society also began offering a new service from 15 July 2010 of certifying Occupational, Health & Safety Management Systems (OHSAS) based on the OSHA Health and Safety Manual and OHSAS 18001 Guide, which describe the specifications for certification and related detailed requirements.

During 2010, ClassNK issued Statements of Compliance to 21 vessels under the Society’s Condition Assessment Program (CAP). Statements of Compliance were also issued for the ballast water management plans of 688 ships. As of the end of 2010, the aggregate total number of Statements of Compliance issued by the Society stood at 223 for CAP and 4,320 for ballast water management plans.

In 2010, the Society’s Emergency Technical Assistance Service (ETAS) team was called into action for 11 incidents related to maritime casualties to provide technical support. By the end of 2010, 1,080 vessels had registered for the Society’s ETAS service, an increase of 114 ships over the 2009 total.

ClassNK Academy

Drawing upon its extensive expertise in the survey of ships and audit of ship management systems, ClassNK unveiled its new ClassNK Academy educational program in 2010 to provide members of the maritime industry active in ship construction, maintenance, or operation with a working knowledge of shipping and shipbuilding. During the year, ClassNK offered the ten ClassNK Academy courses listed on the following page at four locations in Japan, namely: Tokyo, Imabari, Kobe, and Kokura. The courses were attended by a total of 1,680 persons from among shipowners, shipyards, manufacturers, and others. In addition, courses were offered for the first time overseas in Hong Kong, Kuala Lumpur, New York, and Rio de Janeiro. A combined total of 215 persons attended these ClassNK Academy courses outside...
Japan. Moreover, portions of NK Academy courses were also offered as part of technical seminars and other special technical presentations made at eleven locations in nine countries outside Japan during the year.

Courses Related to Newbuildings
- Classification Societies and Statutory Issues Course
- New Shipbuilding Course (Hull)
- New Shipbuilding Course (Machinery and Electrical Installations)
- Material and Welding Course

Courses Related to Existing Ships
- Damage and Maintenance Course (Hull)
- Damage and Maintenance Course (Machinery and Electrical Installations)
- Safety Equipment Course
- Cargo Handling Appliance Course
- Port State Control (PSC) Course

Courses Related to Ship Management
- Ship Management Course (Incident Investigation and Analysis, Risk Management and Internal Audits)

Training
ClassNK actively runs and participates in a number of different training activities both for internal staff development and in cooperation with outside organizations. These training programs cover everything from surveyor training to internships, lectures, and other cooperative training programs designed to meet the needs of government agencies and the maritime industry. Some of the more notable training programs ClassNK conducted in 2010 are briefly introduced below.

Surveyor Training
ClassNK conducted a range of surveyor training programs for its surveyors (including new graduates) around the world during the year. In addition to the training provided by the Society’s Head Office, many surveyors also underwent practical training aboard ship, notably the training vessel SEIUN MARU of the National Institute for Sea Training, or took additional survey training at one of the Society’s local offices either in Japan or overseas. Practical training was also provided for NK surveyors on marine engines at the Yanmar Co. Ltd. Amagaseki Factory T. T. School. In addition, plan examination training was also provided to surveyors assigned at the Society’s various Plan Approval Centers around the world.

Marine Management Systems Auditor Training
ClassNK conducted Maritime Security Auditor training for its surveyors at the Society’s Training Center in Japan as well as at its Singapore and London Offices. Surveyors who have successfully completed Marine Management Systems Auditor training are qualified to perform audits of safety management systems and ship security systems.
**Maritime Labor Inspector Training**

ClassNK conducted Maritime Labor Inspector training for surveyors at its Training Center in Japan as well as at the Society’s Singapore, Piraeus, Shanghai, New York, New Orleans, Rio de Janeiro, and Dubai Offices. The training is provided in anticipation of the 2006 Maritime Labour Convention coming into effect in 2011.

**Lectures at the Eastern Japan Training Center for Shipbuilding Skills**

At the request of the Eastern Japan Training Center, the Society presented lectures on the handling of defective welding to technical staff members new to the field of shipbuilding.

**Lectures at the Innoshima Technical Center**

At the request of the Innoshima Technical Center, the Society presented lectures on “Case Studies of Ship Damage and Lessons Learned” to staff members at the Center.

**Lectures for the Japanese Ministry of Land, Infrastructure, Transport and Tourism**

In 2010, ClassNK conducted a variety of lectures at the request of the Japanese Ministry of Land, Infrastructure Transport and Tourism (MLIT). These included a lecture on “ISM Audits by Nippon Kaiji Kyokai” at a MLIT ISM Code Seminar as well as on “Principles of Ship Security Risk Assessments at Classification Societies” at its ISPS Code Seminar.

**Cooperation with the Tokyo MOU**

Following a request from the Tokyo MOU Secretariat, ClassNK provided lectures on MARPOL and SOLAS at the “20th Basic Training Course for Port State Control Officers in the Asia Pacific Region” held by the Shipbuilding Research Centre of Japan (SRC).

**Cooperation with JICA**

Following a request from Japan International Cooperation Agency (JICA), the Society also presented lectures on the SOLAS and MARPOL conventions as well as on newbuilding surveys at the “Group Training Course in International Maritime Conventions and Ship Safety Inspection” held by the Ship Research Centre of Japan for maritime officials from various countries overseas.

**ClassNK Technical Seminars Held in Japan**

Providing clients with the latest and most up to date technical information is one of the most important tasks undertaken by the Society. To this end, each year ClassNK conducts a number of technical seminars on a wide variety of timely topics. In 2010, ClassNK Technical Seminars were held twice in five locations across Japan, namely: Tokyo, Kobe, Imabari, Onomichi, and Fukuoka. The seminars drew roughly 1,480 attendees from across the entire spectrum of the maritime industry, including shipowners, shipyard staff, and manufacturers, among others.

The Japanese version of the Technical Seminar materials can be downloaded from the Technical Seminar page of Japanese version of the website only. A summary of the material covered in the seminars is listed below.

**ClassNK Spring Technical Seminar**

(1) Report on the R&D Activities of the Society during the previous year, 2009
- Research on strength assessment against sloshing in membrane LNG carriers
- Research on application of blast technology using mixed air-water jets
- NK efforts for reducing the emission of GHG from ships
(2) Latest international trends affecting shipbuilding and shipping
• IMO and IACS trends
• Concerns and measures concerning low sulfur fuel controls
• Review of 2006 Maritime Labor Convention and its implementation
• NK activities in preparation for implementation of the Ballast Water Convention (Part 2)

ClassNK Autumn Technical Seminar
(1) Review of amendments to the Rules, etc. enacted since December 2009
• Explanation of Rules related to machinery and electrical systems
• Explanation of Rules related to equipment and materials
• Explanation of Rules related to hull structures
• Latest activities of IACS Hull/Machinery/Survey/Statutory Panel
(2) Latest trends in international conventions and statutory requirements, etc.
(3) Technical topics
• NK activities regarding the Ship Recycling Convention
• NK activities regarding the reduction of GHG emissions from ships

ClassNK Award
The “ClassNK 100 Awards” were originally established in 1999 to commemorate the 100th anniversary of the Society’s founding. Since renamed the “ClassNK Award,” the award is presented each year in recognition of outstanding research papers prepared by students at participating universities pursuing courses of study in naval architecture, marine engineering, as well as marine technology and ocean engineering. In 2010, awards were presented to select students at universities in Korea, China, and India.

ClassNK Website
The ClassNK website provides access to a wealth of information on the Society’s numerous activities and services. It is continually being upgraded to make it more user-friendly and easier to use. This has included the addition of new pages and related menu items on ILO Maritime Labour Convention, Ballast Water Convention, and Occupational Health and Safety Management Systems (OHSAS) related certification services. A function has also been added to allow users to search for Technical Information notices by category. In addition, the pages listing the various free and PDF versions of publications available for download have been improved. Pages on the ClassNK technical seminars have also been improved with shortcuts added for easy access.*

* Applies only to Japanese language version of website.
Overview of Research and Development
The Society engages in a wide range of R&D activities and always strives to do so ever more effectively and efficiently while responding to customer needs and grasping the latest technological trends more quickly, in order to better contribute to ensuring the safety of ships and protection of the marine environment. The Society also conducts joint research with various industry partners including public and private entities alike based on demands from the relevant sector. This not only includes R&D work concerned with conventional ship classification but also encompasses a wide variety of topics related to the maritime and offshore industry as a whole.

1. Research and Development Work Related to Ship Classification
In 2009, ClassNK launched the second phase of its practical research and development program aimed at finding concrete and practical solutions to the problems faced by the maritime industry. The projects in this program continued in 2010 and have focused mainly on three major areas: ultra-large container ships, LNG carriers, and protecting the marine environment.

Some of the research projects undertaken in 2010 as part of this program are briefly described below.

1) Ultra-large container ships
• An examination was made of the effects of hydroelastic response such as whipping and springing on the longitudinal strength and fatigue strength of container ships; the results of which were compiled and summarized in various technical materials.
• In addition to examining damage resulting from bow flare slamming on container and other large sized ships, numerical simulations were carried out to recreate the damage that occurs as a result of bow flare slamming on a PCC. The results obtained were used to develop a draft set of requirements regarding the strength assessment of horizontal members to withstand bow flare slamming impact loads.
• Research continued on the application of brittle crack arrest design in the prevention of brittle fractures in ultra-large containerships. This included conducting large-scale and full-scale structural component tests to verify required brittle crack arrest toughness that may rely on the damage scenario envisaged. In addition, ultra-wide duplex ESSO tests were conducted to assess and verify the effect of thickness on required brittle crack arrest toughness.

2) Membrane LNG carriers
• The Society continued its investigations into a suitable method for evaluating the strength of the insulation structures of membrane LNG carriers against sloshing impact loads caused by ship motions. The examination included verification of a sensitivity study on the structural response of insulation structures against such sloshing impact loads. This was done by performing a series of dynamic FE calculations with a particular focus on the bending failure of the top plate and compressive failure of the side plate being dominant collapse modes. In addition, thorough investigations were made of the appropriate model test specifications to identify the sloshing impact loads with due accuracy. Following these processes, draft guidelines were then developed on the sloshing strength of cargo containment systems of membrane LNG carriers.
3) Protection of the marine environment

- As regulations on reducing NOx emissions become ever more stringent, the Society continued its research on issues related to the certification of SCR NOx removal systems. This included the development of draft requirements and related provisions on the installation of aqueous ammonia tanks and urea tanks in the engine room.
- As part of its ongoing efforts to reduce the burdens placed on the environment by the maritime industry, the Society also continued its research on the practical application of greenhouse gas (GHG) reduction technologies onboard ships. This included the development of an EEOI (Energy Efficiency Operational Index) calculation and analysis system for use in evaluating the reduction of greenhouse gas emissions from ships.

4) Other projects relating to rule development

- Draft strength requirements were developed for bevel gears used in azimuth thrusters and other equipment using such gears. As part of the project, an investigation was made of the mechanism behind the occurrence of what are known as “tooth interior fatigue fractures (TIFs)”, which are a form of fatigue fracture that tend to occur at approximately mid-height in the tooth of such gear teeth as a result of repeated contact of the gear surfaces against each other. Fatigue testing and FEM analysis were also performed as part of the investigation. The results of this examination are to form the basis for new rule requirements.

2. Joint Research Based on the Needs of Industry

The Society also engages in a range of joint research projects to meet the needs of the marine industry. Under this unique joint research scheme, the Society provides both technical as well as financial support based on proposals or requests from various external entities in the maritime industry. The following projects were completed in 2010.

1) R&D of practical application of blast technologies utilizing mixed air-water jets*1

The Society cooperated in the development of equipment capable of being used at a practical level to perform the surface treatment required by the Performance Standard for Protective Coatings (PSPC) based on basic technology developed through the Japan Ship Technology Research Association.

2) R&D on methods for reducing energy consumption at shipyards*2

An examination was made of methods for improving the efficiency of machinery and equipment that consume large amounts of electric power such as welding equipment and NC (numerical control) cutting machines with the aim of reducing emissions from the shipbuilding process.

3) R&D on system for supporting preparation of Coating Technical File (CTF)*3

The Society completed development of a software system to make in the creation and maintenance of coating technical files. The system is already being used at a number of shipyards. The aim is to develop the system further and enhance its value with a unified format for use as a de facto standard in Asia.

4) Investigative research testing of effective utilization of 3-D CAD*4

An examination was made of the feasibility of drawing concrete images for effective use with existing ships. This included a careful review of the format, necessary functions, information management and other factors necessary for the effective development of three-dimensional CAD models that could be practically used for such work.
5) Research into the development of heat-resistant wireless transmission tags (for hot-dip galvanization)*5

Work was completed on the development of highly workable and long lasting radio-frequency identification tags (RFID) that are heat resistant to the point of even being capable of use in hot-dip galvanization and that can be applied at the shipyard.

6) Investigative research into development of NAPA based application*6

The Society completed development of several program functions that not only facilitate the conduct of stability calculations required by statutory and other requirements but also contribute to the conduct of basic performance calculations and the output of calculation results for use in design work.

7) Development of web-based hazardous substance information*7

The Society completed development of a web-based system that can be used in the creation of the inventory required by the Ship Recycling Convention.

2-1. Joint Research Based on the Needs of Industry (Joint R&D on Reduction of GHG)

The Society also actively participates in a national project overseen by the Japanese government aimed at developing and applying greenhouse gas reduction technologies. In addition to providing technical support, it also includes significant financial support as well as participation in joint research with various industry partners.

The Society is dedicated to achieving the aims of the project of contributing to finding effective solutions to the problem of global warming while enhancing the international competitiveness of Japanese maritime industries, including shipping, shipbuilding, and marine use machinery and equipment in cooperation with the Ministry of Land, Infrastructure, Transport and Tourism for the betterment of the international maritime community as a whole.
1. Introduction

Ship recycling consists of dismantling a ship at the end of its operational life and then reusing the steel and other resources extracted from the ship. Most ship recycling occurs at recycling facilities in such countries as Bangladesh, India, China and elsewhere. However, much attention has been drawn in recent years to the abysmal working conditions and pollution of the surrounding environment that have been matters of concern at some of these facilities.

As social concern has deepened regarding this problem, discussions have continued at the International Maritime Organization (IMO) with the aim of encouraging more physically and environmentally sound ship recycling practices to be implemented. This led to the adoption of the “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships” by the International Maritime Organization in May 2009. Once the convention, also commonly referred to as the “Ship Recycling Convention”, enters into force, all ships of 500 gross tons or more will be required to develop and maintain an Inventory of Hazardous Materials, also referred to as just inventory or IHM.

The convention makes a distinction between “new ships” and “existing ships”. A new ship is defined as a ship the construction of which is contracted on or after the entry into force of the convention. All such ships are required to retain onboard an Inventory (IHM) (ships without a contract are defined separately). All other ships are categorized as existing ships. In this case, such existing ships have five years from the entry into force of the convention to develop an IHM. However, an IHM must still be prepared if the ship is recycled anytime during this five year grace period.

As of the end of 2010, five countries have already indicated their intention to ratify the convention. Other countries are also expected to look ever more favorably on ratifying it as awareness of environmental problems increases. Consequently, it is anticipated that the convention will be ratified sometime between 2013 and 2015.

Framework of Inventory (IHM)

<table>
<thead>
<tr>
<th>Table</th>
<th>Description of Hazardous Substance/Material</th>
<th>Part 1</th>
<th>Part 2</th>
<th>Part 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table A</strong></td>
<td>Prohibited/Limited Materials (4) (Asbestos, PCBs, Ozone-depleting substances (e.g. Halon), Organotin compounds (e.g. TBT))</td>
<td>Indicate</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Table B</strong></td>
<td>Harmful Materials (9) (Cadmium (compounds), Hexavalent Chromium (compounds), Lead (compounds), Mercury (compounds), etc.)</td>
<td>Indicate</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Table C</strong></td>
<td>Potentially Hazardous Items (Kerosene, Light oil, Lubricants, etc.)</td>
<td>—</td>
<td>Indicate</td>
<td>Indicate</td>
</tr>
<tr>
<td><strong>Table D</strong></td>
<td>Regular Consumable Goods potentially containing Hazardous Materials (Computers, refrigerators, printers, etc.)</td>
<td>—</td>
<td>—</td>
<td>Indicate</td>
</tr>
</tbody>
</table>

**Period/timing of development:**
- Upon Delivery: Existing Ship: within 5 years
- Before recycling
Composition of the IHM

An Inventory (IHM) is a list of hazardous materials, waste, and stores that identifies their locations and approximate quantities onboard the ship. It consists of three parts. Part 1 covers hazardous materials contained in ship structure or equipment, while Part 2 covers operationally generated wastes, and Part 3 covers stores, including those potentially containing hazardous materials. As can be seen from the table on the previous page, Part 1 of the IHM is to be developed by the time of delivery of the ship, while Parts 2 and 3 are to be completed immediately prior to recycling of the ship. Materials and items are to be listed in the IHM as set forth in the Appendix of the convention, referring to the relevant Tables A, B, C, or D included in the Appendix, depending on the properties of the materials and substances involved. Tables A and B are referred to when preparing Part 1 of the IHM, while Tables C and D are referred to in the development of Parts 2 and 3 of the IHM, respectively.

Threshold levels are set in Tables A and B, which list prohibited/restricted materials and other harmful materials, respectively. Equipment, finished products and the like that contain any materials exceeding the threshold levels indicated in the tables are to be listed in the IHM. Information on all hazardous materials onboard the ship that exceed these thresholds is to be clearly indicated in the IHM. Recycling of the ship will then be executed based on the IHM, and health of the laborers and the prevention of environmental pollution.

Development of an Inventory for New Ships

The Inventory (IHM) is prepared according to the Guidelines for the Development of the Inventory of Hazardous Materials. Although the shipyard is to prepare the Inventory in the case of a new ship, it is not realistic for the yard to gather detailed information on the content of harmful substances in the tremendous numbers of products and materials used in the construction of the ship. The IHM provides a framework for transmitting information through a Maritime Supply Chain.

Development of an Inventory for Existing Ships

It is difficult to gather the Material Declarations (MD) and Supplier’s Declarations of Conformity (SDoC) for existing ships in the same way as can be done for new ships. Thus, the convention sets forth an alternative method for preparing Inventories (IHM) for existing ships based on prescribed documents and shipboard inspections. Procedures for the development of an IHM for an existing ship are also described in the Guidelines for the Development of the Inventory of Hazardous Materials. Shipowners may also rely on the help of “experts” to prepare the IHM.

Either the shipowner or the Expert requested by the shipowner first begins the IHM development process by gathering all the necessary information from various documents, purchase lists, cases from ships of similar type or sister ships, and other sources. After conducting a review of all the above information, the Expert will ascertain...
what hazardous materials there are, determine their location and calculate their amount, as well as prepare a visual/sampling check plan based on the above collected and analyzed information of the ship. He will then record the current conditions regarding what hazardous materials are present based on document checks of the subject items in the above visual/sampling check plan (either by visual inspection or by obtaining actual samples). The Society will then examine the visual/sampling check plan.

The shipboard inspection is performed in accordance with the visual/sampling check plan. The results of the sampling analysis so conducted will then also be recorded in the visual/sampling check plan. When it is not possible to determine the location and amount of hazardous materials from the document review and shipboard inspection, or if it is not possible to conduct an inspection for other reasons, then the materials will be classified as potentially containing hazardous materials (PCHM). The presence of hazardous materials as well as the location and amount of the substances making up the PCHM are to be posted on a prescribed form, thereby completing the initial preparation of Part 1 of the IHM for the existing ship.

3. The ClassNK Approach

Ever since discussions on the Ship Recycling Convention were taking place, the Society has been actively working to support parties concerned make the transition to meeting the requirements of the convention as smooth as possible. Since 2008, ClassNK has cooperated with various parties concerned prepare actual IHMs for both new ships and existing ships. This has allowed the Society to examine all aspects of what is involved in the process and thus gain significant expertise as a result. Given the vast numbers of existing ships that will be required to prepare an IHM within the five-year period after the convention comes into effect, there is concern that only a limited number of Experts will be available to handle the significant workloads involved to complete all the IHMs on time. As a result, the Society believes that preparing IHMs before the convention comes into force is an effective means of dealing with this situation. Developing IHMs at the time of construction for ships that either are currently being or will be newly built in the future will make it much easier for shipowners to meet the requirements of the convention.

In order to resolve many of the problems associated with the preparation of an IHM for new ships by shipyards, ClassNK has developed an IHM preparation software system known as PrimeShip-INVENTORY to help reduce the workload and costs associated with this process by allowing shipbuilders and suppliers to exchange MD data electronically. The software has already been distributed free of charge to various parties concerned not only in Japan but also to shipyards overseas, where PrimeShip-INVENTORY is already being used to develop IHMs at many locations.

Although recognized organizations (RO) are not permitted to also serve as Experts in the development of Inventories (IHM) for existing ships, ClassNK does provide a one-stop service to introduce shipowners to third party Experts and answer shipowner questions about IHM development for existing ships.

Whether the IHM has been prepared for a new ship based on the gathering and sorting of MDs and SDoCs as described above, or has been prepared with the help of an Expert for an existing ship, the Society has in place a system for issuing a Statement of Fact (SOF) attesting that the IHM duly satisfies the requirements of the Ship Recycling Convention. ClassNK has already satisfactorily examined numerous IHMs and issued respective SOFs for them at the request of shipowners around the world. Once the convention enters into force, the SOFs will be promptly rewritten as conventional certificates after a general confirmation of their status for each ship.

The preparation of an Inventory (IHM) not only affects ship owners and builders, but must be addressed by the entire marine industry, including material producers as well as parts and equipment makers. The Society has also been focusing much effort on disseminating information on the Ship Recycling Convention both in Japan and around the world through seminars as well as by handling individual inquiries.

In addition, the Society is upgrading its PrimeShip-INVENTORY software system further and is developing a system to further lighten the burdens involved in preparing an IHM as well as manage the maintenance of the IHM during operations. The system is expected to become available in the Spring of 2011. It is being developed in cooperation with IBM as a joint project using cloud computing. The Society aims to develop the system so that it can be used as a global platform for ship recycling management.

ClassNK is proactively moving ahead with addressing the needs of the maritime industry in implementing the provisions of the Ship Recycling Convention and is doing all it can to support all key parties with an interest in putting the convention into actual practice.
Participation at the International Maritime Organization (IMO)
As part of its many international activities, ClassNK contributes to the International Maritime Organization (IMO) on a wide range of technical issues. In 2010, the Society attended the IMO meetings listed below, either as a member of the Japanese Government delegation or as a representative of IACS. In addition, the Society continues to dispatch a member of its staff to the IMO secretariat on a full-time basis.

<table>
<thead>
<tr>
<th>Committee/Committee</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF)</td>
<td>52nd session (January)</td>
</tr>
<tr>
<td>Sub-Committee on Bulk Liquids and Gases (BLG)</td>
<td>14th session (February)</td>
</tr>
<tr>
<td>Sub-Committee on Ship Design and Equipment (DE)</td>
<td>53rd session (February)</td>
</tr>
<tr>
<td>Marine Environment Protection Committee (MEPC)</td>
<td>60th session (March)</td>
</tr>
<tr>
<td>Sub-Committee on Fire Protection (FP)</td>
<td>54th session (April)</td>
</tr>
<tr>
<td>Maritime Safety Committee (MSC)</td>
<td>87th session (May)</td>
</tr>
<tr>
<td>Intersessional Meeting of the Working Group on Energy Efficiency Measures for Ships</td>
<td>1st session (June)</td>
</tr>
<tr>
<td>Sub-Committee on Flag State Implementation (FSI)</td>
<td>18th session (July)</td>
</tr>
<tr>
<td>Sub-Committee on Safety of Navigation (NAV)</td>
<td>56th session (July)</td>
</tr>
<tr>
<td>Sub-Committee on the Carriage of Dangerous Goods, Solid Cargoes and Containers (DSC)</td>
<td>15th session (September)</td>
</tr>
<tr>
<td>Marine Environment Protection Committee (MEPC)</td>
<td>61st session (October)</td>
</tr>
<tr>
<td>Intersessional Working Group on Lifeboat Release Hooks</td>
<td>(October)</td>
</tr>
<tr>
<td>Sub-Committee on Ship Design and Equipment (DE)</td>
<td>54th session (October)</td>
</tr>
<tr>
<td>Maritime Safety Committee (MSC)</td>
<td>88th session (December)</td>
</tr>
</tbody>
</table>

ClassNK conveys the outcomes of major meetings such as those of the Maritime Safety Committee (MSC) and the Maritime Environmental Protection Committee (MEPC) to clients of the Society and related organizations through a variety of means, including a special mail service, the timely release of “NK Technical Information” bulletins, and updates to the “IMO International Convention Calendar” section of the ClassNK website.
Participation in the International Association of Classification Societies (IACS)

After serving in the role of vice chairman until the end of June 2010, the Society became the chairing society of IACS from July 2010. As such, ClassNK has played a leadership role in IACS activities by chairing meetings of the IACS Council and General Policy Group, exchanging views with the IMO Secretary General and representatives of related maritime industries on a broad range of topics affecting the marine industry, as well as speaking at international conferences.

The Society also plays an active role in meetings of the IACS Hull, Machinery, Survey, and Statutory Panels, as well as IACS Expert Groups, in addition to the various Project Teams taking into account the views of the maritime industries concerned. Moreover, the Society not only served as the chairman of the IACS Expert Group on IMO Goal Based Standards, but has also actively contributed to the work of Joint Working Groups all with the aim of realizing safer, greener seas.

The following meetings were held during 2010:

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Chairman’s Office Meeting</td>
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<tr>
<td>Council Meeting</td>
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<tr>
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<td>General Policy Group Meeting</td>
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<td>Technical Panel Meeting</td>
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<tr>
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<tr>
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Activities regarding ACS (The Association of Asian Classification Societies)

The Association of Asian Classification Societies is a group of six classification societies, including ClassNK, based in different nations in Asia with a keen interest in promoting safer, cleaner seas. ACS has met annually on an informal basis since 1993. During a special meeting held on 1 February 2010, the members unanimously agreed to formalize the ACS association by adopting an ACS Charter. In 2010 ACS established a framework for enhancing technical cooperation among its member societies and for strengthening dialogues with maritime industry organizations, particularly those in Asia, such as the Asian Shipowners’ Forum (ASF) and Asian Shipbuilding Experts’ Forum (ASEF).
International Committees

As part of its goal of improving customer service and better meeting the needs of the global maritime industry, ClassNK holds many overseas committee meetings around the world. These meetings are an important venue for the two-way exchange of information and advice between the Society and key industry and regional stakeholders in local regions around the world.

Two new overseas committees were established in 2010: the North American Committee and the Latin American Committee. Each committee is comprised of distinguished members of the maritime community in each respective country. A full list of the ClassNK Committee meetings held during 2010 is shown in the following table.

<table>
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<tr>
<th>Name of Committee Meeting</th>
<th>Date</th>
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<td>19th Greek Committee</td>
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<tr>
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## Authorizations Granted to ClassNK

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Abbreviations:

- ●—Authority has been delegated.
- ⬕—Authority has been delegated subject to some conditions.

LL: International Load Line Certificate
SC: Cargo Ship Safety Construction Certificate
SE: Cargo Ship Safety Equipment Certificate
SR: Cargo Ship Safety Radio Certificate
ISM: International Safety Management Code
ISPS: International Ship and Port Facility Security Code
I, II, IV, VI: MARPOL Annex I, II, IV, VI
AFS: International Convention on the Control of Harmful Anti-fouling Systems on Ships
ClassNK in Committee

■ ADVISORY COUNCIL

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Sumate Tanthuwanit

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Group Chairman
President

Evergreen Group
IMC Group of Companies
Regional Container Lines Group

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Chris Bailey
Sunil Malhotra
Jeremy G. Hodgson
Epaminondas G. E. Embiricos
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Alastair Fischbacher
Jan van Dijk
Michael K. Drayton

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Managing Director
Chairman, Joint Hull Committee
Technical & Upstream Assurance Manager
Chief Operating Officer
London Representative
Chairman
Technical Director
Managing Director
General Manager
Ex-Chairman

IMIF (International Maritime Industries Forum)
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Anglo-Eastern (UK) Ltd.
Ark Syndicate Management Limited
BP Shipping Limited
British Marine Plc
Deutsche Schiffsbank AG
Embiricos Shipbrokers Ltd.
Graig Ship Management Limited
International Marine Transportation Ltd.
RIO Tinto Shipping Limited
The Baltic Exchange

■ CHINA COMMITTEE

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Li Jianhong

Member
Li Tian Bao
Zhao Zhanjun
Xu Ziqiu
Lu Yi Bin
Mao Shi Jia
Li Zhong
Han Chengmin
Li Cheng
Han Qing
Ge En Hua
Wang Yong
Zhang Haisen
Yang Jian Ming
Huqiang Zi Qiang
Wang Yongliang
Tian Zhong Shan

Executive Vice President
Board Chairman
President
Assistant President
Deputy Manager, Technical Dept. of Enterprises Management Div.
Managing Director
Vice President
Deputy Managing Director
Vice President
Director Vice President
President
Vice President
President
Vice President
Executive Director, General Manager

China Ocean Shipping (Group) Company (COSCO)
Bohai Shipbuilding Heavy Industry Co., Ltd
China Ship Design & Research Center Co., Ltd.
China Shipping Industry Corporation
China Shipping (Group) Company
China Shipping Development Company Limited
China Shipping Development Co., Ltd., Tanker Company
China State Shipbuilding Corporation
COSCO Container Lines
Dalian Shipbuilding Industry Co., Ltd
Grand China Logistics Holding (Group) Co., Ltd
Hebei Ocean Shipping Co., Ltd.
Hudong-Zhonghua Shipbuilding (Group) Co., Ltd.
Jiangnан Shipyard (Group) Co., Ltd.
Jiangsu Ocean Shipping Company Ltd.
Pacific King International Shipping Management Co., Ltd., Shanghai
Shanghai Waigaoqiao Shipbuilding Co., Ltd.
Sinotrans Shipping Limited

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Charalampos N. Mylonas

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Ghikas J. Goumas
Prokopis N. Karnessis
Kriton Lendoudis
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Panagiotis C. Laskaris
George J. Souravlas
Diamantis P. Diamantides
Theodore P. Angelopoulos
Angeliki Frangou
Dimitris T. Patroklos
George S. Livanos

Chairman
Director
Chairman
Director
Director
Managing Director
Director
President
Managing Director
CEO
Managing Director
Chairman of the Board and Chief Executive Officer
General Manager
Chairman

Transmed Shipping Ltd.
A. M. Nomikos Transworld Maritime Agencies S.A.
Chandris (Hellas) Inc.
Empros Lines Shipping Co. SP. S.A.
Equinox Maritime Ltd.
European Navigation Inc.
Evalend Shipping Co. S.A.
Golden Union Shipping Co. S.A.
Kritsas Shipping S.A.
Laskaris Shipping Co. Ltd.
Load Line Marine S.A.
Marmaras Navigation Ltd.
Metrostar Management Corp.
Navios Maritime Holdings Inc.
Springfield Shipping Co. Panama S.A.
Sun Enterprises Ltd.
### HONG KONG COMMITTEE

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Company/Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman</td>
<td>David C. C. Koo</td>
<td>Valles Steamship Co., Ltd.</td>
</tr>
<tr>
<td>Honorary Chairman</td>
<td>M. H. Liang</td>
<td>Island Navigation Corporation International Ltd.</td>
</tr>
<tr>
<td>Members</td>
<td>Ning Pao Kun</td>
<td>COSCO (H.K.) SHIPPING CO., LIMITED</td>
</tr>
<tr>
<td></td>
<td>Robert Alexander Ho</td>
<td>Fairmont Shipping (HK) Ltd &amp; Affiliates</td>
</tr>
<tr>
<td></td>
<td>Andrew Y. Chen</td>
<td>Grand Seatrade Shipping Company Ltd.</td>
</tr>
<tr>
<td></td>
<td>Huang Shao Jie</td>
<td>Hong Kong Ming Wah Shipping Co., Ltd.</td>
</tr>
<tr>
<td></td>
<td>Arthur Bowring</td>
<td>Hong Kong Shipowners Association</td>
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<tr>
<td></td>
<td>Frank W. K. Tsaao</td>
<td>IMC Group of Companies</td>
</tr>
<tr>
<td></td>
<td>Jack Hsu</td>
<td>Oak Maritime (H.K.) Inc., Ltd.</td>
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<tr>
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<td>Kwai Sze Hoi</td>
<td>Ocean Longevity Shipping and Management Co., Ltd.</td>
</tr>
<tr>
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<td>Jan Rindbo</td>
<td>Pacific Basin Shipping (HK) Ltd.</td>
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<td>Peter Cheng, MBE</td>
<td>Peter Cheng Naval Architect &amp; Marine Consultant Ltd.</td>
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<td>Raymond Pao</td>
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<td>Teh-Hu Cargocean Management Co., Ltd.</td>
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<td>Urivan Ship Management Limited</td>
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<td>Sabrina S. M. Chao</td>
<td>Wah Kwong Maritime Transport Holdings Limited</td>
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<td>Jim Nelson</td>
<td>Wallem Shipmanagement Ltd.</td>
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### INDIAN COMMITTEE

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<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Company/Association</th>
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<tbody>
<tr>
<td>Chairman</td>
<td>Arun Mehta</td>
<td>Varun Shipping Company Limited</td>
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<tr>
<td>Vice Chairman</td>
<td>R. L. Pai</td>
<td>Reliance Industries Limited</td>
</tr>
<tr>
<td>Members</td>
<td>H. Ansari</td>
<td>ABG Shipyard Ltd.</td>
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<td>R. S. Nakra</td>
<td>Arcadia Shipping Limited</td>
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<td></td>
<td>Commodore M. Jitendran</td>
<td>Directorate General of Shipping</td>
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### INDONESIA COMMITTEE

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<td>Chairman</td>
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<td>Chan kok Leong</td>
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<td>Estaleiro Atlántico Sul S/A</td>
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<td>Humboldt Shipmanagement</td>
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<td>Joint General Manager</td>
<td>P&amp;O Maritime Services Paraguay S.A.</td>
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<td>Petrolera Transoceanica S.A.</td>
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<td>Gerente General</td>
<td>Southern Shipmanagement (Chile) Ltd</td>
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<td>Orlando Faundez Rojas</td>
<td>Head of Engineering &amp; New Building Projects</td>
<td>Transpetro</td>
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<td>Agenor Cesar JunqueiraLeite</td>
<td>Shipping Director</td>
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<td>Technical and Fleet Managing Director</td>
<td>Transportacion Maritima Mexicana S.A. de C.V. TMM Group</td>
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<tr>
<td>Vacant</td>
<td>Vice President, Group Technical Services</td>
<td>MISC BERHAD</td>
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<tr>
<td>Nordin Mat Yusoff</td>
<td>Group Managing Director/CEO</td>
<td>Alam Maritim Resources Berhad</td>
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<td>Azmi Bin Ahmad</td>
<td>Chairman</td>
<td>Ecoship Sendirian. Berhad</td>
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<td>Dato' David Tan</td>
<td>Senior Executive Director</td>
<td>Felda Transport Services Sdn Bhd</td>
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<tr>
<td>Datuk Dr. Elias Kadir</td>
<td>Managing Director</td>
<td>Gaganas Carriers Sdn Bhd</td>
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<td>Johari Mohd Noh</td>
<td>Executive Chairman and Managing Director</td>
<td>Halim Mazmim Bhd.</td>
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<td>General Manager</td>
<td>Hub Shipping Sdn. Bhd.</td>
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<td>Dennis Liong</td>
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<td>Petronas Maritime Services Sdn Bhd</td>
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<td>Shin Yang Shipyard Sdn. Bhd</td>
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<tr>
<td>Vincent Ling Lu Yew</td>
<td>General Manager WSM Malaysia, Regional Manager WSM Asia</td>
<td>Wilhelmens Ship Management Sdn. Bhd.</td>
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<tr>
<td>Torbjørn J. Aaker</td>
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<td>Eagle Shipping International (USA) LLC</td>
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<tr>
<td>Alexis P. Zoulas</td>
<td>Chairman</td>
<td>Apex Bulk Carriers LLC</td>
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<tr>
<td>John Calicchio</td>
<td>President</td>
<td>ARTCO</td>
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<tr>
<td>Royce C. Wilken</td>
<td>President</td>
<td>Chembulk Tankers</td>
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<tr>
<td>John D. Noonan</td>
<td>President/C.O.O.</td>
<td>Dowa Line America Co., Ltd.</td>
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<td>Hiromi Akasaka</td>
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Ramesh Bhat
Calvin W. S. Cheng
Byron M. Sugahara
Charles Leung
Thomas H. Paterson
Michael M. Lee
Shunji Sasada
Ronald W. Tursi
Technical Director
Chairman
President
Senior Vice President
Vice President
President
Chief Operating Officer
President
Eagle Shipping International (USA) LLC
Eastmark Associates, Inc.
Fairfield-Maxwell Services, Ltd.
Fairmont Shipping (Canada) Limited
Owned Fleet & Business Development Fednav Limited
Foremost Maritime Company LLC
Navios Corporation
Roymar Ship Management Inc.

PHILIPPINE COMMITTEE
Chairman
Arben E. Santos
President & CEO
Southwest Maritime Group of Companies

Members
Roy R. Alampay
Vice President for Operations & General Manager
Mariano, NOL Group
Emerson M. Lorenzo
Administrator
Keppel FELS Limited

Rogelio A. Torres
Vice President
Maritime Industry Authority Department of Transportation & Communications

ko-Lin Toh
President
Traffic & Operations Eastern Shipping Lines, Inc.

Michael G. Bernardino
President
Keppel Philippines Marine, Inc.

Doris Magsaysay Ho
President & Chief Executive Officer
Loadstar International Shipping, Inc.

Edgardo G. Lacson
President
Magsaysay Maritime Corporation

Shinji Watadani
President
MIS Maritime Corporation

Tsuneishi Heavy Industries (Cebu), Inc.

SINGAPORE COMMITTEE
Chairman
Siong Seng Teo
President
Singapore Shipping Association

Members
Eng Aik Meng
Chief Executive Officer
APL, NOL Group

Tong Chong Heong
Chief Executive Officer
Keppel FELS Limited

Lam Yi Young
Chief Executive Officer
Maritime and Port Authority of Singapore

Aloysius Seow
Managing Director
Ocean Tankers (Pte) Ltd.

Kuok Khoo Kuan
Senior Executive Director,
Technical Division
Pacific Carriers Limited

Wong Weng Sun
President & C.E.O.
Pacific International Lines (Pte) Ltd.

Sembcorp Marine Ltd

TAIWAN COMMITTEE
Chairman
Loh Yao-fon
Assistant to Group Chairman
Evergreen Group

Members
Huang Chin-san
Chief Executive Director
Chang Yung-Fa Foundation

Danny Wang
Managing Director
Cheng Lie Navigation Co., Ltd.

Donald K. L. Chao
President
China Steel Express Corporation

Jei-Yuan Chen
Executive Manager
CPC Corporation, Taiwan

Paul T. P. Tang
President, Ph. D. Leeds. U.K.
CSBC Corporation, Taiwan

Shang-Wen Liao
Chairman
Eastern Media International Corporation

David Hsu
Chairman
First Steamship Co., Ltd.

Bill M. H. Huang
Chairman
Glory Navigation Co., Ltd.

Harvey Chiu
Chairman
Hsin Chien Marine Co., Ltd.

Michael M. K. Hsiao
Chairman
Mingtai Shipping Corporation

J. D. Lan
Chairman, C. E. O.
Shih Wei Navigation Co., Ltd.

Mathias K. Y. Chen
Chairman
Sincere Industrial Corporation

Fred C. P. Tsai
President
Sincere Navigation Corporation

Hrung-Nain Lin
Chairman
Ta Tong Marine Co., Ltd.

Joseph Wu
Chairman
Ta-Ho Maritime Corporation

I. Y. Chang
Chairman
Taiwan Navigation Co., Ltd.

Nobu Su
C.E.O.
TMT Co., Ltd.

C. K. Ong
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U-Ming Marine Transport Corp.

Lin Ching Chih
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Unison Marine Corporation

Glenn K. L. Chan
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United Ocean Shipping S. A.

Chao-Hon Chen
Honorary Chairman
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James Lan
Chairman
Wisdom Marine Lines S.A.

David C. H. Liu
Top-Corporate Consultant
Yang Ming Marine Transport Corp.

THAI COMMITTEE
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Sutep Tranantasin
Executive Vice President
Regional Container Lines Public Co., Ltd.

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Managing Director
Asian Marine Services Public Co., Ltd.

Bhumindr Harinsuit
Managing Director
Bhureemas Navee Co., Ltd.
Wirat Chanasit Managing Director Italthai Marine Ltd.
Chanet Phenjati President Jutha Maritime Public Co., Ltd.
Pimook Prayoonphrom Vice President Marine Department
Suraphon Meesathien Director Precious Shipping Public Co., Ltd.
Jaipal Mansukhani Vice President, PTT Public Co., Ltd.
Wittawat Svasli-Xuto International Trading Director, Thailand
Voravit Visittjakarn Management Director Sang Thai Shipping Co., Ltd.
Nitas Krongvanitchayakul Managing Director Thaioil Marine Co., Ltd.
Yodchai Ratanachiwakorn Operation Director Thoresen & Co., (Bangkok) Ltd.
Teruo Kondo Chief Production Manager Unithai Shipyard & Engineering Ltd.

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Ali Umur President Aktif Shipping
Kenan S. Sumra Marine Department Manager Aygaz A.Ş.
Engin Ozcelik General Manager CEBI Maritime & Trading SA
Ersaf Cerrahoglu Chairman Cerrahgil A. S.
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H. Bülent Şener Chairman DELTAMARINE
Serdar Akcali Managing Director Denak Ship Management & Agency
Ö. Faruk Miras Member of Board Diller Shipping and Trading Inc.
Bilge Bayburtlugil General Manager DITAS Tanker and Marine Operations Corp.
Cihan Ergenc Chairman ER Denizcilik Sanayi Nak. Ve Tic. A. S.
Orhan Karademir Technical Manager Genel Denizcilik Nakliyati A.S.
Sadan Kaptanoğlu Owner H.I. Kaptanoglu Shipping Group
Bedri Ince Chairman Ince Shipping and Trading Co. Inc.
Murat Edip Karahasan Chairman Karahasan Group of Shipping Companies
Tamer Kiran Chairman KIRAN Group of Shipping Companies
Bayram Yusuf Aslan President Mardeni & Kardeni & Mardas Group of Companies
Huseyin Yarimci General Manager, Member of Board MOLIVA SHIPPING INC.
Serif Ozdaglar Deputy General Manager Nemtass Shipping
Murat Dortbudak Executive Vice President Odin Shipmanagement
Emir Sohtorik Chairman SEMIH SOHTORIK MANAGEMENT & AGENCY INC.
Suha Izmirigil President SINOMAR S. A.
Orkun Kalkavan Executive Board Member Turkon Holding
Emirhan Sabanci Member of the Board YA-SA Shipmanagement and Trading S. A.
Ilhan Sabanci Member of the Board YA-SA Tanker and Transportation S. A.

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Li Guang Min Chief Engineer, Vice President Bohai Shipbuilding Heavy Industry Co., Ltd.
Ms. Feng Guo Ying Vice General Manager China Business Marine Co., Ltd. (SINOMARINE)
Zhang Yongjian Secretary of the Board China COSCO Holdings Company Limited
Luan Fukai Senior Manager, Shipbuilding Department, China Ocean Shipping (Group) Company
Chen Zhengjie Director, Safety & Technology Superintendent Div. China Ocean Shipping (Group) Company
Li Xue Qiang Deputy General Manager China Shipping Container Lines Co., Ltd.
Chen Jian Deputy Managing Director China Shipping Development Co., Ltd.
Pu Li Fei General Manager China Shipping International Trading Co., Ltd.
Wang Guorong Deputy Managing Director COSCO Bulk Carrier Co., Ltd.
Cai Deqing General Manager, COSCO Container Lines Co., Ltd.
Hong Ying Safety & Technology Management Division Dalian Ocean Shipping Company
Zhao Jin Wen Manager, Senior Chief Engineer, Dalian Shipbuilding Industry Co., Ltd.
Zhang Zhen De Vice President Dalian Shipbuilding Industry Co., Ltd.
Yang Wei Zan Deputy Technical Director, Senior Engineer Dalian Shipbuilding Industry Co., Ltd.
Li Yi Wen Vice General Manager Guangzhou Maritime Transport (Group) Co., Ltd.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Role</th>
<th>Company/Institution</th>
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<tbody>
<tr>
<td>Zhou Zhi Hao</td>
<td>Senior Engineer</td>
<td>Guangzhou Shipyard International Co., Ltd.</td>
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<tr>
<td>Lou Dan Ping</td>
<td>Deputy Chief Technical Officer</td>
<td>Hudong-Zhonghua Shipbuilding (Group) Co., Ltd.</td>
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<tr>
<td>Zhang Ming Hua</td>
<td>General Manager, Senior Engineer</td>
<td>IMC SEG (China)</td>
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<tr>
<td>Hu Keyi</td>
<td>Technical Director, Technology &amp; Market Development</td>
<td>IMC Shipyard &amp; Engineering Group (China) Ltd.</td>
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<tr>
<td>Cao Zhi Teng</td>
<td>General Manager</td>
<td>Jiangnan Shipyard (Group) Co., Ltd.</td>
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<tr>
<td>Luo Jian</td>
<td>Deputy Managing Director</td>
<td>TDCC Office</td>
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<tr>
<td>Zhu Yue Chen</td>
<td>General Manager, Business Department</td>
<td>Jiangsu New Yangzi Shipbuilding Co., Ltd.</td>
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<tr>
<td>Yu Baojun</td>
<td>Professor</td>
<td>Liaoning Bohai Shipyard</td>
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<tr>
<td>Hideaki Naoi</td>
<td>Vice President, Senior General Manager</td>
<td>Marine Design &amp; Research Institute of China</td>
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<tr>
<td>Liu Haijin</td>
<td>Director, Executive Vice President</td>
<td>Nantong COSCO KHI Ship Engineering Co., Ltd.</td>
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<td>Wang RongLiang</td>
<td>General Manager</td>
<td>New Century Shipbuilding Co., Ltd.</td>
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<td>Sun Wen Tian</td>
<td>Vice General Manager</td>
<td>Qingdao Fushun Ship Management Co., Ltd.</td>
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<td>Lu Zhi-Ping</td>
<td>Honorary President</td>
<td>Qingdao Ocean Shipping Company</td>
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<tr>
<td>Qiu Xin Yao</td>
<td>General Manager</td>
<td>Shanghai Merchant Ship Design &amp; Research Institute</td>
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<tr>
<td>Jin Yun Long</td>
<td>Technical Chief, Dept. of System Transportation Technology</td>
<td>Shanghai Ship &amp; Shipping Research Institute, Ministry of Communications</td>
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<td>Ye Jinwen</td>
<td>Technical Director</td>
<td>Shanghai Shipyard Co., Ltd.</td>
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<td>Tao Ying</td>
<td>Chief Engineer, Senior Engineer</td>
<td>Shanghai Waigaoqiao Shipbuilding Co., Ltd.</td>
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<td>Yang Shiming</td>
<td>Technical Director</td>
<td>SINOPACIFIC SHIPBUILDING GROUP CO., LTD.</td>
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<td>Xiao Sen Yuan</td>
<td>President</td>
<td>SITC Development Group Co., Ltd.</td>
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<td><strong>DANISH TECHNICAL COMMITTEE</strong></td>
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<tr>
<td>Chairman</td>
<td>Jørgen Juncher Jensen</td>
<td>Professor, Head of Section</td>
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<td>Coastal, Maritime and Structural Engineering</td>
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<td>Members</td>
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<tr>
<td>Niels Bjørn L. Mortensen</td>
<td>Director, Regulatory Affairs</td>
<td>A.P. Moller-Maersk A/S</td>
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<tr>
<td>Claus Usen Jensen</td>
<td>Executive Vice President, Technical Division</td>
<td>A/S Dampskibsselskabet TORM</td>
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<tr>
<td>Lars Robert Pedersen</td>
<td>Deputy Secretary General</td>
<td>BIMCO</td>
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<tr>
<td>Anne Skov Struver</td>
<td>Head of Division, Ministry of Economic and Business Affairs</td>
<td>Danish Maritime Authority</td>
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<tr>
<td>Hans Henrik Petersen</td>
<td>Head of Department</td>
<td>Danish Shipowners’ Association</td>
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<tr>
<td>Peter Justesen</td>
<td>Vice President, Head of Fleet Management</td>
<td>Lauritzen Kosan A/S</td>
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<tr>
<td>Erik Møller</td>
<td>Fleet Manager Tankers</td>
<td>Lauritzen Tankers A/S</td>
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<tr>
<td>Thomas S. Knudsen</td>
<td>Senior Vice President, Head of Marine Low Speed</td>
<td>MAN Diesel</td>
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<td>Kurt Rye Damkjaer</td>
<td>Senior Vice President</td>
<td>Nordic Tankers Marine A/S</td>
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<td><strong>GREEK TECHNICAL COMMITTEE</strong></td>
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<tr>
<td>Chairman</td>
<td>Marios Stafilopatis</td>
<td>Owner</td>
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<td>P. E. Antonelos</td>
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<td></td>
<td>Christos C. Hadjigeorgiou</td>
<td>A. M. Nomikos Transworld Maritime Agencies S.A.</td>
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<td>Haris G. Gantzakis</td>
<td>Almi Marine Management S. A.</td>
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<td>Michael D. Kapsorrachis</td>
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<td>George Alexandridis</td>
<td>Chandris (Hellas) Inc.</td>
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<td>Costas Petzas</td>
<td>Dynacom Tankers Management Ltd.</td>
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<td>Nikolaos Petromylonakis</td>
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<td>Leontios Pitaoulis</td>
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<td>George H. Paschaliali</td>
<td>Equinox Maritime Ltd.</td>
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<td>Dimitrios Theodoropoulos</td>
<td>European Navigation Inc.</td>
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<td>Christoforos E. Andreidis</td>
<td>Evalend Shipping Co. S.A.</td>
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<td>Anastasios Kalogiannis</td>
<td>Franco Compania Naviera S.A.</td>
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<td>Dion Theodorou</td>
<td>Golden Union Shipping Co. S.A.</td>
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<td>Iolcos Hellenic Maritime Enterprises Co. Ltd.</td>
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<td>Konkar Shipping Agencies S.A.</td>
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<tr>
<td>Name</td>
<td>Position</td>
<td>Company</td>
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<tr>
<td>Takis Koutris</td>
<td>Managing Director</td>
<td>Kristen Marine S.A.</td>
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<tr>
<td>John A. Yiannakinas</td>
<td>Technical Department</td>
<td>Kritsas Shipping S.A.</td>
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<tr>
<td>Nick Argyros</td>
<td>Technical Director</td>
<td>Laskaris Shipping Co. Ltd.</td>
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<tr>
<td>George J. Souravlas</td>
<td>CEO</td>
<td>Load Line Marine S.A.</td>
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<tr>
<td>John N. Ioannidis</td>
<td>Technical Manager</td>
<td>Maryville Maritime Inc.</td>
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<tr>
<td>Theodoros Pavlidis</td>
<td>Technical Director</td>
<td>Metrostar Management Corp.</td>
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<tr>
<td>Nikolaos Balalis</td>
<td>Technical Director</td>
<td>Navios Shipmanagement Inc.</td>
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<tr>
<td>Amir Geva</td>
<td>Manager, Technical Department</td>
<td>Ofer (Ships Holding) LTD.</td>
</tr>
<tr>
<td>Paraskevas Koutsoukos</td>
<td>Managing Director &amp; Technical Manager</td>
<td>Paradise Navigation S.A.</td>
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<tr>
<td>Elias A. Galanopoulos</td>
<td>Managing Director</td>
<td>Regal Mare Inc</td>
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<tr>
<td>Michael Anagnostou</td>
<td>Managing Director and Technical Manager</td>
<td>Roswell Navigation Corp.</td>
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<tr>
<td>Achilleas Avlonitis</td>
<td>Technical Manager</td>
<td>S. Frangoulis (Ship Management) Ltd</td>
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<tr>
<td>George Hatziavasilisou</td>
<td>Technical Manager</td>
<td>Samilos Shipping Company S.A.</td>
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<tr>
<td>Dimitris C. Makris</td>
<td>Technical Manager</td>
<td>Springfield Shipping Co. Panama S.A.</td>
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<tr>
<td>Frantzessics D. Kontos</td>
<td>Technical Director</td>
<td>Sun Enterprises Ltd.</td>
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<tr>
<td>Vasilios Lamproupolouos</td>
<td>Technical Department Manager</td>
<td>Thenamaris Ships Management Inc.</td>
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<tr>
<td>Dimitris Andreadakis</td>
<td>Technical Manager</td>
<td>Transmar Shipmanagers S.A.</td>
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<tr>
<td>Manolis G. Koutlakis</td>
<td>Technical Manager, Newbuilding Projects</td>
<td>Transmed Shipping Ltd.</td>
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<tr>
<td>C. Dean Tseretopoulos</td>
<td>Naval Architect-Marine Engineer, MBA</td>
<td>Triple Tee International Ltd.</td>
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<tr>
<td>Savvas D. Papadatos</td>
<td>Mechanical Engineer, Special Projects &amp; Claims Manager</td>
<td>Tsakos Shipping and Trading S.A.</td>
</tr>
<tr>
<td>Constantinos M. Metaxas</td>
<td>Technical Manager</td>
<td>Union Commercial Incorporated</td>
</tr>
<tr>
<td>Takis Koutouras</td>
<td>Technical Manager</td>
<td>Z &amp; G HALCOUSSIS Co. Ltd.</td>
</tr>
</tbody>
</table>

**HONG KONG TECHNICAL COMMITTEE**

- **Chairman**: Peter Cheng  
  Managing Director  
  Peter Cheng Naval Architect & Marine Consultant Ltd.

- **Members**:  
  - Marcel Liets  
    Group Managing Director  
    Anglo-Eastern Group
  - Y. Q. Hu  
    Deputy General Manager  
    Associated Maritime Company (Hong Kong) Limited
  - B. N. Prasad  
    General Manager, Fleet Management Group  
    Bernhard Schulte Shipmanagement (Hong Kong) Limited Partnership
  - Vishal Khurana  
    Director & Chief Executive  
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  - Liu Yi Fan  
    Deputy General Manager, Senior Engineer  
    China Shipping (H. K.) Marine Co., Ltd.
  - Ning Bao Kun  
    Deputy Managing Director  
    COSCO (H.K.) Shipping Co., Ltd.
  - Kishore S. Rajvanshy  
    Managing Director  
    Fleet Management Limited
  - Lau Pong Sze  
    Managing Director  
    Gold Bridge Shipping Ltd.
  - Y. H. Shum  
    Director  
    Goldbeam International Limited
  - Li Kwok Hung  
    Managing Director  
    IMC Shipping Services Co., Pte. Ltd.
  - Vinip Sachdeva  
    Vice President, Fleet  
    KC Maritime Ltd.
  - Pan Zhong Shan  
    Director & General Manager  
    Lihai International Shipping Ltd.
  - Bibhash Chaudhuri  
    General Manager, Ship Management Division  
    New Asian Shipping Company, Limited
  - Haruki Aono  
    Executive Director  
    Northstar Ship Management Ltd.
  - James S. C. Tai  
    General Manager, Fleet Management Department  
    Orient Overseas Container Line Ltd.
  - Gautam Bandyopadhyay  
    Technical Manager  
    Pacific Basin Shipping (HK) Ltd.
  - Kenneth Koo  
    Group Chairman & Chief Executive Officer  
    Tai Chong Cheang Steamship Co. (H.K.) Ltd.
  - W. L. Hung  
    General Manager  
    Wah Kwong Ship Management (Hong Kong) Limited

**KOREA TECHNICAL COMMITTEE**

- **Chairman**: Sung-Won Kang  
  Professor, College of Engineering  
  Department of Naval Architecture & Ocean Engineering  
  Pusan National University

- **Members**:  
  - Jang Min-Seok  
    Director, Design Department  
    Dae Sun Shipbuilding & Engineering Co., Ltd.
  - ManSoo Kim  
    Vice President, Head of Hull Design  
    Daewoo Shipbuilding & Marine Engineering Co., Ltd.
  - Sung-Ryool Kim  
    Deputy Managing Director, Ship Sales Engineering Department  
    Hanjin Heavy Industries & Construction Co., Ltd.
  - Kwang Sang Yoo  
    Vice President, Fleet Management Director  
    Hanjin Ship Management Co., Ltd.
  - Lee Jong-seung  
    Senior Vice President, Basic Design Office, Shipbuilding Division  
    Hyundai Heavy Industries Co., Ltd.
  - Taeg-Gyu Lee  
    Senior Vice President, Head of Maritime Administration Division  
    Hyundai Merchant Marine Co., Ltd.
  - Hyun-Sang Shin  
    Senior Vice President, Design Division  
    Hyundai Samho Heavy Industries Co., Ltd.
  - Yeong-Se, Jeong  
    Managing Director, Marine Engineering Team  
    KLC SM Co., Ltd.
Jae-Sung Choi
Professor, Dept. of Marine System Engineering
Korea Maritime University

Jong-Tae Lee
Managing Director, Director
KSS Line Ltd. Busan Office

Jongyun Kim
Vice President, Technology Planning Team
Samsung Heavy Industries Co., Ltd.
Goeje Shipyard

Seog Hwan Kang
Vice President, Head of Ship Management Division
SK Shipping Co., Ltd.

Chul-Ho, Song
Technical Director, Basic & Hull Design, Busan R&D Center

Sang-Heon Oh
Department Manager, Hull Technology Department, Shipbuilding Technology Division
STX Offshore & Shipbuilding Co., Ltd.

Nam-Young Kim
Vice President, New Shipbuilding Technical Department
STX Pos Ship Management

Jae-Woo Son
Vice President, Team Manager, Basic Design Team
Sungdong Shipbuilding & Marine Engineering Co., Ltd.

Nojoon Park
CEO
TMS Co., Ltd.

MIDDLE EAST TECHNICAL COMMITTEE
Chairman
Jitendra Misra
Managing Director
Emarat Maritime

Karem Hammad
Tanker Fleet Division Manager
ADNATCO-NGSCO

Benny K. Alex
General Manager (New Building & Projects)
Gulf Stolt Ship Management

Abdul Hayee
Fleet Manager
International Tanker Management Limited

Anil Cariappa
Technical Director
Emarat Maritime

Jamil Al-Ali
Manager, Fleet Engineering Group
Kuwait Oil Tanker Co., S. A. K.

Masanori Hayashi
General Manager, Marine & Technical Department
Oman Ship Management Company

A. Ramamurthy
General Manager, Ship Management Dept
Pioneer Ship Management Services LLC

A. Mansourzadeh
Technical Director
Simatech Shipping L. L. C.

Mohammed El-Sayed Ahmed
Vice President—Fleet (acting), Fleet Management
United Arab Shipping Company (S. A. G.)

Shamim A. Syed
Technical & Support Manager
Vela International Marine Ltd.

N. V. K. Nambiar
Technical Manager
Warm Seas

SINGAPORE TECHNICAL COMMITTEE
Chairman
Tey Yoh Huat
Vice President, Technical Services
“K” Line Ship Management (Singapore) Pte Ltd.

Toshikazu Saito
Director, General Manager
Altrust Shipping and Logistics Pte. Ltd.

Robert Sumantiri
Managing Director
BW Shipping Managers Pte Ltd.

Sureshit Chanda
Fleet Manager Technical
COSCO (Singapore) Pte Ltd.

Toh Ho Tay
Director, Rig & Shipbuilding
Drydocks World—SE Asia

B. S. Teeka
Managing Director
Executive Ship Management Pte Ltd.

Lim Teck Cheng
Chief Executive
HONG LAM MARINE PTE LTD.

Ir Wong Sin Futt
Assistant Director, Newbuildings, Ceng FIMarEST
IMC Shipping Services Co., Pte. Ltd.

Seow Tan Hong
Senior General Manager, Engineering Department
Jurong Shipyard Pte Ltd.

Nelson Yeo
Managing Director
Keppel Shipyard Limited (A member of the Keppel Group)

Avinash Kadam
Director, Technical Operations
Maersk Tankers

Mark Lim Yew Guan
Deputy Director (Shipping)
Maritime & Port Authority of Singapore

Hiroaki Kudo
Managing Director
MDL Tankship Management (Asia) Pte Ltd.

Arun K. Ahiwadali
Fleet Director
MSI Ship Management Pte Ltd.

Hemant Pathania
Managing Director & COO
NYK Shipmanagement Pte Ltd.

Teh Eng Hua
Vice President, Technical Department
Ocean Tankers (Pte) Ltd.

Lim Tau Kok
Director, Fleet Management Division
PACC Shipmanagers Pte Ltd.

Panneer Selvam
General Manager, Technical Division
Pacific International Lines Pte Ltd.

Govinder Singh Chopra
Director
SeaTech Solutions International (S) Pte Ltd.

Francis Chin
Chief Operating Officer
Stellar Shipmanagement Services Pte Ltd.

Rajdeep Singh
Technical Director
Tanker Pacific Management (Singapore) Pte Ltd.

Naresh Chand
General Manager—Planning
United Ocean Ship Management Pte Ltd.

Calum S Hume
Director
V. Ships (Asia) Pte Ltd.

Mok Kim Terng
Director, Operations, Ship Power, Ship Design
Wärtsilä Ship Design Singapore Pte Ltd.
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<tr>
<th><strong>TAIWAN TECHNICAL COMMITTEE</strong></th>
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<tr>
<td><strong>Chairman</strong></td>
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<td><strong>Members</strong></td>
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<td><strong>Senior Vice President, Shipbuilding Dept.</strong></td>
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<tr>
<td><strong>Director/President</strong></td>
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<tr>
<td><strong>Senior Manager, Marine Dept.</strong></td>
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<tr>
<td><strong>Vice President</strong></td>
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<tr>
<td><strong>Chief Engineer, Chief Engineer Office</strong></td>
</tr>
<tr>
<td><strong>Executive Vice President</strong></td>
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<tr>
<td><strong>Senior Vice President, Maintenance Dept., Project Division.</strong></td>
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<tr>
<td><strong>General Manager, Technical Division</strong></td>
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<tr>
<td><strong>Chief Engineer</strong></td>
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<tr>
<td><strong>Assistant Vice President</strong></td>
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<tr>
<td><strong>Vice President, Planning and Development Dept.</strong></td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>TURKISH TECHNICAL COMMITTEE</strong></th>
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<tbody>
<tr>
<td><strong>Chairman</strong></td>
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<tr>
<td><strong>Members</strong></td>
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<tr>
<td><strong>General Coordinator</strong></td>
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<tr>
<td><strong>General Manager &amp; Board Member</strong></td>
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<tr>
<td><strong>Technical Manager</strong></td>
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<tr>
<td><strong>Marine Department Manager</strong></td>
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<tr>
<td><strong>Technical Manager</strong></td>
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<tr>
<td><strong>Department Manager, Planning Department</strong></td>
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<tr>
<td><strong>Technical Manager</strong></td>
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<tr>
<td><strong>CEO, Member of Board</strong></td>
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<tr>
<td><strong>Technical Manager</strong></td>
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<tr>
<td><strong>General Manager</strong></td>
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<tr>
<td><strong>Technical Manager</strong></td>
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<tr>
<td><strong>Ocean Going Master</strong></td>
</tr>
<tr>
<td><strong>Safety Coordinator/DPA, Master Mariner</strong></td>
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<tr>
<td><strong>Member of Board</strong></td>
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<tr>
<td><strong>General Manager</strong></td>
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<tr>
<td><strong>Fleet Manager</strong></td>
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<tr>
<td><strong>General Manager</strong></td>
</tr>
<tr>
<td><strong>BSC Engineer &amp; Technical Manager</strong></td>
</tr>
<tr>
<td><strong>General Manager, Bulk Carriers</strong></td>
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<tr>
<td><strong>General Manager</strong></td>
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<thead>
<tr>
<th><strong>ClassNK in Committee</strong></th>
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<tbody>
<tr>
<td><strong>ClassNK in Committee</strong></td>
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<tr>
<td>Evenget Marine Corp. (Taiwan) Ltd.</td>
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<tr>
<td>Everget Marine Corp.</td>
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<tr>
<td>China Steel Express Corp.</td>
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<tr>
<td>Deryget Maritime Co., S.A.</td>
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<tr>
<td>Eastern Media International Corp.</td>
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<tr>
<td>First Steamship Co., Ltd.</td>
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<tr>
<td>Glory Navigation Co., Ltd.</td>
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<tr>
<td>Hsin Chen Marine Co., Ltd.</td>
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<tr>
<td>Shihwei Navigation Co., Ltd.</td>
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<tr>
<td>Ta Tong Marine Co., Ltd.</td>
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<tr>
<td>Taiwan Navigation Co., Ltd.</td>
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<tr>
<td>U-Ming Marine Transport Corporation</td>
</tr>
</tbody>
</table>
ClassNK in Control

OFFICERS

DIRECTORS

N. Ueda Chairman and President Nippon Kaiji Kyokai
Dr. H. Kitada Executive Vice President Nippon Kaiji Kyokai
T. Matsui Executive Vice President Nippon Kaiji Kyokai
S. Kakubari Managing Director Nippon Kaiji Kyokai
K. Fujiwara Managing Director Nippon Kaiji Kyokai
Dr. T. Yoneya Managing Director Nippon Kaiji Kyokai
Y. Nakamura Managing Director Nippon Kaiji Kyokai
A. Ashida Chairman Mitsui O.S.K. Lines, Ltd.
Dr. H. Itagaki Professor Emeritus Yokohama National University
Dr. H. Ohtsubo Professor Emeritus The University of Tokyo
Y. Katoh President Mitsui Engineering & Shipbuilding Co., Ltd.
K. Kama President and Chief Executive Officer IHI Corporation
S. Kobayashi Adviser Nippon Yusen Kabushiki Kaisha
K. Sugimoto Counselor Tino Kaiun Kaisha, Ltd.
S. Sumi President Tokio Marine & Nichido Fire Insurance Co., Ltd.
K. Tsukuda Chairman Mitsubishi Heavy Industries, Ltd.
Dr. T. Nomoto Professor Emeritus The University of Tokyo
S. Hasegawa Chairman Japan Civil Aviation Promotion Foundation
N. Ishii Former Managing Executive Director Nippon Yusen Kabushiki Kaisha
K. Kondo Vice President Executive Officer Mitsui Sumitomo Insurance Co., Ltd.
I. Shintani Board Counsellor Kawasaki Kisen Kaisha, Ltd.

AUDITORS

T. Aihara Chairman Japan Civil Aviation Promotion Foundation
N. Ishii Former Managing Executive Director Nippon Yusen Kabushiki Kaisha
K. Kondo Vice President Executive Officer Mitsui Sumitomo Insurance Co., Ltd.
I. Shintani Board Counsellor Kawasaki Kisen Kaisha, Ltd.

COUNCILORS

Z. Akasaka Chairman Japan Marine Equipment Association
H. Ishikawa President Japan Railway Construction, Transport & Technology Agency
S. Inui President Inui Steamship Co., Ltd.
Y. Inubushi Senior Adviser Kobe Steel, Ltd.
Dr. Y. Inoue Professor for Specific Project Yokohama National University
K. Uchida President Meiji Shipping Co., Ltd.
N. Kakizoe President and CEO Nippon Suisan Kaisha, Ltd.
T. Kakei Chairman NS United Kaiun Kaisha, Ltd.
H. Kashimoto President Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
J. Kato Senior Adviser Kyoei Tanker Co., Ltd.
H. Kadota President Shin Kurushima Dockyard Co., Ltd.
T. Kawamoto Tsuneishi Shipbuilding Company President, Executive Officer Representative Director Tsuneishi Holdings Corporation
S. Kinoshita President NYK-Hinode Line, Ltd.
S. Kurahara President IHI Marine United Inc.
S. Koide Representative Director, President Executive Officer Daitichi Chuo Kisen Kaisha
Dr. H. Kobayashi Professor Yokohama National University
K. Shimakawa President NS United Kaiun Kaisha, Ltd.
S. Shirakura President Fuji Electric Systems Co., Ltd.
S. Sudo Representative Director Aioi Nissay Dowa Insurance Co., Ltd.
Dr. Y. Sumi Professor, Faculty of Engineering Yokohama National University
Dr. H. Tanikawa Professor Emeritus Seikei University
T. Taniguchi Strategic Adviser Kawasaki Shipbuilding Corporation
S. Tsuji President Tailhecy Kisen Kaisha, Ltd.
N. Tsuzuki President & CEO Yuyo Steamship Co., Ltd.
H. Tomono Representative Director & President Sumitomo Metal Industries, Ltd.
T. Nakabe President Onomichi Dockyard Co., Ltd.
T. Nagumo Board Counsellor Sanoyas Hishino Meisho Corporation
T. Namura Chairman and President Namura Shipbuilding Co., Ltd.
Y. Hasegawa President Taiyo Nippon Kisen Company
H. Bada President and C.E.O. JFE Holdings, Inc.
T. Higaki Chairman Imabari Shipbuilding Co., Ltd.
M. Hyodo President Nippon Koa Insurance Co., Ltd.
K. Fukui President Kyokuyo Co., Ltd.
Dr. Y. Fujita Professor Emeritus The University of Tokyo
K. Furukawa President Hachiuma Steamship Co., Ltd.
N. Matake President Idemitsu Tanker Co., Ltd.
T. Matsui President The Sanko Steamship Co., Ltd.
Y. Matsuyama President, Representative director Nippon Oil Tanker Corporation
S. Mishima President and Executive Director Universal Shipbuilding Corporation
S. Minami Company CEO Oshima Shipbuilding Co., Ltd.
S. Muneoka President Nippon Steel Corporation
H. Morishima President Sasebo Heavy Industries Co., Ltd.
K. Yamaguchi President Nissho Shipping Co., Ltd.

Classification Committee

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N. Ueda Chairman and President Nippon Kaiji Kyokai
Vice Chairman
Dr. H. Kitada Executive Vice President Nippon Kaiji Kyokai

Members
T. Aihara Chairman Japan Civil Aviation Promotion Foundation
K. Fujiwara Managing Director Nippon Kaiji Kyokai
O. Handa Managing Director The Japanese Shipowners’ Association
Dr. S. Hayama Professor Emeritus The University of Tokyo
N. Ishii Former Managing Executive Director Nippon Yusen Kabushiki Kaisha
Dr. H. Itagaki Professor Emeritus Yokohama National University
S. Kabukura Managing Director Nippon Kaiji Kyokai
K. Kiriake Managing Director The Shipbuilders’ Association of Japan
T. Matsui Executive Vice President Nippon Kaiji Kyokai
S. Fujita Naval Architect, Deputy General Manager, Ship & Ocean Engineering Dept., Shipbuilding & Ocean Development Headquarters Mitsubishi Heavy Industries, Ltd.
A. Murakami Executive Officer, General Manager, Ship & Offshore Structure Company Kawasaki Heavy Industries, Ltd.
K. Nakajima General Manager Marine Claims Department Mitsui Sumitomo Insurance Co., Ltd.
S. Nakajima Managing Director Inno Marine Service Co., Ltd.
Y. Nakamura Managing Director Nippon Kaiji Kyokai
K. Nishimura General Manager, Business Development Department, Ship & Ocean Project Headquarters Mitsui Engineering & Shipbuilding Co., Ltd.
Dr. T. Nomoto Professor Emeritus The University of Tokyo
Y. Otogaki Managing Director IHI Marine United Inc.
Dr. H. Otsubo Professor Emeritus The University of Tokyo
I. Shintani Board Counsellor Kawasaki Kisen Kaisha, Ltd.
K. Takenaga Member of the Board, Executive Officer Kawasaki Kisen Kaisha, Ltd.
Y. Tanaka Corporate Officer and General Manager Technical Group Nippon Yusen Kabushiki Kaisha
N. Tsukamoto General Manager, Marine Underwriting Dept. Tokio Marine & Nichido Fire Insurance Co., Ltd.
H. Yamada General Manager, Naval Architect Green Ship Planning Dept., Ship & Offshore Structure Division Universal Shipbuilding Corporation
K. Yokota Managing Executive Officer Mitsui O.S.K. Lines, Ltd.
Dr. T. Yoneya Managing Director Nippon Kaiji Kyokai
Dr. K. Yoshida Professor Emeritus The University of Tokyo
### Technical Committee

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Dr. K. Yoshida  
Professor Emeritus  
The University of Tokyo

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- **Dr. H. Itagaki**  
  Professor Emeritus  
  Yokohama National University
- **K. Ishikawa**  
  Member of the Board and Senior Vice President, General Manager Ship and Offshore Structure Division  
  Universal Shipbuilding Corporation
- **Dr. Y. Inoue**  
  Professor for Specific Project  
  Yokohama National University
- **Y. Otagaki**  
  Managing Director  
  IHI Marine United Inc.
- **Dr. H. Ohtsubo**  
  Professor Emeritus  
  The University of Tokyo
- **Y. Onuki**  
  Member of Marine Safety & Environment Committee  
  The Japanese Shipowners’ Association
- **H. Okuda**  
  Senior Managing Executive Officer  
  Sumitomo Metal Industries, Ltd.
- **S. Ono**  
  Deputy General Plant Manager  
  The Japan Steel Works, Ltd.
- **H. Kawasaki**  
  Councilor  
  Nippon Steel Corporation
- **M. Kishimoto**  
  Director, Chief General Manager, Business & Technical Development Division  
  Universal Shipbuilding Corporation
- **Dr. H. Kobayashi**  
  Professor  
  Yokohama National University
- **Dr. Y. Sumi**  
  Professor, Faculty of Engineering  
  Yokohama National University
- **H. Takahashi**  
  Member of Marine Safety & Environment Committee  
  The Japanese Shipowners’ Association
- **K. Takenaga**  
  Member of Marine Safety & Environment Committee  
  The Japanese Shipowners’ Association
- **Y. Tanaka**  
  Member of Marine Safety & Environment Committee  
  The Japanese Shipowners’ Association
- **A. Tsukamoto**  
  Officer  
  Kobe Steel, Ltd.
- **N. Nagata**  
  Managing Director  
  Mitsui Engineering & Shipbuilding Co., Ltd.
- **H. Nishizaki**  
  Vice President  
  JFE Steel Corporation
- **Dr. T. Nomoto**  
  Professor Emeritus  
  The University of Tokyo
- **Dr. S. Hayama**  
  Professor Emeritus  
  The University of Tokyo
- **H. Hara**  
  Executive Vice President & General Manager Shipbuilding & Ocean Development Headquarters  
  Mitsubishi Heavy Industries, Ltd.
- **Dr. M. Horigome**  
  Professor Emeritus  
  Tokyo University of Marine Science and Technology
- **A. Murakami**  
  Executive Officer, General Manager, Ship & Offshore Structure Company  
  Kawasaki Heavy Industries, Ltd.
- **K. Yasuda**  
  Executive Officer  
  Sasebo Heavy Industries Co., Ltd.
- **K. Yokota**  
  Vice Chairman of Marine Safety & Environment Committee  
  The Japanese Shipowners’ Association

### Quality Committee

**Members**
- **Dr. H. Sakai**  
  Professor Emeritus  
  The University of Tokyo
- **Y. Yamaguchi**  
  General Manager  
  The Shipbuilders’ Association of Japan
- **T. Yamazaki**  
  Senior Researcher  
  Japan Marine Equipment Association
- **H. Tanabe**  
  Lead Technical Expert  
  Japan Ship-Machinery Quality Control Association
- **T. Yagi**  
  Manager  
  The Japan Iron & Steel Federation
- **K. Yoshida**  
  Manager  
  The Japan Electrical Manufacturers’ Association
- **Dr. N. Ooka**  
  Senior Technical Advisor  
  The Japanese Society for Non-Destructive Inspection
- **O. Handa**  
  Managing Director  
  The Japanese Shipowners’ Association
- **S. Takahashi**  
  General Manager  
  Nippon Kaiji Kyokai

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