

ClassNK



Annual Report 2003

Profile

Nippon Kaiji Kyokai, also known as ClassNK or just “NK,” is a ship classification society. The principal work of the Society’s expert technical staff is to undertake surveys to ensure that the Rules which it has developed are applied to newbuildings and existing ships, in order to ensure the safety of these vessels. The rules cover not only hull structures, but also safety equipment, cargo handling gear, engines, machinery, and electrical and electronic systems, among others. By the end of December 2003, the Society had 6,270 ships totaling 120.8 million gross tons (gt) on its Register. This figure represents approximately 20% of the world merchant fleet currently under class. Although based in Japan, where it has 21 offices, ClassNK has worldwide representation through a network of 71 exclusive surveyor sites in 39 countries. ClassNK surveyors work in shipbuilding and repair yards and at ports across the world, wherever they may be called upon to examine the condition of a ship, so that all of the Society’s services are available worldwide. On November 15, 1999, Nippon Kaiji Kyokai celebrated the centenary of its foundation.

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The NK Mission

ClassNK is dedicated to ensuring the safety of life and property at sea, and the prevention of 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, procedures and guidance, and maintain and develop its commitment to scientific and technological research, development and education.

Maintain and develop its global operations in line with the needs of those using its services.

Chairman's Message

Welcome to the *Nippon Kaiji Kyokai 2003 Annual Report*. This is my third report as Chairman, and I am very pleased to say that I am able to write it under much improved economic circumstances both for NK and the world.

There were of course events of global impact last year, including the war in Iraq and the outbreak of SARS, a new type of respiratory condition, but overall the economy improved on the previous year. Economic conditions in the EU, US and East Asia have strengthened, particularly in China, which achieved economic growth of close to 6% last year, in spite of an outbreak of SARS in the country. Even Japan, despite its slightly deflationary economy, showed some signs of recovery and according to the Japanese government, the country's economy shifted into positive growth territory for the first time in three years.

Due largely to the improved economy and especially the growth in China, the global shipping industry experienced a very prosperous boom. As a result, total global construction of newbuildings reached around 40 million gross tons (gt) last year, including about 14 million gt built in South Korea, about 13 million gt built in Japan, and about 5 million built in China. This significantly exceeded the previous record for newbuildings in a single year of 36 million gross tons achieved in 1975, right after the first oil shock.

Given these favorable conditions, it is not surprising that the Society also had a strong growth year last year, with the total volume of ships under NK class growing to over 120 million gt for the first time. Although we should be justifiably pleased, even proud of the consistent growth that we have been able to achieve, we must not underestimate the commitment required to maintain and control a fleet of 120 million gt, not to mention the plan approval and survey of the over 9 million gt of newbuildings anticipated in the coming year.

Since much of this burden is taken on in the field, our field staff must be supported as best we can, and

we must encourage each and every staff member at every level, to pay very careful attention to every aspect of what they do, in order to avoid any careless errors or mistakes. Any major casualty such as the *Erika* or the *Prestige* resulting from such an error, would seriously undermine the trust and faith that so many have in NK.

For our part, the board and senior management are constantly reviewing how we can best support the functions of the Society. The board last year approved the establishment of two new exclusive offices, one in Cadiz, Spain and one in Brisbane, Australia. The Society also established a British Committee last year, and we expect to obtain approval to survey British Flag vessels soon. In the booming China market, the Shanghai office has been further developed, and last year it was designated as plan approval center so that both staff and clients in China can get a quicker response to their technical inquiries. Despite a significant presence and a very healthy regular survey business in China, NK has tread carefully in entering the newbuilding market in China. We have always considered that the availability of qualified, and more importantly, experienced staff, is the most important consideration in developing new markets. NK has confidence in our surveyors as they all receive extensive training in both China and Japan. We believe we have now reached a critical mass in terms of qualified and experienced local surveyors, and we are therefore more actively pursuing a larger number of newbuilding projects in China. NK is currently involved in many new shipbuilding projects in Chinese shipyards, including bulk carriers, tankers and other vessels, for a wide cross section of local, Japanese and overseas clients.

On the Research and Development front, NK has completed several years of intensive research and development on key technical issues such as design load, corrosion and fatigue control, in work aimed at ensuring the safer design and maintenance of hull structures. Last year NK published new technical guidelines called *Guidelines for Container Carrier*

Structures. As with the earlier guidelines (the *Guidelines for Tanker Structures*, 2001 and the *Guidelines for Bulk Carrier Structures*, 2002) the new guidelines include guidelines for Direct Strength Analysis, Fatigue Strength Assessment and Ultimate Hull Girder Strength Assessment, as well as new guidelines on Hull Girder Torsional Strength Assessment, particularly relevant to container carriers having large openings on the upper decks. As with the earlier guidelines, the goal of the new guidelines is to increase the transparency, rationality and consistency of all the different processes at each design stage—from load estimation to final strength evaluation, as is expected of today's technical standards for designing ship hull structures. The longer term goal for the Society is to achieve the implementation of guidelines for various kinds of ships, as part of the establishment of a new set of Rules for Hull and Equipment which will eventually replace the current traditional Rules called "Part C".

Lastly, I want to say how pleased I am with the outstanding way the staff of the Society have responded to a whole new set of demands placed upon NK as a result of the introduction of the International Ship and Port Facility Security (ISPS) Code, which comes into effect on July 1, 2004. Last year, a number of employees of the Society were sent to participate in specialist training to acquire expertise in maritime security and terrorism prevention. A large number of presentations and seminars on maritime security have since been given in Japan and overseas, and the NK "Gateway to Maritime Security" website has been established.

By the end of 2003, a total of 23 flag governments had recognized NK as a Recognised Security Organisation (RSO). Training courses were held for Company Security Officers in Japan and overseas, and from August, the relevant department began work related to the approval of ship security plans (SSP) based on the ISPS Code, and audit work began at certain domestic and overseas branch offices from September 2003. On October 17, 2003, the Society carried out an initial audit of the ship security system



of the LNG carrier *Pacific Notus* and issued its first International Ship Security Certificate to the ship, which is managed by Nippon Yusen K.K. Co., Ltd.

Our rapid, efficient and effective response to the drastic changes in the world maritime security regime is, I think, a testament to the strengths and versatility of NK as one of the world's leading ship classification societies.

I encourage you to read the detailed reports from the various departments and overseas offices in the rest of this annual report, as they demonstrate the efforts of the hundreds of NK staff around the world working to ensure the safety of life and property at sea. Let me finish by thanking all the staff, clients and other stakeholders who have contributed to another successful year for the Society, and I look forward to working together with you all to achieve even more next year.

March 2004

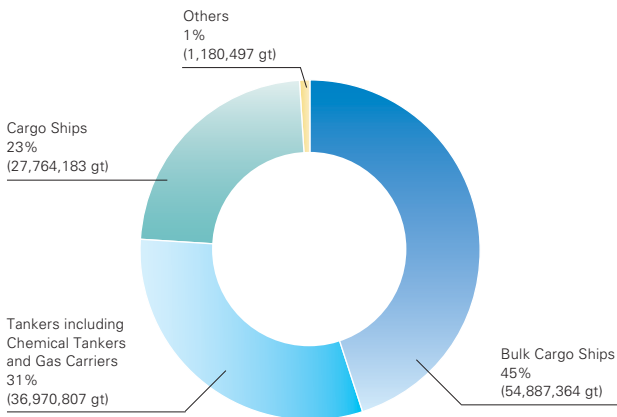
A handwritten signature in black ink, which appears to read "Kenji Ogawa". The signature is fluid and cursive, written over a white background.

Kenji Ogawa
Chairman and President

NK at a Glance

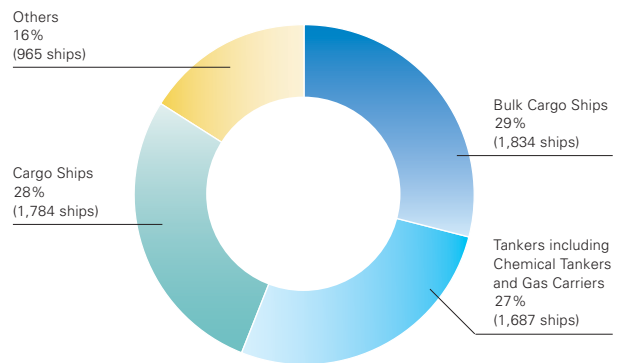
Breakdown of NK-classed Ships by Type

Total 120,802,851 gt



Breakdown of NK-classed Ships by Type

Total 6,270 ships



The Society participated in three major international exhibitions in 2003.

1. NOR-SHIPPING was held in Oslo from June 3 through 6.
2. The 22nd World Gas Conference Tokyo was held in Tokyo at Tokyo Big Site from June 2 through 5.
3. Marintec China 2003 was held in Shanghai at the Shanghai New International Expo Centre from December 2 through 5.



A British Committee comprising distinguished leaders from the maritime industry in the UK was established, with the first meeting being held on July 3, 2003.

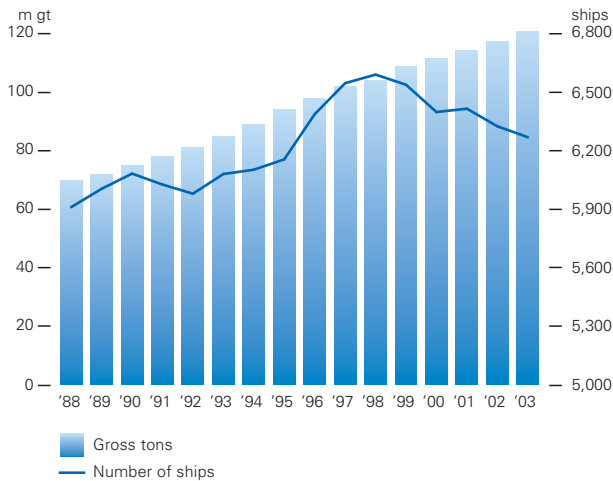


Nippon Kaiji Kyokai (ClassNK) received a special award from The Society of Naval Architects of Japan.

The Society of Naval Architects of Japan (SNAJ) bestows a number of awards each year. In 2003, the SNAJ awarded NK a "Special Award for Innovation in Technical Development" in recognition of the development by NK of practical methods for the evaluation of hull structure strength and the publication of the related Guidelines. The Guidelines consist of the "Technical Guide Regarding the Strength Evaluation of Hull Structures, December 1999", the "Guidelines for Tanker Structures, November 2001" and the "Guidelines for Bulk Carriers Structures, August 2002".

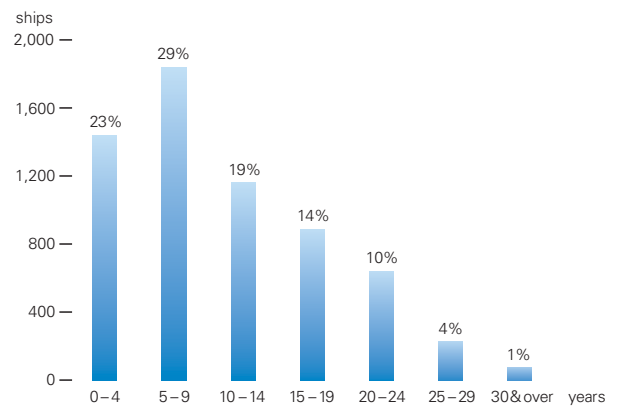


Aggregate Total Gross Tonnage and Number of Ships Classed



Breakdown of NK-classed ships by age

Average age of 6,270 ships in total: 10.6 years
(as of the end of 2003)

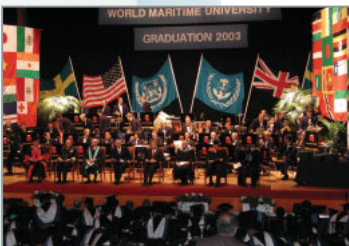
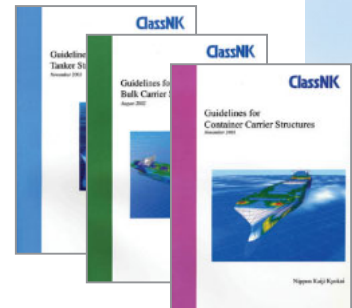


New Board

In March 2004, the Society announced changes to its Board of Directors. Managing Directors Dr. M. Oka and Mr. T. Takano both retired, resulting in two new appointments. Mr. T. Kaji and Mr. K. Yamanaka joined the Board. Dr. Oka and Mr. Takano will remain with the Society in the role of Senior Adviser.

Clockwise from front center:
Chairman and President K. Ogawa, Executive Vice President Y. Tsudo,
Managing Director T. Akahori, Managing Director K. Yamanaka,
Managing Director T. Kaji, Managing Director N. Ueda,
Executive Vice President M. Murakami

The “Guidelines for Container Carrier Structures” was published in November 2003.



2003 World Maritime University Graduation Ceremony

The 2003 graduation ceremony of the World Maritime University (WMU) in Malmo, Sweden, was held on October 12. Mr. T. Tsunoda, Regional Manager from NK’s London Office, and Mr. K. Ikegami, General Manager of NK’s Copenhagen Office, attended the ceremony at the invitation of the university.

The WMU has the “ClassNK Computer Center” that is supported by the Society. Last year all the computers were replaced with the latest new PCs in commemoration of the twentieth anniversary of the founding of the center.

A stylized, low-poly illustration. On the left, a tall white lighthouse with a lantern room at the top. In the middle ground, a white cargo ship is sailing on a blue sea. In the foreground on the right, a white silhouette of a person wearing a hard hat, facing left. The background is composed of large, overlapping geometric shapes in shades of yellow, blue, and green, suggesting a sky and sea. The text "NK in Action" is overlaid on the lower left portion of the image.

NK in Action

The Classed Fleet

At the end of December 2003, the ClassNK Register totaled 6,270 vessels, totaling 120,802,851 gross tons (gt). This was 56 vessels less than the total of 6,326 in 2002, but was an increase of 3,665,524 gt on the total for the previous year.

5,207 ships, (83.0%) totaling 110,596,647 gt, (91.6%) of the total register were flagged outside Japan, with ports of registry in 62 nations and territories. Ships flying the flags of Panama, Japan, Liberia, Singapore and Hong Kong accounted for 77.2% of the total number and 83.7% of the total gross tonnage classed by the Society.

Additions to the Register during the year numbered 365 ships, of 8,468,322 gt, 18 ships more than joined in the previous year and 736,573 gt more than joined in the previous year. 421 ships, of 5,185,415 gt, left the register, 26 less ships than left the previous year, but represented 610,618 more tonnage than that "lost" in 2002.



FREESIA

A 8,521 dwt oil/chemical carrier built by Higaki Shipbuilding Co., Ltd. for Freesia Navigation S.A.

102 of those ships were removed for reasons of noncompliance with the Society's rules while 103 vessels were transferred to other classification societies. The average age of the NK fleet was 10.6 years old for ships of 100 gt and over.

Newbuildings

At 316, the number of newly constructed ships classed by the Society increased by 5.4% over the previous year, and the 7,683,524 gt classed represented an increase of 480,336 gt over the total added in the previous year. These newbuildings represented 86.6% of the number of ships added to the register and 90.7% of the additional tonnage.

The newbuildings could be broken into the following major categories:

- Bulk Carriers
2003: 88 ships/3,196,550 gt
(2002: 109 ships/3,659,543 gt)
- Tankers and Gas Carriers
2003: 89 ships/ 2,773,830 gt
(2002: 75 ships/2,002,209 gt)
- Cargo Ships
2002: 57 ships/1,627,409 gt
(2002: 53 ships/1,492,276 gt)

Of these 316 ships, 87 or 27.5% were built by shipbuilders outside Japan, a significant improvement on the previous year and a positive sign of the increasing internationalization of the Society's business.



APL GERMANY

A 67,009 dwt container carrier constructed by Koyo Dockyard Co., Ltd. for El Barrio Shipping S.A.

Survey Activities

The number of Class Maintenance Surveys undertaken in Japan was 3878, while 10,028 surveys were done overseas. Major survey locations included: Singapore (1344); Pusan, South Korea (599); Kuala Lumpur, Malaysia (558); Taipei, Taiwan (493); and, Shanghai, China (476). The number of surveys undertaken on behalf of other societies totaled 138 including: BKI (4), CRS (7), GL (2), IRS (3), RINA (3), RS (2), VR (117)

The number of Equipment Maintenance Surveys totaled 21,581, broken down as follows: Refrigerating Installations 310; Cargo Handling Appliances 3,803; Marine Pollution Prevention Systems 5,102; Safety Equipment 6,438; Radio Installations 4,069; Automatic and Remote Control Systems 1,859.

The number of certificates issued was: Load Line 2,616; Safety Construction

6,660; Safety Radio 4,367; Oil Pollution Prevention 4,943; and, Tonnage 679.

The Society also undertakes a NOx verification service for diesel engines, issuing Statements of Compliance (SOC). So far, the Society has issued 1,132 SOCs.

Machinery Materials and Equipment Inspections

Main activities related to the inspection of materials and equipment for marine use during the year are shown below.

	Article	Amount
Materials	Rolled steels	2,495,879 tons
	Castings and forgings	74,314 tons
Machinery installations	Diesel engines	1,473 sets
	Boilers	367 sets
	Deck machinery	1,460 sets
	Auxiliary machinery	17,321 sets
Equipment	Anchors	716 sets
	Chains	8,927 lengths
Container	Refrigeration units for freight containers	2,954 sets

Audit and Registration of Safety Management Systems

The Society assessed and granted Documents of Compliance (DOCs) to 53 companies, and granted Safety Management Certificates (SMCs) to 666 ships. The number of Maintenance Audits of Safety Management Systems was: DOCs 518 and SMCs 962. Meanwhile, the number of companies whose registration was canceled was 16, and the number of ships was 641. As a result, the

total number of ship management companies and ships registered at the end of December 2003 was 590 and 3,786 respectively. In all, 54 countries have authorized ClassNK to carry out Safety Management System assessments and issue certificates on their behalf, and the number of ISM Lead Auditors rose to 399.



MUSASHI MARU

A 6,389 dwt ro-ro cargo/vehicles carrier constructed by Shin Kurushima Dockyard Co., Ltd. for Kyushu Kyuko Ferry Co., Ltd.

Assessment and Registration of Quality Management Systems

In 2003, 15 suppliers were assessed and registered under the ISO 14001 standard, bringing the total number of suppliers assessed and registered under this standard to 55. Similarly, 31 suppliers were assessed and registered under the ISO 9001 standards, bringing the total number of suppliers assessed and registered under this standard to 326.

NK Quality Assessments

The second SGS Surveillance after the second renewal audit conducted in accordance with certification based on ISO 9001:1994, was carried out at six Head Office locations and ten survey offices. Maintenance of certification was verified (January through April 2003). An audit conducted in accordance with certification based on ISO 9001:2000 was carried out at fifteen Head Office locations and nine survey offices, while the first maintenance audit conducted in accordance with certification based on ISO 9001:2000 began in December.

As part of the IACS QSCS Annual Audit program, annual audits were carried out at



HATSU PRIMA

A 19,309 dwt container carrier built by Evergreen Shipyard Corp. for Hatsu Marine Limited

twelve Head Office locations and at four locations overseas based on the 5th Issue of the IACS QSCS. Vertical Contract Audits were also carried out on the surveys of nine ships and one ISM-approved company. NK continued to be recognized as conforming to the IACS QSCS.

The first audit by Raad Voor Accreditatie (RvA) was carried out at the Rotterdam Office and Head Office.

An audit by the United Kingdom Maritime and Coastguard Agency (MCA) was carried out at Head Office and three

survey offices, and a Vertical Contract Audit (VCA) was undertaken on one ship survey.

The Rules

During the year, as part of NK's developing maritime security activities, "Rules for the Audit and Registration of Ship Security Management Systems" were enacted.



GOLDEN FRIENDSHIP

A 19,772 dwt oil/chemical carrier constructed by Fukuoka Shipbuilding Co., Ltd. for Fernus Line S.A.



ORALIA

A 8,715 dwt oil/chemical carrier constructed by Asakawa Shipbuilding Co., Ltd. for New Glory Shipping S.A.

The mainstay of a ship classification society's technical credibility lays in its rules. Therefore the Society constantly reviews and revises the Rules, Regulations and Guidance. In addition to keeping the Rules up to date with constantly changing statutory requirements, the Society also focuses on reviewing its rules to incorporate the results of its research and development activities.

The full list of the Rules and Guidance established and/or amended by the Society in 2003 includes:

1. Guidance for the Classification and Registry of Ships
 - A part revision related to application for classification registration, installation registration and surveys
2. Rules and Guidance for the Survey and Construction of Steel Ships
 - 1) A part revision related to enhanced surveys for general dry cargo ships and docking surveys (Part B)
 - 2) A part revision related to application of steels (Part C, CS)
 - 3) A part revision related to detailed requirements for side scuttles and rectangular windows (Part C)
 - 4) A part revision related to cathodic protection system for tankers (Part C)
 - 5) A part revision related to environmental tests for automatic devices and equipment (Part D)
 - 6) A part revision related to dead-ship requirements for small ships (Part D)
 - 7) A part revision related to detailed requirements for fire protection, detection and extinction (Part D, R)
 - 8) A part revision related to designed inclination angle for machinery installations (Part D)
 - 9) A part revision related to application of fire resistant cables (Part H)
 - 10) A part revision related to characteristics of governors for main generator engines (Part H)
 - 11) A part revision related to main generator systems driven by propulsion shafts (Part H)
 - 12) A part revision related to generator systems driven by propulsion shafts in addition to main generator systems (Part H)
 - 13) A part revision related to non-metallic cable supports (Part H, P)
 - 14) A part revision related to standard loading conditions for bulk carriers (Part A, C)
 - 15) A part revision related to protective arrangements against explosion of starting air manifolds (Part D)
 - 16) A part revision related to small hatches fitted on exposed fore deck (Part C, CS)
 - 17) A part revision related to strength of deck fittings on exposed fore deck (Part C, CS, D)
 - 18) A part revision related to surveys on automatic air pipe heads (Part B)
 - 19) A part revision related to electrical equipment necessary to provide normal operational conditions of propulsion and safety (Part H)
 - 20) A part revision related to rotating machines (Part H)
 - 21) A part revision related to rolled steels for hull (Part K)
 - 22) A part revision related to rolled stainless steels and their welding consumables (Part M, K)
 - 23) A part revision related to castings and steel forgings (Part K)
 - 24) A part revision related to material of chains (Part K, L)
 - 25) A part revision related to watertight doors (Part B, C, CS, R)
 - 26) A part revision related to survey for deck fittings and small hatches on exposed fore deck of existing ships (Part B)
 - 27) A part revision related to securing devices and stoppers for watertight hatch covers of existing bulk carriers (Part B, C)
 - 28) A part revision related to prepara-

- tion for surveys (Part B)
- 29) A part revision related to steel watertight hatch covers of bulk carriers, ore carriers and combination carriers (Part C)
 - 30) A part revision related to forecastles of bulk carriers, ore carriers and combination carriers (Part C)
 - 31) A part revision related to watertightness of chain lockers (Part B, C, CS)
 - 32) A part revision related to standard loading conditions for longitudinal strength calculation (Part C)
 - 33) A part revision related to strengthening for navigation in ice (Part B, C)
 - 34) A part revision related to electronically controlled diesel engines (Part D)
 - 35) A part revision related to override arrangement for safety systems of main propulsion machinery (Part D)
 - 36) A part revision related to indication of ship identification number (Part B, C, CS)
 - 37) A part revision related to low pressure type fixed carbon dioxide gas fire-extinguishing systems (Part R)
 - 38) A part revision related to graphical symbols for shipboard fire control plans (Part R)
 - 39) A part revision related to additional requirements for partially watertight hatch covers (Part C, R)
 - 40) A part revision related to definition of general dry cargo ships (Part B)

- 41) A part revision related to preparation for surveys and close-up surveys for oil tankers (Part B)
- 42) A part revision related to windows on navigation bridge (Part C, CS)
- 43) A part revision related to water level detection and alarm systems and dewatering arrangements for bulk carriers (Part B, D)
- 44) A part revision related to unified interpretations for fire protection and extinction (Part D, R)

- 45) A part revision related to fire integrity of weathertight doors (Part R)
- 46) A part revision related to emergency towing arrangements (Part C)

STOLT NANAMI

A 19,932 dwt oil/chemical carrier built by Kitanihon Shipbuilding Co., Ltd. for Maki Ocean Shipping S.A., and managed by V. Ships (Asia) Pte Ltd.



CAPE VICTORY

A 177,359 dwt bulk carrier constructed by Namura Shipbuilding Co., Ltd. for Fuyo Kaiun Co., Ltd.

- 47) A part revision related to disconnection of main bus bars in main switchboards (Part H)
 - 48) A part revision related to maintenance of batteries (Part H)
 - 49) A part revision related to earthing of single-core cables (Part H)
 - 50) A part revision related to earthing of cargo piping systems in tankers (Part B, D)
 - 51) A part revision related to test specimens and mechanical testing procedures (Part K, M)
 - 52) A part revision related to testing and inspection of equipment (Part L)
 - 53) A part revision related to hold frames of existing bulk carriers (Part B, C)
 - 54) A part revision related to test of ship manoeuvrability (Part B)
 - 55) A part revision related to car decks (Part B, C)
3. Rules for High Speed Craft
 - 1) A part revision related to designed inclination angle for machinery installations
 - 2) A part revision related to indication of ship identification number
 - 3) A part revision related to navigation lights of WIG craft
 4. Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use
 - 1) A part revision related to non-metallic cable supports
 - 2) A part revision related to environmental tests for automatic devices and equipment
 - 3) A part revision related to rolled steels for hull
 - 4) A part revision related to MARPOL73/78 ANNEX IV
 - 5) A part revision related to electronically controlled diesel engines
 - 6) A part revision related to water level detection and alarm systems for bulk carriers
 - 7) A part revision related to emergency towing arrangements
 - 8) A part revision related to testing and inspection of equipment
 5. Rules and Guidance for Automatic and Remote Control Systems
 - 1) A part revision related to environmental tests for automatic devices and Equipment
 - 2) A part revision related to override arrangement for safety systems of main propulsion machinery
 6. Rules and Guidance for the Survey and Construction of Passenger Ships
 - 1) A part revision related to application of fire resistant cables
 - 2) A part revision related to watertight doors
 - 3) A part revision related to indication of ship identification number
 - 4) A part revision related to graphical symbols for shipboard fire control plans
 7. Rules and Guidance for the Marine Pollution Prevention Systems
 - 1) A part revision related to MARPOL73/78 ANNEX IV
 - 2) A part revision related to condition assessment scheme
 8. Rules for the Survey and Construction of Ships of Fibreglass Reinforced Plastics
 - 1) A part revision related to indication of ship identification number



STENA CONDUCTOR

A 107,198 dwt oil carrier constructed by Imabari Shipbuilding Co., Ltd. for Friend Shine Shipping S.A.

9. Rules for Approval of Manufacturers and Service Suppliers

A part revision related to firms engaged in performance test of VDRs

10. Regulations for Technical Services

A part revision related to emergency technical assistance services

11. Regulations for the Issue of Statutory Certificates

A part revision related to SOLAS Chapter XI-2 and ISPS Code

Training

Surveyor training was conducted for 96 newly selected exclusive surveyors, including 15 non-Japanese surveyors, who recently joined the Society. This training included diesel engine factory practice. In addition, retraining was provided for seven mid-level exclusive surveyors from overseas branch offices. The aim of the retraining was to update and enhance the participants' knowledge levels, as well as to resolve any issues or incorrect understanding on the part of the participants.

A total of 17 surveyors undertook training as ISM Probationary Auditors, bringing the number who have completed this training to 474 persons. In addition,



SPLENDID ACE

A 19,893 dwt vehicles carrier constructed by Minaminippon Shipbuilding Co., Ltd. for Gavotte Shipping Corporation

three members of the Ship Survey Department of the Ministry of Land, Infrastructure and Transport Maritime Bureau also participated in the training.

Training for Maritime Security Auditors was held at Head Office locations, around Japan and overseas. A total of 72 surveyors participated in training sessions held in Japan, while 90 surveyors undertook the training at overseas locations.

As part of an ongoing international cooperation program, the Society conducted training for six additional surveyors from the Vietnam Register. The training took

place in Vietnam, Japan and Singapore.

At the request of the Japan International Cooperation Agency (JICA), the Society prepared and gave two lecture courses on ship survey work and other topics, as part of training conducted by the Overseas Shipbuilding Cooperation Center, for trainees from developing countries. The courses were titled: Group Training Course in Shipbuilding



YAMAYURI

A 12,588 dwt coal carrier constructed by Imabari Shipbuilding Co., Ltd. for Naigai Kisen Co., Ltd.



TEXAS HIGHWAY

A 17,481 dwt vehicles carrier constructed by Imabari Shipbuilding Co., Ltd. for Kawasaki Kisen Kaisha, Ltd.

and Quality Management Systems, and International Maritime Conventions and Ship Safety Inspections.

The Society also conducted a lecture at the request of the Tokyo MOU Secretariat on SOLAS and MARPOL, as part of a training session given by the Secretariat to port state control inspectors in the Asia Pacific area.

General

The suite of software and services known as PrimeShip-HULL was further developed with the addition of a new function as part of the *Guidelines for Hull Girder Torsional Strength Assessment for Container Ships*. The related *Guidelines for Container Carrier Structures* was published in December 2003.

The first domestic service LNG carrier in Japan, the *Shinjumaru No. 1* (total cargo tank capacity: 2,500m³) entered NK class and commenced service from the beginning of August 2003. The cargo equipment

onboard the ship was built by Kawasaki Shipbuilding's Sakaide Shipyard, while the hull was constructed by Higaki Shipbuilding. The vessel is the first of its kind and employs innovative new designs for cargo storage and handling.

Research on a FPSO (Floating Production, Storage and Offloading) System was commenced in collaboration with Mitsui Engineering & Shipbuilding Co., Ltd., the National Maritime Research Institute and Ocean Engineering Research, Inc. The Society will be responsible for the design review and technical evaluation of the marine structure. The project is expected to take three or four years.

The Society received a special award from The Society of Naval Architects of Japan (SNAJ). The SNAJ makes a number of awards each year, and in 2003 presented a *Special Award for Innovation in Technical Development*, in recognition of NK's development of practical methods for the evaluation of hull structure strength and the publication of the related Guidelines. The Guidelines consist of a *Technical Guide Regarding the Strength Evaluation of Hull Structures*, December 1999, *Guidelines for Tanker Structures*, November 2001 and *Guidelines for Bulk Carrier Structures*, August 2002.



NOSHIRO MARU

A 91,439 dwt bulk carrier constructed by Oshima Shipbuilding Co., Ltd. for Filberg Shipholding S.A.

NK Online

Online services have become an integral part of the Society's ability to provide the highest levels of customer service 24 hours a day, seven days a week. It is also critical that NK offices are online, and all offices were finally connected to the NK Global Network in 2003. The NK website is continually being enhanced, as is the NK SHIPS online information service. For example, a Special Attention for Surveys area was newly added to the NK SHIPS Survey Status page to enable the easier control and maintenance of Survey Records. Similarly, a customer feedback survey page, accessible via the Comments button on the top page of the NK web site, was newly added, and an IMO International Convention Calendar was also included. The calendar covers the main international conventions

adopted by the IMO. It has three main categories: "SAFETY", which covers the ICLL (International Convention on Load Lines), SOLAS (International Convention for the Safety of Life at Sea), and COLREG, "SECURITY", which covers SOLAS and "POLLUTION", which covers MARPOL (International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating hereto), AFC (International Convention on the Control of Harmful Anti-fouling Systems on Ships) and BWM (International Convention on the Control and Management of Ship's Ballast Water and Sediments, 2004).

The items in the table are new mandatory requirements for either new and/or existing vessels under relevant international conventions in addition to the current

regulations and conventions. All items, which are applicable from the date of entry into force on 1 January 2002, are, in principal, contained in the table. The table will be up-dated as new items/conventions are adopted, or relevant international conventions are amended at the IMO. In addition to the items already adopted at the IMO, some items expected to be adopted in the near future are also included in the table.

A new Client Mail Transmission Service including Technical Information and other useful resources was set up. Emails from the Society can now be received regularly and automatically, simply by registering for the service on the ClassNK web site.

NSS FORTUNE

A 184,9872 dwt bulk carrier constructed by Mitsui Engineering & Shipbuilding Co., Ltd. for Flaming Spirit Ltd.



Research Center Activities

Much of NK's research is undertaken for the development of the Rules on hull structures, most notably the so-called "RuleC100 Project" described in earlier reports. Employing the fruits of the basic research conducted in the first phase of this project, the final year of the 4-year plan (second stage) on developing reliable and practical strength evaluation procedures was completed. In addition, rational and consistent Rules that are applicable to ships of various dimensions and structural configurations were further developed.

2003 was the final year for several major projects including:

- A 5-year study on quality assessment of materials for ship and marine equipment. The study dealt with ultra-high-cycle-fatigue strength of low alloy steel crankshafts. Fatigue tests of forged steels were carried out, and the test data analyzed using fracture mechanics techniques and FEM simulations.
- A 3-year study on the practical use of a hull monitoring system. Onboard tests of a hull monitoring system (StressAlert) were carried out on a continuous basis, in order to appraise the practicability of the system and to accumulate actual data on hull responses and the operation of a new large container ship. A new scheme for the safe operation of ships was developed on the basis of these results.
- A 3-year study (second stage) on impact pressure on ships. A numerical analysis program for the bow flare slamming phenomenon was developed, and a practical procedure for assessing the strength of bow structures against impact pressure was investigated.
- A 3-year study on cargo loads acting on the hull. An experimental and numerical study on static/dynamic pressures induced by cargo and ballast loads was conducted. A simplified formula for the estimation of the pressures was developed.
- A 3-year study into the strength of welded joints for ships. The main aim of the project was to obtain basic data for the validation of the leg length of fillet welding that is specified in the Rules. Additionally, the relationship between strength and corrosion wastage was investigated through a series of tests and FE analyses. The applicability of the latest assessment methods for the strength of welded joints for ships was also examined.
- A 3-year study on reliability-based evaluation of marine machinery and systems. The purpose of this study was to establish a safety assessment procedure for marine machinery and systems based on the reliability method, and to improve the accountability, as well as the transparency of the classification rule-making process by applying this procedure.
- A 3-year study on the assessment of the strength of main engine structures. Deformation of the double bottom in E/R or engine structures may cause the failure of the main bearings in large marine engines. To clarify this problem, structural analyses using FEM and actual measurements of the deformation were carried out.

actual measurements of the deformation were carried out.

- A 1-year extension of a 3-year study into a practical fatigue assessment method. Fatigue assessment guidelines for container ships were developed. The validity of the criteria was investigated based on extensive fatigue damage experience.

A number of projects were further developed from the previous year including:

- The second year of a 3-year study on the corrosion of ship structural members. In order to better understand the strength characteristics of corroded members, a series of tests using actual corroded members were performed. In order to provide basic data for the establishment of corrosion margins and permissible corrosion levels, the simulation method and strength evaluation method were investigated using local corrosion conditions.
- The second year of a 3-year study (second stage study) on wave loads acting on ship structures. A numerical analysis program for the estimation of loads acting on ships in waves is being developed. In particular, torsional force, which is important in container ship strength evaluation, was investigated with consideration of nonlinear and three-dimensional effects.
- The second year of a 3-year study on analytical methods for combustion characteristics of marine fuel oils and the wear of lubricating surfaces of diesel

engines. The purpose of the study was, (1) to set up a diagnostic technique for analyzing the adequate combustion of fuel oils from the view points of ignition delay/combustion periods, etc. and (2) to develop a diagnostic technique for the degradation of lubricating oils in diesel engine cylinders and bearings. These techniques may serve as an alternative to actual surveyor inspections in the future.



Additionally, a number of new projects were initiated during the year including:

- A 3-year study into inspection and maintenance for the assessment of aged ship hull integrity. A practical method for the assessment of structural strength was investigated considering the degradation of ship structures. In this assessment, objective procedures were adopted utilizing design data, service data and survey data.
- A 3-year study on the method of assessment of ultimate strength for hull structures. By clarifying the ultimate strength of ship structures such as hull girders, primary members and local members, rational strength criterion will be proposed and reflected in the structural standards.
- A 3-year study on preventive maintenance for marine engines. In conjunction with the preventive maintenance of marine engines, a condition monitoring and diagnostic technique for main bearings was developed. An experiment on vibration monitoring was conducted

and method for preventing explosions in the main engine exhaust pipe was also investigated.

- A 2-year study on the Reliability of Offshore Structure Systems. Based on a review of the techniques and research developed in the course of creating offshore structures, an estimation method for the reliability of offshore structures and ship structures was proposed. Marine casualties were also investigated from this viewpoint.
- A 2-year investigation of inspection instruments for ship structures. Inspection instruments, for example the UT sensor, used to measure the real steel thickness of painted plate or corroded plate, were investigated. Remotely operated vehicle and inspection instruments that can be used in seawater to inspect the deformation of hulls and to measure plate thickness from the out side of hulls were also investigated.
- A 1-year investigation into the risk of ignition in aluminum-coated steel pipes during impact. In order to obtain basic

data to re-examine the validity of IACS-UR F2, the ignition risk of aluminum-coated steel pipes was investigated using non-ignition testing methods.

The 2003 Technical Research Conference was held, in accordance with established custom, at the Nippon Kaiun Club in Tokyo in November, in order to introduce the results of the technical research being undertaken by the Society to interested parties in related industries. Some eighty persons concerned from outside the Society and about thirty management and staff from the Society attended the seminar.

In addition to presenting the results obtained thus far on various technical topics being undertaken by the Research Institute, reports were also presented on the direct strength assessment system of PrimeShip-HULL for bulk carriers by TID, and the use of FSA as an IMO Rule-making tool and its application to bulk carriers by OTD.

A stylized, low-poly illustration of a ship's deck. In the foreground, a worker wearing a white hard hat and uniform stands on the deck, looking towards the right. To the left, another ship is visible in the distance. The background features a gradient sky with two white birds flying. The overall color palette is soft, with shades of yellow, green, and blue.

NK Around the World



SHINJU MARU No.1

A 2,500m³ LNG Carrier constructed by Kawasaki Shipbuilding Corporation for Shinwa Chemical Tanker Co., Ltd. and the Corporation for Advanced Transport & Technology.



ENERGY FRONTIER

A 145,000m³ LNG Carrier constructed by Kawasaki Shipbuilding Corporation for Tokyo Gas Co., Ltd.

the International Ship Security Certificate issued by the Society.

The Survey Department completed and released the “BULK CARRIER SAFETY: Retroactive Requirements for existing bulk carriers” on the NK web site. The information covers the measures relating to bulk carrier safety measures that will come into effect for existing vessels in 2004.

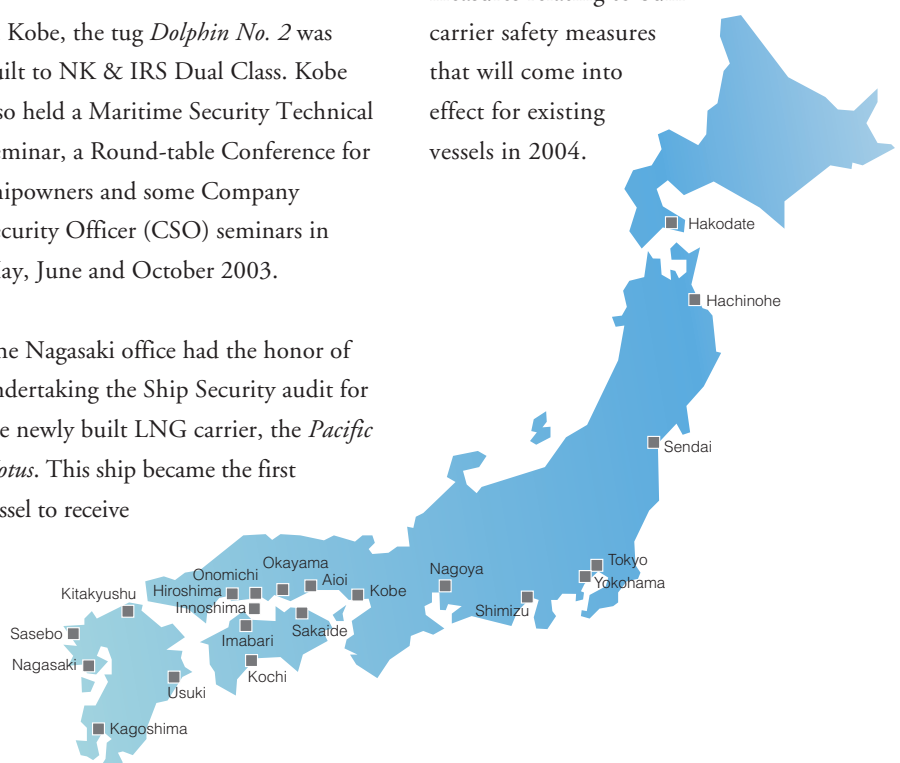
Japan

Almost 230 new vessels were constructed to NK Class in Japan last year. One interesting newbuilding handled by the Imabari office was the LNG carrier *Shinjumaru No. 1*, the first domestic voyage LNG carrier for Japan. Also in Imabari, the manufacturing process of New Japan Mechanical Chain Mfg. Co., Ltd. was approved and both a Maritime Security Technical Seminar and a Round-table Conference for Shipowners was held.

In Sakaide, the *Energy Frontier* was delivered in 2003 as the first of the 145,000 m³ class LNG carriers, the largest in the world at that time.

In Kobe, the tug *Dolphin No. 2* was built to NK & IRS Dual Class. Kobe also held a Maritime Security Technical Seminar, a Round-table Conference for Shipowners and some Company Security Officer (CSO) seminars in May, June and October 2003.

The Nagasaki office had the honor of undertaking the Ship Security audit for the newly built LNG carrier, the *Pacific Notus*. This ship became the first vessel to receive



The Americas

The Buenos Aires office in **ARGENTINA** had another busy year including the delivery of the *MV Alpina* to Alpina Shipping Company Ltd. on June 26, 2003. Flagged in the Marshall Islands, the 27,000 dwt bulk carrier is the second sister ship in a series of four, contracted by Whilhem Finance Inc. to the local shipyard Astilleros Rio Santiago. The Society also carried out individual approval and certification of launching equipment made by Astilleros Rio Santiago.

In **BRAZIL**, the Rio de Janeiro office experienced a 6% increase in survey applications, including audits, compared to last year.

In **CANADA**, the Vancouver office conducted a newbuilding survey for one Steering Gear unit. Regular class surveys increased 38% over the previous year while all other surveys saw

a 19% increase over the previous year. A technical seminar for owners was held in Vancouver in October, covering ClassNK Activities, PrimeShip-HULL, Recent Trends in PSC, Updated Topics from the IMO/ IACS and Maritime Security.

The number of regular surveys carried out by the Valparaiso office in **CHILE** was much the same as last year, but Technical Services were considerably higher than last year with seven local Technical Service consultations. ISM Audits were also up 60% compared to the previous year.

In the **UNITED STATES**, the Los Angeles office contributed to the technical seminar in Vancouver about ISPS activities of the Society, and the office also held a training course for Maritime Security Auditors for the North America region. The office also dispatched a specialist trainer to three additional Maritime Security Auditor



ALPINA

A 27,112 dwt bulk/lumber carrier built by Astilleros Rio Santiago for Alpina Shipping Company Limited

training courses held in the North and South America regions in the period September through November. Regular survey business was slightly down on last year.

Compared with the previous year, the number of ships surveyed/audited, in New Orleans increased by over 30 ships (8–9%). The office also evaluated Boyce Electronics Ltd. in Trinidad, which was approved as a Radio Inspection Firm. Another Radio Inspection Firm that was approved was Dockside Marine Electronics in Miami, Florida. In December, an ISM DOC was issued to Offshore Specialty Fabricators, Inc. in Houma, Louisiana, USA. Three surveyors undertook ISPS Training to become Maritime Security Auditors and one surveyor has been assigned as a QA Auditor for ISO 9000 certification. Quality audits were undertaken for two companies.

The New York office was busy as usual maintaining relations with various official bodies such as the USCG as well as achieving a 9% increase in regular surveys and ISM audits. Of special note was the class entry survey of a yacht for Ocean Yachts Inc.

ENA DRAGON

A 446 dwt tug boat built by Dalian Shipyard Industrial Development General Corporation for Eastern Navigation Pte. Ltd., Singapore



Asia and Oceania

In **AUSTRALIA**, the Fremantle office undertook 64 surveys of ships in service, an increase of 28% over the previous year. The Sydney office did 315 class surveys, up 13% from last year, and undertook the ISM annual company audit for Botany Bay Shipping Group Pty. Ltd. A renewal evaluation was done for Commercial Diving to be approved as a diving company. There was one case of equipment inspection — for mooring tails for Unrig Pty. Ltd. and the annual verification for approved welding materials was performed for The Lincoln Electric Company (Australia) Pty. Ltd.

The Dhaka office in **BANGLADESH** undertook the class re-entry survey for the oil tanker *M/T Nasihat*. Innovative

UNIQUE PRIVILEGE

A 105,483 dwt oil carrier built by Sumitomo Heavy Industries Marine & Engineering Co., Ltd. for Quasar Navigation Corporation Limited

Engineering Services was approved as a thickness measurement firm and a welding procedure test was completed at Khulna Shipyard for a 15-meter patrol boat of aluminum hull construction being built to NK Class. The office is also negotiating to class 5 new 14-meter FRP high-speed harbour patrol boats for the Bangladesh Coast Guard.

CHINA was once again one of the fastest developing markets. In Dalian one newbuilding entered class: the *Ena Dragon*, a 499 gt tug. Approval of service





suppliers was granted to six companies: one company for radios, two for liferafts and three for fire extinguishers. Regular surveys saw a 7.8% increase while other surveys saw a 26% increase. A CAP survey was performed for one ship — the *Matsukaze*.

A plan approval section was established in the Shanghai office in September and a CSO training course was held in December. Class surveys increased 15% and all others increased 40%. Approvals were granted to one radio firm and four welding procedures. There were 35 other certifications of production and equipment.

In Qingdao, the number of surveys and inspections increased 30% compared with the previous year. One type of lifeboat was approved (Beiyang Boat-building), a manufacturing method for

an anchor-chain maker was approved (Qingdao Anchorchain), and a type of welding material was approved (Zibo Feile Welding Products Co., Ltd.).

Beijing achieved a 28% increase in regular surveys and a 20% increase in other surveys. Seminar presentations on LNG carriers and on container carrier structures were held for local owners and builders. Certification of firms included one approval for fire extinguishing equipment, Type Approval for one water-level detection firm and approval was given for a voyage data recorder.

In Hong Kong the number of regular surveys increased 10%. Seminars held included an ISPS Seminar and a technical seminar. A

CSO Training Course was held and the 29th Hong Kong Committee was convened.

In INDIA, the Mumbai office undertook the new entry survey for the *Magnetic Isle*. The number of regular class and other surveys increased 85%. Type Approval for Water Ingress Detectors by UTM and IWS was also completed. The office hosted a seminar on the “Development of Guidelines for Bulk Carrier Structures” at IRS Head Office and at SCI Head



DOLPHIN NO. 2

A 238 dwt tug boat built by Kanagawa Dockyard Co., Ltd. for Gujarat Adani Port Ltd.



Office. Similarly, a seminar on the “Development of Guidelines for Container Carrier Structures” was held for both organizations. A presentation on “Recent Marine Machinery Failures” was made by the General Manager, Mr. A.V. Pradhan, at COMARSEM 2003. In order to introduce the latest technical developments of the Society, a technical seminar was held at the Indian Institute of Technology Madras (IITM) on November 28, 2003. At the seminar, M.D. Mr. Ueda made the opening remarks, together with a brief introduction to the recent activities of the Society. Dr. Rahim of NK Singapore then made a presentation on the development of PrimeShip-HULL to an audience of about 40 students (mainly masters and doctoral course students) as well as faculty members of the Department of Ocean Engineering at IITM.

INDONESIA is another rapidly developing market and the Jakarta office classed 23 newly built vessels.



KODAIJISAN

A 58,591 dwt LPG (Low temp.) carrier constructed by Hyundai Heavy Industries Co., Ltd. for Camomile Maritime S.A.

They also granted a Certification of Production Method for PT. Gunawan Dian Jaya (Surabaya Mill). Two radio companies and an in-water survey firm were also approved. An industrial inspection of PT. Karya Yasantara Cakti was undertaken to approve the welding materials. An ISPS-CSO Training Course was held in June, and a technical seminar on MARPOL and CAS was held for local owners and builders in December.

The Pusan office in KOREA translated the new guidelines for tanker structures and bulk carrier structures into Korean, and they were then distributed to all companies and organizations concerned. Presentations on the new guidelines for tanker structures, bulk carrier structures and container carrier structures were also made by Head Office personnel at various shipyards. Two LPG carriers were built by Hyundai Heavy Industries Co., Ltd. and classed with the Society: *Gas Oriental*, owned by MOL, and *Kodaijisan*, owned by Shinwa.



YOUSHOU MARU

A 6,959 dwt general cargo/vehicles carrier constructed by Mitsubishi Heavy Industries, Ltd. for Fujitrans Corporation.



ENERGY STAR

A 75,318 dwt bulk carrier constructed by Universal Shipbuilding Corporation for Sun Lanes Shipping S.A.

RED IRIS

A 75,730 dwt bulk carrier constructed by Sanoyasu Hishino Meisho Corporation for F.J. Lines Inc.



In MALAYSIA, the Kota Kinabalu office supervised the construction of a total of 34 non-conventional tug boats and barges. Regular surveys of existing ships, inclusive of shipboard audits and newbuildings increased 11.8% compared with the previous year. In Miri, there was one class entry survey for the *Ajang Hira*, and regular surveys decreased slightly compared with the previous year. The number of surveys and inspections in Kuala Lumpur increased 2.2% compared with previous year 2002.

Business in the PHILIPPINES boomed with the delivery of four (4) bulk carriers of the 52,300 DWT type built to NK Class, at Tsuneishi Heavy Industries (Cebu) Inc. Tsuneishi Heavy Industries (Cebu), Inc., which had already obtained ISO 9001 certification from ClassNK, further obtained ISO 14001 certification in November 2003. Tsuneishi Heavy Industries (Cebu), Inc. is the first company outside Japan which has been certified by QualityNK for the environment management system ISO14001. Regular class surveys increased 19%, while other surveys decreased 13%. A presentation on the ISPS Code was held in June, and a

CSO training course was held in Manila in July.

There were no newbuilding activities in **SINGAPORE** but repairs and related work contributed to increasing regular and other surveys by 101%. In addition to a regular series of seminars held for local companies every two months, special technical seminars by head office staff were held on the ISPS Code, chemical tankers and container carriers. A Company Security Officer training course was held in September. Maritime Security Auditor training courses were held in June, July, August and September.

Newbuilding surveys were resumed in **TAIWAN** for the first time in six years. New shipbuilding orders from Taiwan Owners numbered around 24.

Regional Container Lines Public Co., Ltd. (RCL) of **THAILAND** has signed a contract with Mitsubishi Heavy Industries Ltd., Shimonoseki, Japan to build two 2,378 TEU container carriers to be classed with NK. The number of regular surveys carried out decreased slightly compared with the previous year. The first meeting of the new Thai Committee was held in December 2003. The meeting proceeded under the Chairmanship of Capt. Sutep Tranantasin, Senior Vice President of RCL, and Executive Vice President Mr. M. Murakami attended the meeting. A number of seminars and lectures were held during the year.

These included a technical seminar held in collaboration with the Thai Shipowners Association and attended by more than 120 distinguished guests from the Thai maritime community, including the Director of the Ship Survey Division of the Thai Marine Department as guest of honor, and some Thai Government surveyors. A CSO (Company Security Officer) training course was held in July, and Maritime Security Auditors from the NK Bangkok Office gave lectures during the year at SSO (Ship Security Officer) training courses organized by The Merchant Marine Training Center.

VIETNAM is yet another rapidly developing market where NK is very active. NK Haipong had a busy year carrying out classification surveys for new constructions. The *MV Vinashin Star*, an 11,500 DWT dry cargo ship was built at Ha Long Shipyard and delivered in May to Vinashin Shipping

and Marine Service Company (VINASHINSHIP). The *My Hung*, a 6500 DWT cargo ship was built at Bach Dang Shipyard and delivered in October to Vietnam Shipping Company. At Ha Long Shipyard, Vietnam National Shipping Lines (VINALINES) contracted to build two 12,500 DWT cargo ships. The first ship was keel laid in August 2003 and the construction is expected to be completed in 2004 under NK Class. NK Haiphong was also engaged in the classification survey for the first oil tanker (13,000 DWT) to be built by the Vietnamese shipbuilding industry, contracted by VINASHINSHIP with Bach Dang Shipyard. To meet the needs of Vietnamese owners and

ORCHID BAY

A 28,428 dwt bulk/lumber carrier built by Imabari Shipbuilding Co., Ltd. for Talbot Enterprises Inc.





PALAU

A 31,837 dwt bulk carrier built by Hakodate Dock Co., Ltd. for Orion Schiffahrts-Gesellschaft Reith & Co.

shipyards in building new oil tankers, a number of technical presentations on oil tankers for Vietnamese owners and shipyards were offered during 2003. The Vietnamese shipbuilding industry also demonstrated its growth potential with a contract signed between Bach Dang Shipyard and Noma Kaiun K.K (Japan) for the building of a 9,000 DWT cargo ship in 2004. This will be the largest ever new shipbuilding project by a local shipyard for a foreign owner. The classification survey required during construction will be carried out by NK. Haipong was also busy with surveys and inspections for existing ships in 2003, handling double the number of large NK Class ships with ESP notation docked at Hyundai-Vinashin Shipyard for repair and inspection. The total number of surveys done for existing ships increased 50% over the previous year.

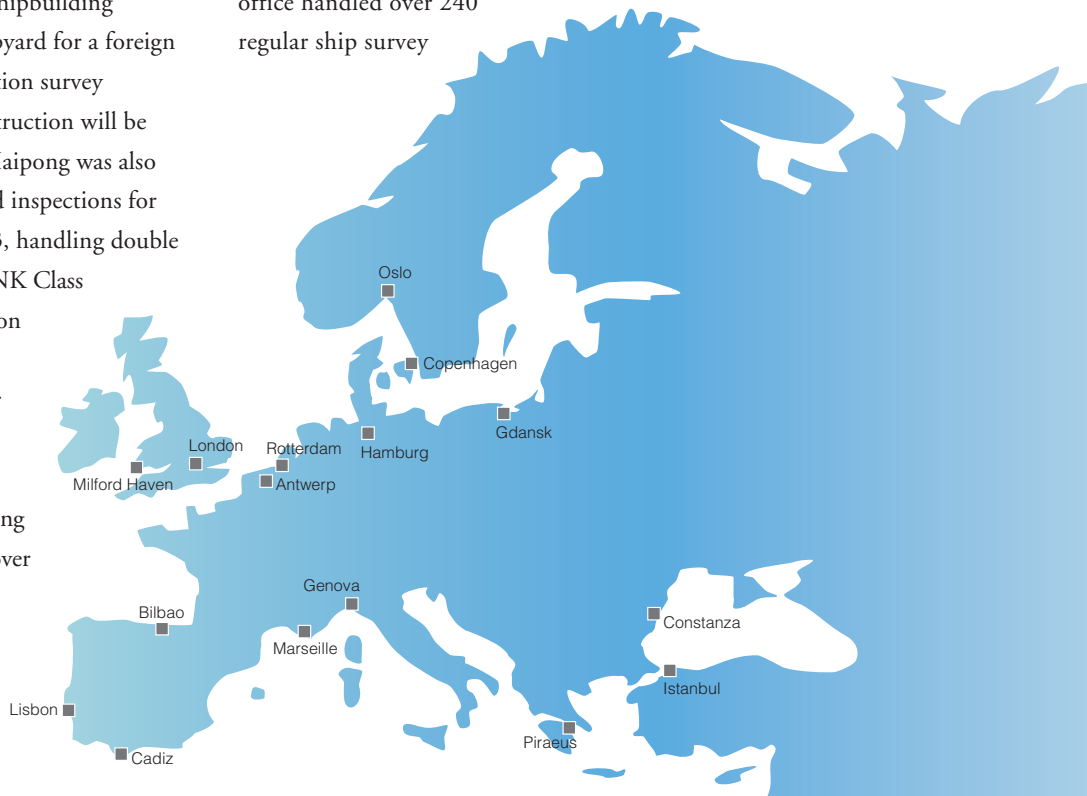
Europe

As always, the **DENMARK** office in Copenhagen was busy: the number of surveys exceeded 700 for the first time last year.

In **FRANCE**, the Marseilles office approved two manufacturers, two radio companies and one in water survey company. In addition, the office handled over 240 regular ship survey

applications and 77 industrial survey applications.

The Hamburg office in **GERMANY** carried out about 40 Plan Approvals and about 20 Type Approvals, and issued 1,062 Equipment Certificates. Regular class surveys increased 34%, and other surveys and inspections saw a 22% increase.



In GREECE, class surveys were up 9% while other surveys increased 75%. Three special Ship Condition Surveys for Purchasing were also performed as technical services. A Training Course for Company Security Officers under the ISPS Code was also held.

In THE NETHERLANDS, the number of regular surveys was slightly down. At the request of the office of the Permanent Secretary of the Paris MOU, a lecture was held in March 2003 at the Ministry of Transport at The Hague for PSC officers from all over Europe. This lecture was prepared and given by M.P.M. Boeren, the senior surveyor from the NK Rotterdam office.

In ITALY, there was a slight increase in ship surveys across the whole territory despite a slight decrease in docking surveys. Chibro SPA, Italy was approved as a manufacturer of flexible metal hoses and Safra SPA, a welding materials manufacturer, received its periodical assessment. Sulzer Burckhardt gas compressors were inspected and approved in Winterthur (Switzerland) for use in newbuildings, as were FO/LO separators modulus at Alfa Laval SPA at Monza (Italy). Gennaro dell'Anno, Diver's Company in Napoli was re-approved as an in water survey company.

Forging parts for an ABB Azipod propulsion system were inspected in factories in Italy and in Switzerland. The New ABB Turbo Charger series TPC 47/49 was tested for approval and Certified for Mass Production. A large

number of inspections were undertaken on behalf of the Japanese Government at ABB Turbo System in Switzerland and at Geislinger Couplings, a manufacturer in Austria. There was also an inspection on behalf of the Japanese



FUJI

A 11,343 dwt crane barge constructed by IHI Amtec Co., Ltd. for Fukada Salvage & Marine Works Co., Ltd.

GLOBAL HAWK

A 29,734 dwt bulk/lumber carrier constructed by Shikoku Dockyard Co., Ltd. for Grace Hawk Shipping S.A.





OCEAN CHIE

A 52,370 dwt bulk carrier built by Tsuneishi Corporation for Ocean Alliance Shipping S.A.

Government of two ABB Turgi (Switzerland) large converters intended for MHI Nagasaki.

In **POLAND**, regular class surveys increased by 30% and all other surveys increased by 50%. Approval was granted to SUPON S.A. (Poland), a firm engaged in the approval of fire extinguishing equipment and systems. Renewal of the Approval of Manufacturing Process for Carbon Steels and Low-Alloy Steels-Forging was completed for the manufacturer ZAKLADY OSTROWIECKIE HUTA OSTROWIEC S.A. The Gdansk office also provided assistance to a Kawasho Corp. representative who made a marketing visit to Polish shipyards in October 2003.

At the Lisbon office in **PORTUGAL**, the number of surveys of existing ships decreased about 20%, mainly due to a reduction in the number of ships dry-docked in shipyards for repairs, or for Special or Intermediate Surveys. Two firms engaged in servicing fire fighting equipment were approved.

In **ROMANIA**, class surveys carried out across the Black Sea Area were mainly Special Surveys, Intermediate Surveys and Docking Surveys. Compared with the previous year, survey activities increased around 150%.

The Istanbul office in **TURKEY** saw a 20% increase in regular class surveys; all other surveys, including appraisal services, also increased around 20%.

An ISPS Code Training Course was held in Istanbul. A Technical Seminar was held at the Çıgaran Palace Hotel in Istanbul in January with approximately sixty participants from shipping related companies from across Turkey attending.

In the **UNITED KINGDOM**, over 265 applications were received for certification of equipment. Also, around 180 regular class survey/audit applications were received, slightly down on last year. A British Committee comprising distinguished leaders representing the maritime industry in the UK was established, and the first meeting was held on July 3, 2003.

Middle East and Africa

In **KUWAIT**, the increase in the number of ship surveys continued, increasing by 10% this year to 135 vessels. This number includes ship surveys carried out in Bahrain and other countries. Technical services were also provided to ship owners in the region. Technical Presentations were also carried out for Kuwait Oil Tankers Company.

In **SAUDI ARABIA**, the Jeddah office certified Desert Divers Underwater Services as the first firm authorized to carry out in water surveys of ships in the country. The number of ship surveys was slightly down in comparison to last year.

SOUTH AFRICA was busy, with the Cape Town office experiencing a 20% increase in regular class surveys and a new surveyor being employed in May. The Durban office also had a 19.5% increase in regular class surveys. Ships surveyed outside South Africa, mainly in West Africa, comprised 26% of the total, representing over 50% of the hours worked.

The Alexandria office in **EGYPT** was busy with class re-entry surveys for three ships: *M/V Jaref*, *M/V El-Djazir*

and *M/V Tazerbo*, all belonging to General National Maritime Transport Co. This company recently obtained SMCs for these ships, as well as for *M/V Attahad*. There was a small increase compared with last year in class and statutory surveys as well as company and SMC audits, especially from overseas job orders.



MARTORELL

A 19,531 dwt vehicles carrier constructed by Toyohashi Shipbuilding Co., Ltd. for New Auto Carrier S.A.

Approved Manufacturers

As usual, many approvals were granted to manufacturers and service providers both in Japan and around the world during the year.

Nineteen radio service companies were approved around the world, bringing the total to 183 companies. Regarding launching appliances, lifeboats, rescue boats and liferafts, 14 new items or companies were approved. Twenty companies (31 items) were approved for fire-fighting equipment in 2003. Eleven companies (29 items) were approved for Approval of Prototype, Approval of Use and Type Approval. The following approvals were also granted in 2003: Approval for the Manufacturing Process of Steel Casting/ Forging (8 approvals), Type Approval of Welding Consumables (5 approvals), Approval for the Manufacturing Process of Anchors (2 approvals) and Approval for the Manufacturing Process of Steel Pipes (1 approval).

Approvals for firms engaged in thickness measurements on ships were granted to 21 companies around the world, bringing the total to 160 companies. Similarly, the number of companies approved for carrying out in-water survey of ships in 2003 was 18, bringing the total to 130.



SUN EMERALD

A 32,700 dwt bulk/lumber carrier built by Kanda Shipbuilding Co., Ltd. for Priscilla Shipping (BVI) Limited managed by IndoChina Management Ltd, Hong Kong

MOL ENDEAVOR

A 61,441 dwt container carrier built by IHI Marine United Inc. for Lunar River Lines S.A.



ClassNK Service Network



Exclusive Surveyor Offices

Japan

Aioi
Hachinohe
Hakodate
Hiroshima
Imabari
Innoshima
Kagoshima
Kitakyushu
Kobe
Kochi
Nagasaki
Nagoya
Okayama
Onomichi
Sakaide
Sasebo
Sendai
Shimizu
Tokyo
Usuki
Yokohama

Asia, Oceania and the Middle East

Auckland
Balikpapan
Bangkok
Batam
Batangas
Beijing
Brisbane
Cebu
Chennai (Madras)
Chittagong
Dalian
Dhaka
Dubai
Fremantle
Guangzhou
Haiphong
Hong Kong
Istanbul
Jakarta
Jeddah
Johor Bahru
Kaohsiung
Koje
Kota Kinabalu
Kuala Lumpur
Kuwait
Manila
Melbourne
Miri
Mumbai (Bombay)
Pusan
Qingdao
Seoul
Shanghai
Singapore
Surabaya
Sydney
Taipei
Ulsan

Europe and Africa

Alexandria
Antwerp
Bilbao
Cadiz
Cape Town
Constantza
Copenhagen
Durban
Gdansk
Genova
Hamburg
Las Palmas
Lisbon
London
Marseille
Milford Haven
Oslo
Piraeus
Rotterdam

North and South America

Buenos Aires
Houston
Los Angeles
Miami
Montreal
New Orleans
New York
Norfolk
Panama
Rio de Janeiro
Seattle
Valparaiso
Vancouver

NK on Guard

The now infamous terrorist attacks on the World Trade Center in New York on September 11, 2001, changed the world in many ways. Security issues became a priority for all, and the maritime sector was no exception. In response, Chapter XI-2 *Special Measures to Enhance Maritime Security* was adopted by the IMO as a new chapter in the SOLAS Convention. The *International Ship and Port Facility Security (ISPS) Code*, referred to in this new chapter, is to come into effect from July 1, 2004. Once this Code comes into effect, all passenger ships and cargo ships of 500 gt and above engaged in international voyages must conform to the Code, and will be required to possess an International Ship Security Certificate (ISSC).

As has so often been the case in the past, the industry and Flag States have turned to Class to assist with the practical implementation of the Code. To this end, the Society established a

new project team on maritime security in July 2002. This project team has quickly and efficiently developed the Society's capacity to undertake statutory work relating to the ISPS Code as a Recognized Security Organization (RSO). This task involves the conduct of audits and issuing of certificates on behalf of Flag State governments, in addition to the existing statutory work of the Society such as statutory surveys on SOLAS, MARPOL and the Load Line Convention. The Society expects to be recognized as an RSO by around 70 Flag States.

A specialization in enhanced maritime security is required to become a Recognized Security Organization (RSO) that can conduct audits and issue certificates on behalf of Flag State governments. In order to develop the necessary expertise, eight employees of the Society undertook specialist training to acquire expertise in maritime security and counterterrorism at

International Maritime Security (IMS) in the U.K. The Society also concluded a security consulting (business tie-up) contract with IMS, in order to receive the most up-to-date information on maritime security issues. Additionally, the Society concluded a security consulting contract with the specialized security firm, ST Education and Training (STET) Pte Ltd of Singapore.

Internal training for maritime security auditors was held (4 times in Japan for a total of 64 persons and 11 times overseas for a total of 102 persons) in accordance with IACS Procedural Requirement No. 25. After additional practical training, over 20 auditors have so far been appointed.

A customer education program was developed and various presentations and seminars on maritime security were given in Japan (Tokyo, Kobe, Kita-Kyushu and Imabari) and overseas (Singapore, Hong Kong and Taipei). The aim of these seminars was to explain the new security regime and how audits would be conducted.

The presentations included the following items.

1. Recent regulatory activities related to maritime security
2. An overview of the International Ship Security Certificate acquisition process
3. The audit of ship security systems and



- related implementation time periods
- 4. Guidance on the ship security system audit application process
- 5. Distribution of a booklet entitled “Handbook for Ship Security System Audit”

Numerous training courses were then held for Company Security Officers in Japan (5 courses in Tokyo, 3 in Kobe, 2 in Imabari) and overseas (2 in Singapore, Jakarta, Manila, Bangkok, Taipei, Hong Kong, Athens and Istanbul). Over 939 people participated in these courses (612 in Japan and 327 overseas).

To further support NK customers, “Gateway to Maritime Security”, a maritime security website, was established. The website is accessed via a link on the ClassNK website.

Actual work related to the approval of ship security plans (SSP) based on the ISPS Code began from August 2003, and audit work commenced at certain domestic and overseas branch offices from September 2003. The Society carried out an initial audit of the ship security system of the LNG carrier *Pacific Notus* and on October 17, 2003, issued its first International Ship Security Certificate to the ship, which is managed by Nippon Yusen K.K. Co., Ltd.



Chairman and President K. Ogawa presenting the first International Ship Security Certificate to be issued by the Society to Managing Director T. Manji of Nippon Yusen Kaisha.



NK in International Affairs



From its earliest beginnings NK has been recognized as an international ship classification society. In addition to around 20 offices in Japan, the Society has over 70 offices in 39 countries overseas. One important aspect of the Society's activities in the international relations arena relates to our capacity to undertake statutory surveys on behalf of foreign Governments. The number of countries that have authorized ClassNK to carry out surveys on their behalf and issue certificates based on international conventions and/or their domestic law grew to 96 by December 2003.

IMO Activities

Another important activity is our contribution to the International Maritime Organization (IMO). Either as a member of a Japanese Government



delegation or as a representative of IACS, ClassNK participated in the following meetings:

- Sub-Committee on Fire Protection (FP) – 47th session
- Marine Environment Protection Committee (MEPC) – 49th session & 50th session
- Sub-Committee on Ship Design and Equipment (DE) – 46th session
- Sub-Committee on Stability and Load Lines and on Fishing Vessels

Safety (SLF) – 46th session

- Sub-Committee on Flag State Implementation (FSI) – 11th session
- Maritime Safety Committee (MSC) – 77th session
- Sub-Committee on Bulk Liquids and Gases (BLG) – 8th session

IACS Activities

However the Society's most active international involvement is of course through the International Association of Classification Societies (IACS).

Overseas Committee Meetings held in 2003

The full list of NK Committee meetings held during 2003 is as follows:

	Date	Venue
The 9th Indian Committee	20 January	Mumbai
The 12th Greek Committee	7 February	Piraeus
The 4th Taiwan Committee	17 March	Taipei
The 14th Korea Committee	15 May	Pusan
The First British Committee	3 July	London
The 13th Danish Technical Committee	12 September	Copenhagen
The 3rd Taiwan Technical Committee	2 October	Taipei
The 10th Korea Technical Committee	8 October	Pusan
The 29th Hong Kong Committee	9 October	Hong Kong
The 10th China Committee	5 November	Beijing
The 7th Singapore Technical Committee	20 November	Singapore
The 10th Indian Committee	1 December	Mumbai
The First Indonesia Committee	11 December	Jakarta
The First Thai Committee	16 December	Bangkok

ST. PAULI

A 47,149 dwt oil/caustic soda carrier constructed by Onomichi Dockyard Co., Ltd. for Shenlong Maritime Pte. Ltd.



The Society served as the chair of four groups: the Ad Hoc Group/Direct Strength Analysis (AHG/DSA) (newly launched in 2003), the Working Party/Materials and Welding (WP/MW), the Ad Hoc Group/Hull Damages (AHG/HD) and the Correspondence Group/Mooring & Anchoring (CG/MA).

Furthermore, ClassNK actively contributed to the activities of IACS by sending representatives to a wide range of meetings, including other working groups. During the year ClassNK participated in the following meetings:

Council: 2 times

Quality Committee: 2 times

General Policy Group: 2 times

Steering Committee

on Bulk Carrier Safety: Once

Working Groups

(including Joint

Working Group): 48 times

Major topics addressed by the meetings were:

- Safety of bulk carriers
- Transparency of class and statutory information
- Relations with flag Administrations
- IMO matters
- ISO matters
- European Commission matters
- Common Structural Rules.



PACIFIC NOTUS

A 72,490 dwt LNG carrier constructed by Mitsubishi Heavy Industries, Ltd. for Pacific LNG Shipping Limited

FAIRCHEM MUSTANG

A 19,997 dwt oil/molasses/chemical carrier constructed by Usuki Shipyard Co.,Ltd. for Cedar Valley S.A.



Advisory Council

Members

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Frank W. K. Tsao	IMC Group of Companies
Lua Cheng Eng	International Factors (Singapore) Ltd.
Lee Maeng-Kee	Korea Line Group
Sumate Tanthuwaniit	Regional Container Lines Group
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J. G. Davis CBE	International Maritime Industries Forum
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China Committee

Chairman

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Yan Ming Yi	Shanghai Shipping (Group) Company
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Hong Kong Committee

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Hiroaki Kubo
Teh Kong Leong
K. K. Kumar
Teh Eng Hua
Phua Cheng Tar
Chia Che Kiang
Ng Sing Chan
Kenneth Kee
Mok Kim Whang
Hugh Hung
Morten Jaer
Chung Yau Yu Vincent

MOL Shipmanagement Asia Pte Ltd.
Neptune Orient Lines Ltd.
NYK Shipmanagement Pte Ltd.
Ocean Tankers (Pte) Ltd.
PACC Ship Managers Pte Ltd.
Pacific International Lines Pte Ltd.
Pan-United Shipyard Pte Ltd.
Petroships Pte Ltd.
Singapore Technologies Marine Ltd.
Tanker Pacific Shipmanagement Pte Ltd.
Thome Ship Management Pte Ltd.
World-Wide Shipping Managers Pte Ltd.

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Hyun-Sang Shim	Hyundai Samho Heavy Industries Co., Ltd.
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Nelson Yeo	Keppel Hitachi Zosen Ltd.
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Taiwan Technical Committee

Chairman

Huang Shiun-kwo	Evergreen Marine Corp. (Taiwan) Ltd.
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Kuo Wen-ben	Evergreen Marine Corp. (Taiwan) Ltd.
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Anthony Lin	Formosa Plastics Marine Corporation
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Lee Ding-Hang	Kee Yeh Co., Ltd.
C. K. Lin	Mingtai Navigation Co., Ltd.
Y. Y. Ho	Shih Wei Navigation Co., Ltd.
Tommy T. M. Li	Sincere Industrial Corp.
Young Perng-Terng	Ta Tong Marine Co., Ltd.
C. S. Huang	Ta-Ho Maritime Corporation
C. C. Shih	Taiwan Navigation Co., Ltd.
Lung-Wen Lee	U-Ming Marine Transport Corp.
J. R. Kuo	Unison Marine Corp.
Hawk Huang	Wan Hai Lines Ltd.

Flag State Authorizations to ClassNK (for Ships Other than Passenger Ships)

(As of January 2004)

Areas/Countries	LL	SOLAS				MARPOL 73/78		TM
		SC	SE	SR	SMC	IOPP	NLS	
Algeria	*	*	*	*		*	*	*
Antigua and Barbuda	○	○	○	○	○	○	○	○
Argentina	*	*	*	*				
Aruba	*	*	*	*	*	*	*	
Australia	○	○	○	○		○	○	○
Bahamas	○	○	○	○	○	○	○	○
Bahrain	○	○	○	○		○	○	○
Bangladesh	○	○				○		○
Barbados	○	○	○	○	○	○	○	○
Belgium	○	○						
Belize	○	○	○	○	○	○	○	○
Bermuda	*	*						*
Bolivia	○	○	○	○	○	○	○	○
Brazil	○	○	○	○		○	○	○
Brunei	○	○	○	○	○	○	○	○
Cambodia	○	○	*	*	○	*	○	*
Canada	○							
Cape Verde	○	○	○	○	○	○	○	○
Cayman Islands	○	*	*	*		*	○	○
Chile	*	*	*	*		*		*
Cuba	*	*	*	*				
Cyprus	○	○	○	○	*	○	○	○
Denmark	○	○	○	○	○	○	○	○
Djibouti	○	○	○	○		○	○	○
Dominica	○	○	○	○	○	○	○	○
Dominican Republic	○	○	○	○		○	○	○
Ecuador	*	*	*	*		*	*	
Egypt	○	*	*	*	*	*		*
Equatorial Guinea	○	○	○	○	*	○	○	○
Fiji	*	*	*	*		*		*
Gambia	*	*	*	*		*		*
Georgia	○	○	○	○	○	○	○	○
Ghana	○	○	○	*		○		○
Greece	○	○	○	○	○	○	○	○
Honduras	○	○	○	○	○	○	○	○
Hong Kong	○	○	○	○	○	○	○	○
Iceland	○	○	○	○	○	○	○	*
India	*	*	*	*		*	*	
Indonesia	○	*	*	*		*	*	*
Iran	○	○	○	○		○	○	○
Iraq	*	*	*	*				
Ireland	○	○			○	○	○	
Isle of Man	○	○	*	*	*	*	*	○
Israel	○	○	*	*	*	*		○
Japan	○	○	○		○	*	*	
Jordan	○	○	○	○				
Kenya	○							
Kiribati	*	*	*	*		*		*
Kuwait	○	○	*	*	*	○	○	○
Lebanon	○	*	*	*				
Liberia	○	○	○	○	○	○	○	○
Libya	○	○	○	○		○	*	*
Luxembourg	○	○	○	○	○	○	○	○
Madeira	○	○	○	○		○	○	○
Malaysia	*	*	*	*	*	*	*	*

Areas/Countries	LL	SOLAS				MARPOL 73/78		TM
		SC	SE	SR	SMC	IOPP	NLS	
Maldives	○	○	○	○	○	○		○
Malta	*	*	*	*	○	*	*	*
Marshall Islands	○	○	○	○	○	○	○	○
Mauritius	○	○	○	○	○	○	○	○
Mexico	*	*	*	*		*		*
Morocco	○	*	*	*	*	*	*	*
Mozambique	○							
Myanmar	○	○	○	○	○	○	○	○
Namibia	*	*	*	*		*		*
Netherlands	*	*	*	*	*	*	*	
Netherlands Antilles	*	*	*	*	*	*	*	
Oman	○	○	○	○				○
Pakistan	○	○			*	○	○	○
Panama	○	○	○	○	○	○	○	○
Papua New Guinea	○	○	○	○		○		○
Paraguay	*	*	*	*	*			*
Philippines	○	○	○	○	○	○	○	○
Portugal	*	*				*		
Qatar	*	*	*	*	*	*	*	*
Saudi Arabia	○	○	○	○	○	○	○	○
Seychelles	○	○	○	○	○	○	○	○
Singapore	○	○	○	○	○	○	○	○
Solomon Islands	○	○	○	○				○
Somalia	○							
South Africa	○	○				*	○	
Sri Lanka	○	○	○	○		○		○
St. Vincent and the Grenadines	○	○	○	○	○	○	○	○
Switzerland	○	○	○	○	*	○	○	○
Tanzania	○							
Thailand	*	*	*	*	*	*		*
Tonga	○	○	○	○		○	○	○
Tunisia	○	*				○		
Turkey	○	*	*	*	○	○	○	*
UAE	○	○	○	○	○	○		○
UK	*	*				*		*
Uganda	○							
Uruguay	*	*	*	*				
Vanuatu	○	○	○	○	○	○	○	○
Venezuela	*							
Vietnam	*	*	*	*	*	*	*	*
Yemen	○							

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

SMC: Safety Management Certificate

IOPP: International Oil Pollution Prevention Certificate

NLS: International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk

TM: International Tonnage Certificate (1969)

Summary of Financial Information for Fiscal 2003

Statement of Revenues and Expenditures

REVENUES	Millions of yen		% of total
	2002	2003	
Operating revenues			
Survey and inspection fees	¥16,234	¥16,734	90.03%
Traveling expenses reimbursed	471	522	2.8
Other revenues	54	111	0.06
Interest, dividends and miscellaneous income	523	627	3.37
Proceeds from sale of non-current assets	192	166	0.89
Reversal of reserved deposits for retirement and pension allowance	492	426	2.29
Total revenues for the year	¥17,966	¥18,586	100.00%
EXPENDITURES			
Operating expenses	10,687	11,050	62.00%
Administrative expenses	5,201	5,526	31.00
Expenditures for non-current assets	987	282	1.58
Expenditures for reserved deposits for retirement allowance, pension allowance and renewal of non-current assets	773	965	5.41
Total expenditures for the year	¥17,648	¥17,823	100.00%
Difference between revenues and expenditures	¥318	¥763	

Note: Income taxes are included in "Administrative expenses"

Balance Sheet

As of December 31, 2002 and 2003

ASSETS	Millions of yen		% of total
	2002	2003	
Current assets ¥8,167—19.93%	¥ 8,167	¥ 9,126	21.62%
Non-current assets 32,813—80.07	32,813	33,083	78.38
Total assets ¥40,980—100.00%	¥40,980	¥42,209	100.00%
LIABILITIES			
Current liabilities	¥ 2,460	¥ 2,656	24.62%
Non-current liabilities	7,791	8,130	75.38
Total liabilities	¥10,251	¥10,786	100.00%
NET ASSETS			
Total net assets	30,729	31,423	74.45%
Total liabilities and net assets	¥40,980	¥42,209	100.00%

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Annual Report 2003
Published by Nippon Kaiji Kyokai
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