

ClassNK

Annual Report 2001



Profile

Nippon Kaiji Kyokai, known as ClassNK or 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 that it has developed are applied to newbuildings and existing ships to ensure the safety of the 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 2001, the Society had 6,416 ships totaling 114.3 million gross tons (gt) under class. This figure represents approximately 20 percent of the world merchant fleet currently under class. Although based in Japan, where it has 22 offices, ClassNK also has worldwide representation through a network of 69 exclusive surveyor offices in 39 countries. ClassNK's 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.*

ClassNK

Chairman's Message

Welcome to the 2001 Nippon Kaiji Kyokai Annual Report. This message is my first message as the new Chairman and President of NK, so I would like to begin by saying what a great honor it is for me to have been invited to serve in this role. I would also like to take this opportunity to thank my predecessor, Mr. Mano, for doing such a splendid job, and leaving the Society in such good shape. I'm sure it will make my job so much easier. Having said that, I am acutely aware that every new year presents new challenges to the Society, and I promise to do my best to guide the Society to further success.

In my previous position as Executive Vice President of NK, my role was largely focused on the business management side of the organization. Of course, sound financial management is essential to any organization, but as a naval architect, I also know that there are other factors governing the global ship classification industry. Whether NK prospers or perishes will depend on its merits and credibility as a technical organization of international standing.

It was suggested earlier this year in the press that size will determine the future success of ship classification societies. With respect, I disagree. NK has in fact been the largest classification society, in terms of tonnage, for several years now. However, we have never sought to use this fact as a marketing tool, because we believe that quality, not size, determines the success, or otherwise, of ship classification societies. Naturally, all organizations need critical mass to survive, but at NK we believe that quality leads to size, not that size leads to quality. This is certainly not meant as a criticism of other societies, merely as an expression of NK philosophy.

I am personally a strong supporter of this quality-driven approach, and by quality, I essentially mean the quality of our people, and the quality

of our service. Ship classification societies are service organizations, so our most important asset is our human resources.

In recent years, NK has consciously striven to develop our human resources, in particular, our surveyors. As you will see in the statistics presented later, NK has been building its surveyor network, especially our exclusive surveyors, proportionally faster than the growth in the number of ships on the Register. In simple terms, this means that there are more surveyors per ship than before. This allows more surveyors and more time to be allocated where necessary and, importantly, allows more time for ongoing professional in-service training.

Similarly, the quality of our service to customers depends not only on our people, but also on our service infrastructure. Again, as you will read later, NK is steadily increasing and improving the two key elements of our service infrastructure, that is, our office network and our information network. In 2001, NK opened nine new offices in locations around the world, from Constanza in Romania and Woking in the U.K. to Miami in the U.S., as well as in Canada, Asia and Australia. The NK network of 91 offices across 39 countries and Japan is crucial to servicing our global range of customers. But these days, we need to be able to provide information and services to customers almost anywhere, anytime. The 2001 opening of the new NK Information Center was a major step in the continual improvement of the NK service infrastructure, as were additions to the NK-SHIPS service and the recent launch of the renewed NK Web site. Although it is almost expected these days, it still impresses me that, using NK-SHIPS as an example, a copy of a misplaced Certificate or Survey Record can be downloaded and printed in a matter of minutes almost anywhere in the world, anytime. The extent of the NK information network, which, thanks to the Internet, now reaches almost everywhere, complements the

network of NK offices perfectly. I urge you to take some time to read about these developments later in this report.

Similarly, I hope you find interesting the regular reports from our departments and overseas offices detailing the efforts of the hundreds of NK staff who are working to ensure the safety of life and property at sea all around the world.

Let me finish by thanking all those who have contributed to another successful year for the Society. I look forward to working together with you all, to achieve the same and better next year.

March 2002



Kenji Ogawa
Chairman and President



Clockwise from lower right:
Chairman and President K. Ogawa, Executive Vice President M. Murakami,
Executive Vice President Y. Tsudo, Managing Director Dr. M. Oka,
Managing Director T. Takano, Managing Director N. Ueda,
Managing Director T. Akabori

Biographical Note:

Ogawa graduated from the University of Tokyo with a degree in Naval Architecture in 1963. He then entered the Ministry of Transport, Maritime Technology and Safety Bureau (MTSB), where he held a number of senior positions including Director, Shipbuilding Division; Director-General, Tohoku District Transport Bureau; Ship Inspector General, MTSB; and Director-General, MTSB. In 1996, he became Chairman of Nippon Hakuyouhin Kentei Kyokai, and a Senior Advisor to Nippon Kaiji Kyokai. He was named Executive Vice President of Nippon Kaiji Kyokai in February 1999.



Marintec China 2001



LNG 13



Nor-Shipping 2001

As part of its overseas marketing activities, the Society participated in a number of trade exhibitions in 2001, including LNG13 in Pusan (Korea), Marintec China 2001 in Shanghai (China), and Nor-Shipping 2001 in Oslo (Norway).



Inaugural meetings of two important new Technical Committees were held in Indonesia and Taiwan.

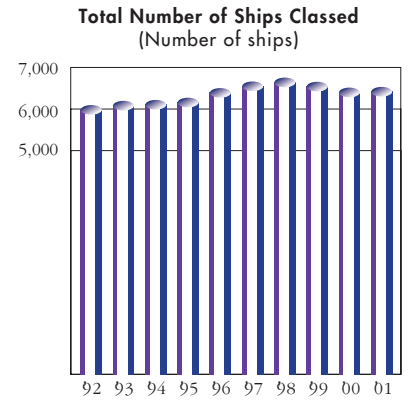


The new NK Information Center was opened in June, just across from the existing NK Research Center in Chiba, near Tokyo. The opening of this new building facilitated a major restructuring of the Society's activities, with several departmental changes and relocations.

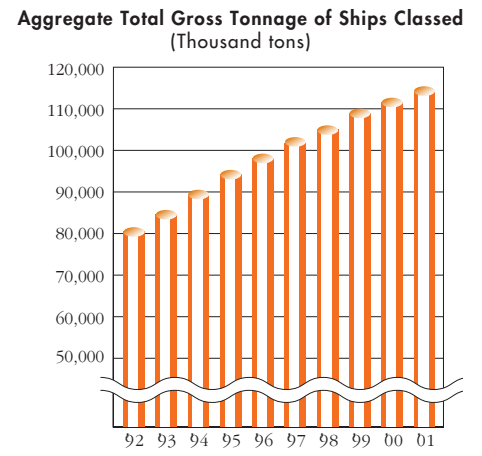




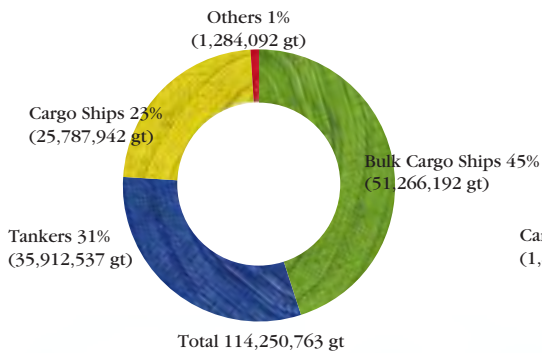
NK Executive Vice President Masataka Hidaka completed his term as Chairman of IACS, but immediately returned to action as Chairman of the newly re-established Bulk Carrier Safety Committee.



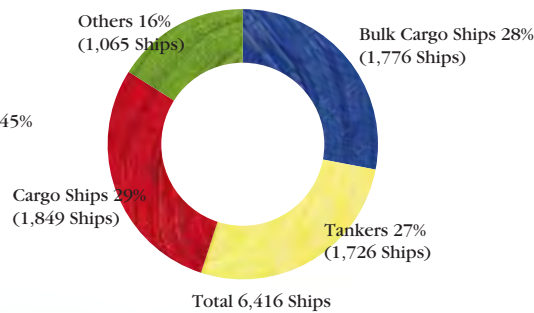
The Vinh An, being delivered from Bach Dang Shipyard to Vietnam Ocean Shipping Company (VOSCO). The Society saw the number of new ships built to NK class in overseas yards increase to 25% of all newbuilds.



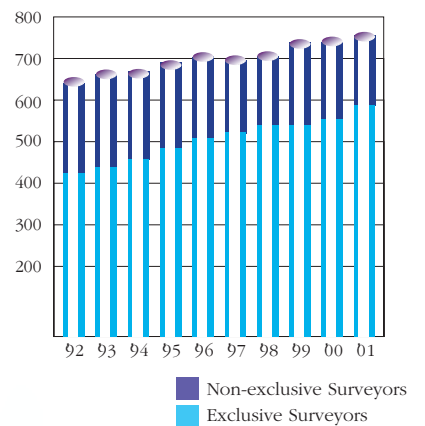
Breakdown of NK-classed Ships by Type (Aggregate total gross tonnage)



Breakdown of NK-classed Ships by Type (Total number)



Changes in Number of Exclusive and Non-exclusive Surveyors Over 10 Years



An aerial photograph of a coastline, showing a prominent blue water channel or inlet that curves along the shore. The land is a mix of green and brown, suggesting a natural, possibly forested or agricultural, landscape. The sky is bright and clear.

NK in Action

"The number of newly constructed ships classed by the Society increased by 25.7%, over the previous year."



Lakshmi

A 137,248 m³ LNG carrier constructed by Mitsubishi Heavy Industries, Ltd. for Greenfield Shipping Company Limited

The Classed Fleet

The last two years have seen a distinct trend toward fewer but bigger ships on the NK register. Although that trend was seen again this year, it was less pronounced. As of December 2001, the ClassNK Register totaled 6,416 ships, just 17 more than the total of 6,399 in 2000, but with a significantly increased total gross tonnage of 114,250,763 gt, which is up 2,748,193 gt on the total for the previous year. (See graph on pg. 5.) Of those, 5,241 ships, or 81.7% of the Register, were flagged outside Japan, with ports of registry in 60 nations and territories. Their gross tonnage was 103,091,723 gt, or 90.2% of the total Register. Ships flying the flags of Panama, Japan, Singapore, Liberia and Malta accounted for 75.4% of the total number and 80.6% of the total gross tonnage classed by the Society. (See graph on pg. 5.)

Additions to the Register during the year amounted to 393 ships, or 6,937,879 gt, 81 ships more than joined in the previous year but 1,181,932 gt less than the previous year's total. In all, 376 ships, of 4,218,215 gt, left the Register, 76 fewer ships than left last year, and representing 1,262,197 less tonnage than that "lost" in 2000. Notably, of those ships, 65 vessels were removed for reasons of noncompliance with Society rules. This was about half the number removed in the

previous year (120), suggesting an improvement in the general quality of the registered fleet. Similarly, only 130 vessels were transferred to other classification societies, compared with 150 in the previous year.

Newbuildings

At 342, the number of newly constructed ships classed by the Society increased by 25.7% over the previous year, however, the 6,688,976 gt classed represented a decrease of 896,994 gt over the total added in the previous year. In terms of the number of ships, these newbuildings represent 87% of the ships added to the register and 96.4% of the additional tonnage, a key element in keeping the average age of the NK fleet one of the youngest in the world at 10.5 years old (for ships of 100 gt and over).

Also notable was that 88 of these 342 ships, or 25.7%, were built by shipbuilders outside Japan. This was a significant improvement on the previous year's 18.8% and, especially when combined with the overall increase, is

a positive reflection on the Society's efforts to further internationalize its activities beyond its traditional strength in Japan.

Reflecting the trend toward larger tonnage, the number of new cargo ships dropped 10.0%, to 54, but with a 10.7% increase in gross tonnage, to 1,350,469 gt. The number of new tankers and liquefied gas carriers was 60 vessels of 952,654 gross tons, also slightly less than last year, but with a large number in the pipeline, reflecting the longer construction cycle for these more technically advanced ship types. New bulk carriers added to the Register increased 47.9%, to 139 ships, and gross tonnage was also up 18.0% to 4,254,853 gt, further cementing NK's traditional strength in this sector.

The Rules

The year 2001 saw some major advances in revising the cornerstones of the Society, the Rules, Regulations and Guidance. In addition to keeping the rules current with constantly changing statutory requirements, the



Onga

A 229,228 dwt ore carrier constructed by Namura Shipbuilding Co., Ltd. for Oriental Marine Shipping Inc.

Sage Sagittarius

A 105,708 dwt bulk carrier constructed by Imabari Shipbuilding Co., Ltd. for Hesperus Maritima S.A.

Society also strongly focuses on reviewing them to maximize the results of its research and development activities.

A prime example of this is the New Rule Concept project, which aims to develop a more rational and comprehensive assessment of hull structural strength that is both consistent and transparent. It is based on a wide range of fundamental research covering all aspects related to the safe design of ship structures: design sea state, dynamic load calculation, structural analysis, strength assessment of buckling, fatigue and collapse, and rational corrosion margin. The latest fruits of this project have been implemented in new guidelines for oil tanker structures published at the end of 2001, Guidelines for Direct Strength Analysis, Guidelines for Fatigue Strength Assessment and Guidelines for Ultimate Hull Girder Strength.

When hull structures first became welded structures, rule requirements were changed to reflect the incorporation of the new welding technology. These rules had remained essentially



the same for many years until now, when they have been revised with the aim of ensuring the quality of welded structures based on a new concept of vertical inspections, quality control systems and the like. The contents of stipulations concerning non-destructive tests of structural welds based on JIS (Japanese Industrial Standards) standards in NK Instructions have also been reviewed and newly established as a survey Guidance.

Rules for Passenger Ships have also been developed for foreign-flagged vessels that are separate from the Rules for the Survey and Construction of Steel Ships. These Rules set forth the technical requirements for passenger ships and have been compiled based on the knowledge, experience and expertise accumulated by the

Society concerning large passenger ships. In addition to class requirements for hull, machinery and equipment, these new rules also include appendices on the interpretation of SOLAS and requirements of the U.S. Coast Guard.

The full list of the Rules and Guidance established and/or amended by the Society in 2001 follows:

Newly Established in 2001

- Rules/Guidance for the Survey and Construction of Passenger Ships
- Guidelines for Tanker Structures

Amended in 2001

- Rules/Guidance for the Survey and Construction of Steel Ships
- A part revision related to alarms for overpressure in the cylinders of diesel engines (Rule Part D)
- A part revision related to the size of the strum box (Rule Part D)
- A part revision related to restrictions on the use of cast iron valves (Rule and Guidance Part D)
- A part revision related to use of the emergency generator during lay time in port (Rule and Guidance Part H)

Ikan Guaymas

A 50,296 dwt bulk carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. for Guaymas Shipping Pte. Ltd. and managed by Pacc Ship Managers Pte. Ltd.



Furness Australia

A 52,489 dwt bulk carrier constructed by Tsuneishi Shipbuilding Co., Ltd. for Sun Lanes Shipping S.A.

- A part revision related to hatchways to cargo oil tanks (Rule Part C)
- A part revision related to non-metallic materials for rudder stock bearings (Guidance Part C)
- A part revision related to self-closing air pipe heads (Rule and Guidance Part D)
- A part revision related to alarms for bow doors, side shell doors and stern doors (Rule and Guidance Part C)
- A part revision related to class surveys (Rule and Guidance Part B)
- A part revision related to stainless rolled steel and stainless clad steel (Rule Part C, CS, K, Guidance Part C, K)
- A part revision related to the fire extinguishing system (Rule and Guidance Part R)
- A part revision related to fire protection (Rule and Guidance Part R)
- A part revision related to the fixed gas detection system (Rule Part B, D, N, S, Guidance Part D, N)
- A part revision related to portable instruments for flammable vapor and oxygen concentrations (Rule Part D)
- A part revision related to fire safety in machinery spaces (Rule and Guidance Part D)
- A part revision related to calibration



- of equipment used for inspections, measurements and tests (Rule Part B)
- A part revision related to cross decks (Rule and Guidance Part C)
- A part revision related to scantling of high-tensile steel members in container carriers (Guidance Part C)
- A part revision related to strength against wave impact pressure at bow flare (Rule and Guidance Part C)
- A part revision related to non-sparking type ventilation fans (Rule Part H, Guidance Part D, H, P, R, N, S)
- A part revision related to required diameters of upper rudder stock (Rule Part D)
- A part revision related to restrictions on aluminum paint (Guidance Part C, D)
- A part revision related to ventilators for engine rooms and emergency generator rooms (Rule and Guidance Part C, CS)
- A part revision related to pressure relief valves on CO₂ cylinders (Guidance Part R)
- A part revision related to damage stability and intact stability (Rule Part C, U, Guidance Part B, C, U)
- A part revision related to stiffeners on longitudinal bulkheads in container carriers (Rule Part C)
- A part revision related to restricted and substituted coolants (Rule and Guidance Part D)
- A part revision related to the inert gas system (Rule Part D, Guidance Part D, N, S)
- A part revision related to bow and stern loading/unloading in tankers (Rule Part D)
- A part revision related to the ballast system for the forward compartment in tankers (Guidance Part D)
- A part revision related to enhanced surveys for aged ships (Rule Part B)
- A part revision related to loading conditions of bulk carriers for direct strength calculation (Guidance Part C)
- A part revision related to superchargers and crankcase relief valves (Rule Part D)
- A part revision related to standards for explosion-protected electrical equipment (Guidance Part H)
- A part revision related to welding work for aluminum alloys (Rule and Guidance Part M)



Lake Sequoia

A 75,955 dwt bulk carrier constructed by Kanasashi Co., Ltd. for Dreams Carrier S.A.

New Century Ace

A 33,476 dwt bulk/lumber carrier constructed by The Hakodate Dock Co., Ltd. for Trio Happiness, S.A.

- A part revision related to Rules for the Survey and Construction of Passenger Ships (Rule Part B, C, CS, D, H, R, U, Guidance Part B)
- A part revision related to welding procedures and non-destructive inspections (Rule Part C, D, M, Guidance Part B, C, D, M, N)
- A part revision related to structural members for thickness measurements (Rule Part B)
- A part revision related to a Planned Machinery Survey (Guidance Part B)
- A part revision related to electrical equipment in the hold spaces of vehicle carriers (Guidance Part H)

Rules/Guidance for High-Speed Craft

- A part revision related to restricted and substituted coolants (Rule)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)
- A part revision related to standards for explosion-protected electrical equipment (Guidance)

Guidance for the Approval and Type Approval of Materials and Equipment

- A part revision related to non-metallic materials for rudder stock bearings
- A part revision related to self-closing air pipe heads
- A part revision related to restrictions on aluminum paint

Rules/Guidance for Automatic and Remote Control Systems

- A part revision related to surveys for installations (Rule and Guidance)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)

Rules/Guidance for Navigation Bridge Systems

- A part revision related to surveys for installations (Rule)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)

- A part revision related to emergency electrical power supplies for ships with restricted service areas (Guidance)

Rules/Guidance for Preventive Machinery Maintenance Systems

- A part revision related to surveys for installations (Rule)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)

Rules for Integrated Fire Control Systems

- A part revision related to surveys for installations
- A part revision related to calibration of equipment used for inspections, measurements and tests

Rules/Guidance for Marine Pollution Prevention Systems

- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)
- A part revision related to submission of checklists (Rule and Guidance)

Rules/Guidance for Safety Equipment

- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)

Tango Glory

A 48,193 dwt bulk carrier constructed by Oshima Shipbuilding Co., Ltd. for Ambitious Line S.A.





MOL Advantage

A 66,532 dwt container carrier constructed by Koyo Dockyard Co., Ltd. for Cypress Maritime (Panama), S.A.

Rules/Guidance for Testing Machines

- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule and Guidance)

Rules for Approval of Manufacturers and Service Suppliers

- A part revision related to enhanced surveys for aged ships

Certification of Manufacturers

The number of marine-related manufacturer certifications made by the Society in 2001 was six, bringing the total to 98, a 6.5% increase on the previous year. Furthermore, approvals for firms engaged in thickness measurement work on ships amounted to 16, bringing the total to 125. The number of approvals for firms carrying out in-water surveys of ships was 10, bringing the total to 113, and approvals for radio firms engaged in services on ships reached 43, bringing the total to 162. Separately, certifications for a wide range of individual materials and equipment totaled 378 for the year.

Rules/Guidance for Cargo Refrigerating Installations

- A part revision related to surveys for installations (Rule and Guidance)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)
- A part revision related to restricted and substituted coolants (Rule and Guidance)
- A part revision related to standards for explosion-protected electrical equipment (Guidance)

- A part revision related to calibration of equipment used for inspections, measurements and tests

Rules for Floating Docks

- A part revision related to calibration of equipment used for inspections, measurements and tests

Rules/Guidance for the Construction and Certification of Freight Containers

- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)

Rules/Guidance for Cargo Handling Appliances

- A part revision related to the review of requirements for cargo handling appliances (Rule and Guidance)
- A part revision related to calibration of equipment used for inspections, measurements and tests (Rule)
- A part revision related to welding procedures and non-destructive inspections (Guidance)

Rules for Diving Systems

A part revision related to Surveys for installations

Grand Glory

A 48,437 dwt bulk carrier built by Sanoyas Hishino Meisho Corporation for Croydon Shipping Limited and managed by Ta Tong Marine Co., Ltd.



Kota Hakim

A 18,830 dwt container carrier constructed by Shin Kurushima Dockyard Co., Ltd. for Kota Hakim Limited



Machinery Materials & Equipment Inspections

Although Annex VI of the MARPOL Convention has yet to come into force, the start date of January 1, 2000 has already passed and all applicable ships with keels laid on or after this date will eventually become subject (retroactively) to the provisions of the Annex. Consequently, most ships currently under construction will be subject to the NOx requirements set forth when Annex VI finally comes into force. This has led to a significant increase in the number of NOx statements of compliance for diesel engines issued by the Society, with 1,307 having been issued by the end of the year.

One of the Society's main activities related to classification relates to the inspection of specific materials, equipment and fittings.

Inspection of Materials, Equipment and Fittings included:

Materials	Amounts
Rolled steel	2,289,952 tons
Cast and forged steel	88,732 tons
Equipment	
Prime movers	1,559 units
Boilers	739 units
Deck machinery and equipment	1,960 units
Auxiliary machinery	17,962 units
Fittings	
Anchors	871 units
Chains	9,097 lengths
Freight containers	736 units

Crimson Neptune

A 49,923 dwt chip carrier constructed by Shin Kurushima Dockyard Co., Ltd. for Stevens Line Co., Ltd.

The total number of inspections decreased slightly this year, as did the number of inspections on testing machines, down to 7,626.

However, on February 20, 2001, the ClassNK Testing Machine Department received recognition as an Accredited Calibration Laboratory for Force Standard by the Ministry of Economy, Trade and Industry, in accordance with the traceability system of the Measurement Law. It became an Accredited Calibration Laboratory under the Japan Calibration Service System (JCSS) of the Measurement Law in the category and field of force and force-proving instruments. In 2001, the number of certificates issued with the JCSS logo was 436.

Audit and Registration of Safety Management Systems

During 2001, the Society assessed and granted Documents of Compliance (DOCs) and Safety Management Certificates (SMCs) to 89 companies and 741 ships, both of which were the third largest figures since registration first started in 1994. As of December 31, the total number of certifications had reached 477 companies and 3,034 ships, including 962 ships that have applied for ISM Code Phase II and 219 ships that are not engaged in international voyages or are less than 500 gt. The main reason for the increase, is the increase in the number of ship registrations for the ISM Code Phase II, which will become mandatory on July 1, 2002, as well as the Voluntary ISM Certification





Mogamigawa

A 299,999 dwt oil carrier constructed by Imabari Shipbuilding Co., Ltd. for Kawasaki Kisen Kaisha, Ltd.

offices. NK was certified as continuing to be in conformance with IACS QSCS requirements.

A quality audit by the Greek Government and an assessment by the European Commission were carried out at each location of the Head Office in April and July, respectively.

A quality audit by the Australian Maritime Safety Authority was carried out on the Sydney Office in May.

The SGS No. 5 surveillance after the first renewal audit was carried out at three locations of the Head Office and at 24 survey offices in accordance with certification based on ISO 9001:1994. Maintenance of certification was verified (from June through August). The second renewal audit began in response to expiration of certification based on ISO 9001:1994 (from November 2001).

General

Construction of the Information Center, which began on June 8, 2000, was completed on schedule, and a ceremony to celebrate the opening was held on the 27th of June. E.V.P.

Service for Japanese domestic shipping companies that has become firmly established. The number of countries that have authorized ClassNK to carry out assessments and issue certificates on their behalf now numbers 53, as the result of being authorized by the government of Sri Lanka to conduct assessment and registration in 2001. The Society now has 384 highly trained and experienced auditors placed at major ports around the world.

Assessment and Registration based on ISO 9001

ClassNK is authorized by the Japan Accreditation Board for Conformity Assessment (JAB) and the Netherlands' Raad voor Accreditatie to provide assessment and registration services for the ISO 9001 series of international quality management system standards. This authorization covers the following fields:

- Basic metals and fabricated metal products
- Machinery and equipment
- Electrical and optical equipment
- Shipbuilding
- Sea transport, and cargo handling and storage
- Crew manning
- Crew training
- Technical testing and analysis
- Rubber and Plastic products (authorized by JAB)

- Manufacture of articles of concrete, plaster and cement (authorized by JAB)
- Building of complete construction or parts thereof; civil engineering (authorized by JAB)

In 2001, 52 suppliers were assessed and registered under the ISO 9000 standards and as of December 31, 2001, ISO 9000 registrations by the Society covered 281 suppliers.

Assessment and Registration based on ISO 14001

The Society has also offered services for ISO 14001 assessment and registration since 1998. In 2001, 11 suppliers were assessed and registered under ISO 14001, bringing the total number of registrations as of December 31, 2001 to 27 suppliers.

ClassNK's Quality Assessed

The annual IACS audit of NK was carried out at each location of the Head Office and at each of five survey

Emiland

A 7,539 m³ LPG carrier constructed by Watanabe Shipbuilding Co., Ltd. for Fresh South Shipping S.A.





Sunny Jewel

A 6,880 dwt oil/chemical carrier constructed by Usuki Shipyard Co., Ltd. for Solar Shipping and Trading S.A.

The Center, combined with the Research Center next door, will serve as a base for the technical development and advanced information technology activities of the Society into the new century. Six departments began operations at the Information Center on July 2: the Safety Management System Department (SMD), Marine and Industrial Service Department (MID), Classification Department (CLD), Technical Investigation and Information Department (TID — Computer Section and Damage Investigation Section), the Training Center (TRC) and the Information Service Department (ISD).

The NK-SHIPS service was upgraded in November with the addition of two new functions, in addition to the current free-of-charge services for owners and managing companies. The upgrade provides: (1) direct perusal of certificates and survey records in the archives system, and (2) graphic display of survey schedules for the entire fleet of a user.

The Society has joined with other Asian Classification Societies to undertake a range of collaborative research

Hidaka, responsible management and staff, along with personnel from the design company (Yamashita Sekkei Inc.) and the construction company (Taisei Corporation), were present at the ceremony. The main aims of the Center are to protect the information assets of the Society from natural disasters, to provide continuous business support on a global scale 24 hours a day, 365 days a year, and to perform a central role in the development and promotion of information technology.

The Information Center is located about 45 km east of Tokyo in a hilly section of Midorinomori Industrial Park in Toke, Midori-ku, Chiba City. Surrounded by a beautiful green environment, the Center occupies a four-story building with a total floor area of 5,548 m². The building features the latest earthquake-proof construction to ensure human and data safety in the event of a major disaster. In addition, the facilities are also equipped with emergency backup systems for elec-

tricity, water supply and sewage, as well as enabling the use of natural energy and other measures.

A key aim of the Information Center is to enhance the accuracy and efficiency of the Society's activities by centralizing information processing functions, which cover classification-related services, as well as the computer facilities, which are a core element of the ClassNK information and communication network. In addition, the Center is equipped with large-scale document storage capability in order to manage commonly used information in a unified, safe and rational manner.



Chembulk Fairfield

A 16,456 dwt oil/chemical carrier constructed by Watanabe Shipbuilding Co., Ltd. for Forever Shipping, S.A.



Global Mars

A 7,786 dwt oil/chemical carrier constructed by Higaki Shipbuilding Co., Ltd. for Shinkawa S.A.

Shipping Co., Ltd. Also, fatigue analyses, requiring complex and wide-ranging analysis starting from direct-wave load calculations, were carried out for the classing of two new double-hull tankers with the DATA notation, as well as part of the Condition Assessment Program (CAP) services on five older single-hull tankers.

Training

With the rapid increase in the number of surveyors being employed at overseas offices, the Training for Appointment of Surveyors was carried out three times overseas, with a total of 34 overseas exclusive surveyors taking part. Also, on-site practical training was carried out at locations outside of Japan in addition to at domestic locations where such training had usually been conducted in the past.

International Cooperation Training for the Vietnam Register of Shipping (VR) provided training focused on inspection services for materials and on-site surveys of ships in service. Training was provided for each of two surveyors in Japan (Tokyo and Osaka) and Singapore, respectively.

projects. A Joint Research Project session was held from March 7th to 8th at the Research Center. At the meeting, discussions ranged over concrete ways to move forward on the three joint research projects (wave loads, corrosion wastage, FSA) proposed during the fifth JRP session held at NK in October 2000, to be carried out during the second quarter of the year. These included arranging and verifying the assignment of tasks of each society and the schedules for each project, among other things. Work began on these joint projects during the second period, and progress was made by each joint research team (JRT-WL, JRT-C/W, JRT-FSA). JRT-WL held its first session at the KR Head Office, while JRT-C/W held its first session at the NK Research Center. In addition, reports were presented at the 9th Asian ACS (Executive Informal Meeting of Classification Societies in the Asian District) meeting of four Asian class societies held at the NK Head Office in November, summarizing the research activities of each

team during the year and the main results achieved.

Technical Services

The Society offers a wide range of technical services, including the supervision of shipbuilding, computer analysis and a variety of inspections of industrial plants and equipment as a third-party inspection body or as an agent for purchasers or governments.

Of particular note in 2001 was the supervision of an LNG carrier during construction, which was carried out at Mitsubishi Heavy Industries Ltd. Nagasaki shipyard at the request of Shell International Trading and

Northern Light

A 29,756 dwt bulk/lumber carrier constructed by Shikoku Dockyard Co., Ltd. for Asuka Shipping, S.A.



Research Institute Activities

Ship classification has traditionally been a complex and difficult job, influenced by a wide range of qualitative as well as quantitative factors. In its earliest forms, even the ship captain's character and reputation could influence the classification of a ship. But as ship classification has developed, it has become more quantitative and less qualitative, and the cornerstone of modern ship classification societies is their Rules. Reflecting the historical development process, the Rules themselves have also evolved as influenced by a wide range of factors, including the experience of surveyors. Since its establishment in 1955, the ClassNK Research Institute has devoted much of its energies to research and development aimed at developing the soundest scientific underpinning for the Society's Rules.

Currently, the Research Institute has a wide range of projects, many described below, that are part of the New Rule Concept project, which aims to not only develop the soundest scientific underpinning for the Society's Rules, but also to help make the Rules and the process of their development more transparent and easy to understand for everyone. It is also expected that the new Information Center, located right next door to the Research

Center, will expand the technical development and advanced information technology activities of the Society into the new century.

2001 projects included the following:

- A three-year research project into wave loads on hull structures is now in its 2nd phase, following the completion last year of the 1st four-year project. This year, evaluation formulae were developed for corrections to the loads under the non-linearity effect of dynamic force against the wave heights and under three-dimensional effects. The researchers also successfully showed that the wave load can be estimated with practical accuracy using the Rankin Source Method.
- Also in its first year of a Phase 2 three-year project, research into the impact load on hull structure has commenced with the refining of the numerical calculation software. The results were found to be very successful after a series of cases were processed. The experimental data on the impact load on the bow of container carriers were reinforced with data collected through tank tests conducted during the year with model ships.
- Research on the practical application of fatigue strength evaluation has resulted

in a new method that now reflects the influences of residual stress, mean stress, etc. The method has already been incorporated into the Guidelines for Fatigue Strength Assessment in the Guidelines for Tanker Structures (Nov. 2001), which embody ClassNK's New Rule Concept in the Technical Guide Regarding the Strength Evaluation of Hull Structures (1999). This project has finished its 2nd year and has another year to go.

- The 2nd year of research on the practical application of buckling strength evaluation (a three-year project) has developed practical assessment criteria which have also been incorporated into the Guidelines for Tanker Structures.
- A new three-year research project has commenced on cargo loads on hull structures. In the first year, in addition to a literature review, experiments have already been conducted to see how the dynamic load of dry bulk cargoes impacts on cargo hold structures.
- A three-year research project on exhaust gas emission from diesel engines was completed. The five-year results of an investigation into the main engine performance of a cargo ship in service between Japan and Singapore revealed that, although it represents only a single isolated case, NOx emission performance was observed to have been sta-



Poseidon Gas

A 3,515m³ LPG carrier constructed by Shitanoe Shipbuilding Co., Ltd. for Viking Asia Incorporated



ble during the five-year period. The researchers concluded, despite observing only one case, that the current regulation is reasonably appropriate in the sense that it requests only one initial measurement at new building or when replacing the engine.

- The three-year research project on fuel oil for marine engines and analysis and diagnostic technology for internal combustion engine cylinder lubrication was completed. The influence of artificial substances added into fuel by fuel companies was studied. Experimental results on marine fuels with various liquefied waste plastics added have been analyzed, leading to the conclusion that heavy oils do not show adequate affinity, particularly for liquefied waste polystyrene.
- In what was the 2nd year of a three-year research project on the reliability of in-service marine diesel engines, the relationship between the cylinder liner/ring wear and the measured vibration was investigated. The researchers have concluded that monitoring the engine vibration may enable us to predict wear of the cylinder liners and associated parts. In addition, experimental onboard research into diesel-engine starting air systems, revealed that the air temperature at the starting

air pipe ends may rise so high that there might be self-ignition, causing the bursting of starting air pipes.

- Research on functional characteristics of equipment under in-service circumstances focused on the most effective geometry of fire detector probes in engine rooms. The project carried out numerical simulations of smoke flow as well as experimental verification. It also summarized the investigation results of electromagnetic wave influences on navigational equipment and control devices.
- A three-year project on research into methods of assessment of the structural strength of engines commenced its first year. Structural analysis was carried out on the main bearing saddles of low-speed diesel engines and revealed that there may be cases where the saddles are under tensile stress due to uneven bearing force between the crankshaft and main bearings. Another result from the project was a method for obtaining the diameter of a round bar equivalent to the crankshaft, for the purpose of realizing more precise alignment calculations.
- The 3rd year of the research project on materials for ships saw fatigue tests in the ultrahigh cycle range on high-tensile steel forgings. The research proposed

an assessment method for fatigue strength of materials, with an inclusion as the crack initiator.

- In research on hull monitoring systems, preparation is now under way for an onboard trial of the latest system on the market, the Stress Alert. The project has studied ultimate operational characteristics in rough seas based on calculation results sorted by ship types, loading conditions and ship dimensions.
- The third year of a research project on practical application of formal safety assessments has seen the FSA on bulk carriers finished in the form of a complete report, including recommendations.
- The following measurements/experiments on board ships in service were carried out.
- Onboard measurement of temperature/pressure in main diesel starting air pipes
- A mock smoke flow experiment in a "ships under fire" study
- Other research projects include: reliability assessments of shipboard equipment and systems, strength of welded joints in hull structure, information technology and the latest developments in navigational equipment.

Star Dream

A 11,666 dwt oil/chemical carrier constructed by Fukuoka Shipbuilding Co., Ltd. for Shintoku Panama, S.A.





NK Around the World

*"The NK network of 91 offices
across 39 countries and Japan is
crucial to servicing our global
range of customers."*

Japan

During 2001, 254 new ships were built to NK class in Japan and almost 3,600 ship surveys for maintenance of class were performed by the 22 NK offices across Japan.

In addition to this regular work, NK was involved in a variety of special projects and activities of interest. These included the NKK Corporation's development of the Ax-Bow, which significantly improves performance in waves. This bow was applied for the first time to the *Kohyohsan*, a bulk carrier, built to NK class at NKK Corporation Tsu Works. NKK Corporation Keihin Works also developed a new steel plate that is excellent for ultrahigh heat input welding. It is now being used for hull work on large container ships.

In industrial inspections of note, a drive machine for azimuth and side thrusters and their control devices, to be installed on a new deep-sea drilling vessel, were inspected at Toshiba Corporation. Two sets of elevators for the same vessel were also inspected at Schindler Elevator K.K.

The first production of the E-type engine (6UEC52LSE) in the compact, high-output UEC52LS series was completed at Kobe Diesel Co., Ltd. in Nagasaki. A factory trial run and NOx density appraisal were carried out in June.

In regular industrial inspections, three firms were authorized as radio-service companies: Toyokuni Sangyo Co., Ltd., Japan Radio Service Co., Ltd. and



Kohyohsan
A 172,564 dwt bulk carrier constructed by NKK Corporation for Erica Navigation S.A.

Tokimec Inc. Yugengaiha Ehime Hihakai Kensa was authorized as a thickness measurement firm.

Kawasaki Steel Corporation Mizushima Works and Naigai Rope Mfg. Co., Ltd. Kihoku Works were certified as approved manufacturers.

The Society granted DOCs for ISM Code compliance to 76 companies, including Hozan Kisen K.K. and Shinsei Kaiun Co., Ltd., bringing the total number of ISM DOCs issued in Japan to 303.

In ISO-related activities, the Society granted ISO 9001 certifications to a total of 39 companies and ISO 9002 to 11 companies. Among these, Miho Shipyard Co., Ltd. received ISO 9001 certification for design, development, production and servicing during the guarantee periods of merchant

vessels and vessels owned by government organizations (excluding LNG carriers and naval vessels). ISO 9001 certification for ship management of oil tankers, gas carriers, bulk carriers and general cargo ships was granted to Shinwa Marine Corporation, and the Kobe University of Mercantile Marine earned its ISO 9002 certification for ship management of the training ship *Fukae Maru*.



Violet

Launching of the Violet, a 50,326 dwt bulk carrier constructed by Kawasaki Heavy Industries, Ltd. for Tri-Bulk Ship S.A.

The Society also granted ISO 14001 certification to a total of 11 companies, including Munakata Kaiun Co., Ltd. for ship management of oil tankers and chemical tankers, and resources management in the office.

Regular ClassNK technical seminars were held in Tokyo, Fukuoka, Fukuyama, Imabari and Kobe, with presentations on Overall Description of Revisions to the Rules, Summary of Amendments to SOLAS Chapter II-2, Introduction to the Guidelines Concerning the Structural Strength of Tankers, Propeller Repair Policy and Temperature Increases in Starting Air Pipes.

The annual ClassNK Technical Research Conference was held at the Nippon Kaiun Club in November, with over 200 people in attendance. In addition to announcing the results of Research Institute studies, such as tank tests related to hull wave loads in large and high waves, changes in the amount of nitrogen oxides discharged by aging shipboard engines and methods of evaluating fatigue strength considering the impact of mean stress, reports were also presented on research related to ballast water exchange by the Hull Dept., and a presentation was made by the



Equipment Dept. regarding the conditions for using YP40 steel and the results of actual use of the material.

A large number of special or invitation-only seminars and lectures were also given, including:

- A lecture on FSA and Practical Realities at the Fifth Shipbuilding Design, Technology Research Committee Symposium was held at Hiroshima University, under the auspices of the Society of Naval Architects of Japan;
- A presentation on The Use of YP40 Steel in Actual Ships and an Assessment of Such Use was made at the 102nd regular meeting of the West-Japan Society of Naval Architects, held at Shimonoseki;
- A seminar was held for ship claim agents at liability insurance companies in Tokyo, at which presentations were given on the Ultimate Longitudinal Bending Strength of Hull Structures and the Explosion of Engine Starting Air Pipes.
- A presentation on Voluntary Compliance with ISM Code Requirements by Ships in Domestic Service was delivered at a seminar on voluntary compliance sponsored by Kobe University of Mercantile Marine;
- A meeting was held to explain year 2000 revisions to ISO 9000 standards for ISO 9000 series registrants of the Society in Tokyo, Nagoya, Kobe, Okayama, Onomichi, Imabari and Kitakyushu;
- A lecture was given for Tokyo MOU members and outside organizations on Recent PSC Activities from the View of the Classification Society at the Tokyo MOU Open Day Forum.



Hozan Maru

A 1,900 dwt oil carrier constructed by Miura Shipbuilding Co., Ltd. for Hozan Kisen K.K.



at the International Exchange Day for Classification Societies program, as part of the Senior Maritime Forum that was held in conjunction with the exhibition. Mr. A. Takezaki, GM of the Shanghai Branch Office, joined Dr. Yoneya and other staff members from the Shanghai office in working the NK booth. Support was also provided in greeting visitors by staff from the Beijing office. The ClassNK booth was in fact so busy that it nearly ran out of materials being distributed by the second day of the exhibition. Most of the visitors were from local shipyards, followed by representatives from machinery and equipment manufacturers and the like.

Apart from its involvement with Marintec, the Shanghai office was very busy with regular work. The total number of surveys of ships in service increased about 20% compared to the previous year. A number of newbuildings were classed, including a tug boat, one pusher boat and one deck barge. The pusher boat was built in Hangzhou, China and final registration was made at Sakaide, Japan. Staff also acted as technical consultants for a

Asia and Oceania

Australia hosted the International Symposium on Safer Shipping in the APEC Region held over two days (March 6 - 7, 2001) in Sydney. The purpose of this symposium was to present suggestions to the area's Ministers of Transport on the safe navigation of ships in the Asia-Pacific Economic Cooperation (APEC) region. Representatives from many organizations participated in this symposium, starting with the host country of Australia, and including government-related organizations from Japan, Canada, the United States, New Zealand, the People's Republic of China, Taiwan, South Korea, Singapore, Hong Kong, England, Denmark, the Netherlands and Russia, international organizations such as the IMO and OECD, as well as the classification societies LR, BV, ABS, and CCS. M.D. Y. Tsudo and Y. Kozeki, a manager of the Survey Dept., attended the symposium from the Society.

The number of surveys or inspections in Sydney reached about 280, and both Electrotech Australia Pty Ltd and Skippers Technology Pty Ltd were authorized as radio-service companies.

Survey activities in **Bangladesh** were steady and Fame Electronics was authorized as a radio-service company.

The highlight of the Society's activities in **China** was participation in Marintec China 2001. This international maritime exhibition was held on a grand scale in the Shanghai International Exhibition Center for four days from December 4 - 7. The show is held every other year, with this year's event being the eleventh exhibition. As with the last event, the Society continued to participate with a booth display. In addition, Dr. T. Yoneya, a Manager from the Technical Investigation Department, gave a technical presentation entitled The Latest ClassNK R&D and Technical Services





Marine Virtue

A 599 dwt oil carrier built by Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd. for HI Lubricants Pte. Ltd.

a Winter Technical Seminar on Hull Damage and 2000 SOLAS amendments in December. The abovementioned PSC seminar was held for the purpose of improving the quality of ships belonging to Hong Kong shipowners under class with the Society. This seminar was timed to coincide with the visit of M.D. Y. Tsudo to the Hong Kong Marine Department. Around 50 persons in charge of actual work at some 30 companies participated in the seminar, reflecting the increase in interest by shipowners and management companies in recent PSC activities. Emphasis was put on the significance of maintenance as seen in trends in recently pointed-out deficiencies. In addition, recognizing the responsibility of the management company with respect to ISM Code-related deficiencies attributable to the non-functioning of the SMS, as well, the seminar strongly encouraged that efforts be made to improve the quality of ships from the "software," that is, operational or non-hardware aspect, as well. The seminar concluded successfully after a lively question-and-answer session.

Following the technical seminar on

deck barge built at Beihai shipyard, Qingdao. The office held a number of technical seminars on topics such as VLCCs, mega-container ships, LNG, LPG and the SOLAS Amendments.

In the Qingdao office, the number of surveys of ships was 1.7 times higher than last year, and the number of inspections of equipment and materials was 2.5 times that of 2000. Also in Qingdao, a presentation on small ships by the staff of the Hull Dept. was made to shipyards located in the territory. Technical presentations on LNG carriers (twice) and Post Panamax Container carriers (once) were also carried out in Beijing. In Dalian, surveys for existing ships were down slightly to 57 vessels from last year's 64, as some of the office's territory was reassigned to Liaoning Province. Inspections of equipment and materials, however, increased slightly to 61. Technical presentations were made at Dalian Shipyard and New Dalian Shipyard on VLCC/Chemical Tankers, LNG, SOLAS, MARPOL and on Wave Load for Tanker Design. A Technical Lecture on Plan Approval and Approval for Shipyards' Supplied Products was also held at Dalian

Shipyard Industrial Development General Corporation. Four newbuildings totaling 13,593 gt were classed with NK, out of the Dalian office. The total number of surveys in Guangzhou increased by 17% compared with last year, including a 39% increase in Docking Surveys. The *Marine Virtue* (599 gt, L.O. carrier) was constructed to NK class at Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd. and was delivered on July 31 to a Singapore owner.

In **Hong Kong**, a Technical presentation to the Guangdong LNG Transportation Project Office was made in April, and the regular Summer Technical Seminar on PSC was held in June. Other presentations included a Technical Presentation on Ballast Water Exchange at JB-RINA in October, a Technical Presentation on Hull Repair Standards to Yiu Lian (shekou) Dockyard in November, and



Himawari No.1

A 4,000 dwt ro-ro cargo/container carrier constructed by Naikai Zosen Corporation for Nippon Express Co., Ltd.

New Rainbow Love

A 11,401 gt ro-ro passenger ferry built by Mitsubishi Heavy Industries, Ltd. for Kyuetsu Ferry Co., Ltd.



PSC held in June, a winter seminar was held and T. Koiwa, a manager of HLD, and Y. Dozono, a manager of EQD, were invited to speak on the two topics of Hull Structure Damage, Repair and Strength Assessment of Bulk Carriers and Year 2000 Amendments to SOLAS 74/78, respectively. The report on the hull structure of bulk carriers, a topic of great interest to all concerned, and the timely explanation of the SOLAS revisions, with its last-minute clarifications, were of great interest to the more than 50 participants present, who included shipowners, ship management companies, maritime authorities and the like. Specialists provided suitable answers to the questions raised by the participants during the lively question-and-answer session after the lectures. The seminar was concluded after a time was set for the next session. In all, it was a great success.

There were a very large number of equipment and material approvals throughout the offices in China.

The Society granted Type Approval to:

- Launching Appliance(s), Lifeboat(s) and Rescue Boat(s) from Qindao Beihai Shipyard,
- Lifeboat(s) from Beiyang Boatbuilding
- Division(s) as fire protection equipment from Jiangsu Hailu Decorative Co., Ltd.,
- Cable(s) from Yangzhou Yuan Yang
- Fire protection materials from Jiangsu Hailu Decorative Co., Ltd.

The Society granted Individual Approval to:

- Launching Appliance(s) from

- Sheyang Fargoing Marine Auxiliaries,
- Lifeboat(s) from Wu Xi Hai Hong,
- Launching Appliance(s) from Nanjing Dongsheng Marine Equipment,
- Launching Appliance(s) from Nanjing Nautical.

The Society granted Type Approval & Individual Approval to:

- Lifeboat(s) from Jiangyin Norsafe F.R.P.

The Society approved the manufacturing process of:

- Steel casting/forging(s) from Wuxi Foundry,
- Steel casting(s) from Dalian Heavy Industries Steel Casting Co., Ltd.,
- Rolled steel(s) from Jiuquan Iron & Steel (Group) Company,
- Rolled steel(s) from Angang New Steel Co., Ltd.,
- Steel casting/forging(s) from Leshan Scana Machinery Co., Ltd.,
- Rolled steel(s) from Jinan Iron and Steel General Group Corporation,
- Steel casting/forging(s) from Shanghai Nissha Steel Foundry Co., Ltd.

The Society also approved:

- Welding consumable(s) from Tien Tai Electrode (Kunshan) Co., Ltd.,
- Welding consumable(s) from Zibo Feile Welding Products Co., Ltd.

The Society approved the following radio-service companies:

- Dalian Sun's Ship Safety Technical Service Co., Ltd.,
- Eletek Technology Limited,

- Radio-Holland Hong Kong Co., Ltd.,
- Anchang Brother Co., Ltd.,

It approved the following thickness measurement firms:

- Lief Marine Consultant & Trading Co., Ltd.,
- Qingdao Huayuan International Shipping Eng.

In **India**, the Mumbai office experienced a substantial increase in survey activity. Elektronik Lab was authorized as a radio-service company and Universal Sonic Services was authorized as a thickness measurement firm.

In **Indonesia**, survey activity increased significantly following the new authorization to conduct surveys, and three new offices were opened: Batam, Balikpapan and Surabaya (all Designated Offices of the Jakarta Office). Also in Indonesia, PT. Jasonindo Jayatama and PT. Sulendraputra Sukses were authorized as radio-service companies and PT. Cahaya Karya Bhakti Samudra was approved as an in-water survey firm. Seminar presentations on The Handling of ETAS Announcements and Tanker Safety were made at technical seminars held in Indonesia (and Thailand).

Korea was also busy with new shipbuilding, including, for example, the fifth of seven 5600TEU-type container ships being constructed for Kawasaki Kisen Kaisha, Ltd., completed at Hyundai Heavy Industries Co., Ltd.



A major event for the Society in Korea was participation in the LNG 13 Exhibition, a global exhibition on LNG, held in Seoul from May 14 to 17. A conference was also held in conjunction with the exhibition that consisted of numerous meetings, lectures and lively discussions in a wide range of areas that covered not only LNG shipping but all aspects of the LNG industry. During the exhibition, particular emphasis was placed on the extensive experience of the Society in the field of LNG carriers and the advanced nature of PrimeShip.

The Society approved the manufacturing process of:

- Rolled steel(s) and steel casting/forging(s) from Kia Steel Co., Ltd., Kunsan Plant,
- Steel casting/forging(s) from Kyung Sung Co., Ltd.,
- Steel casting/forging(s) from Young Nam Iron Casting Ind. Co., Ltd.,
- Steel casting/forging(s) from Kyoung In Metal Co., Ltd.,
- Steel casting/forging(s) from Daehan Special Metal Co., Ltd.

The Society granted Type Approval to:

- Lifeboat(s) from Hyundai Lifeboat,
- Division(s) as fire protection equipment from Sung-Mi Co., Ltd.,
- Division(s) as fire protection equip-

ment from Wartsila Accommodation Systems Korea Ltd.,

- Division(s) as fire protection equipment from Daejin Industrial,
- Division(s) and primary deck covering(s) as fire protection equipment from Hankuk Miboo Co., Ltd.,
- Division(s) as fire protection equipment from Jung Gong Ind. Co., Ltd.,
- Division(s) and non-combustible material(s) as fire protection equipment from Kumgang Korea Chemical Co., Ltd.,
- Division(s) as fire protection equipment from Samgong Co., Ltd.,
- Division(s) as fire protection equipment from Shin Sung Eng. & Arch. Co., Ltd.,
- Division(s) as fire protection equipment and fire retardant veneer(s) from BIP Industries Co., Ltd.,

Uni-Probity

A 19,309 dwt container carrier built by Evergreen Shipyard Corporation for Uniglory Marine Corp. as the manager

- Flameproof type electrical equipment from Dae Yang,
- Non-metal clip(s) from Dong-A Bestech,
- Flameproof type electrical equipment from Hyosung,
- Non-metal clip(s) from Avery Dennison.

The Society approved the following radio-service companies:

- Hae Yang Radio Co., Ltd.,
- Hanshin Electronics Co., Ltd.,
- Jinwon Electronics Service Co.,
- Kum Ho Tech Inc.,
- Nam Young Electronics Co.,
- Sam Jeong Radio Co.,
- Sky Radio Co., Ltd.

The Society gave Individual Approval to Launching Appliance(s) from Oriental Precision and also approved flame screen(s) and pressure/vacuum valve(s) fitted with flame screen from Tanktech Co., Ltd.



Iver Spirit

A 22,820 dwt oil/chemical carrier built by Kitanihon Shipbuilding Co., Ltd. for Blue Forest Shipping S.A. and managed by Fleet Management Limited



Happy Clipper

A 73,414 dwt bulk carrier built by Sumitomo Heavy Industries, Ltd. for New Ruler Shipping Co., Ltd. and managed by Grand Seatrade Shipping Agencies Limited

Survey activity in **New Zealand** was steady, and New Zealand Diving and Salvage Limited was authorized as an in-water survey firm.

NK Manila in the **Philippines** celebrated its silver anniversary (25 years) in June. As usual, the office had a busy year, including the classing of five bulk carriers that were newly built and delivered at Tsuneishi Heavy Industries (Cebu), Inc. (THI), of which three were the largest type (52,300 dwt) that THI had ever delivered. Also, Scan Marine, Inc. was authorized as a radio-service company.

The **Singapore** office was very busy with more than 1,300 regular surveys, including nine LNG carriers. In new-buildings, Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd. delivered a 599 gt NK classed lubricating oil carrier to a local owner, and the office started the review of drawings for a new 13,500 dwt tanker to be built in Ha Long Shipyard, Vietnam. Presentations/seminars on ISM, ISO, PSC, CAP and Chemical

Carriers were carried out by experts from Head Office. Special presentations were given on Recent IMO/IACS Activities Regarding ISM and Port State Control, as well as on the Establishment of Safety Management Systems by Phase II Companies at an ISM seminar held in Singapore. Trainees (including surveyors from VIRES/BKI) came to the Singapore Office for on-the-job and ISM-related training.

Atts Electronics Services, Quality Marine Services Pte Ltd and Sakana Electronic & Services were authorized as radio-service companies. The Society approved high and high-high alarm system(s) from Modern Automation and cable(s) from Singapore Cable. Also, Koi Marine Engineering Services Pte. Ltd. was authorized as a thickness measurement firm.

DOCs for ISM Code compliance were granted to two companies, Unix Line Pte. Ltd. and Panworld Shipmanagement Pte. Ltd.

In **Taiwan**, the second meeting of the Taiwan Committee was held for shipowners, with presentations made on Ballast Water Exchange, among others. The inaugural meeting of the Taiwan Technical Committee was also held. Explanations were presented on Year 2000 Revisions to SOLAS74, ETAS and Revision of NK Technical Rules, among other topics. The Society granted DOCs for ISM Code compliance to two companies, Triad Marine Corporation and Hansen Shipping Agencies Co., Ltd.

The Bangkok Office in **Thailand** carried out many surveys on older ships, at various ports in Thailand, Myanmar and Cambodia, the number of surveys and inspections being about the same as last year. A number of factory inspections and ISM Code Audits were also undertaken. In other ISM-related activity, Mr. Somsak Sucondhman, GM of NK Bangkok, was invited to the ISM Code Meeting held at Chulalongkorn University in September. Mr. Somsak gave a presentation on the ISM Code Audit to

Tasman Sea

A 28,456 dwt bulk/lumber carrier built by Kanda Shipbuilding Co., Ltd. for Bernard (BVI) Limited and managed by Indochina Ship Management (HK) Ltd.

the representatives of Thai Shipowners. Mr. Somsak was also invited by the Royal Thai Navy to attend the internal meeting of the Naval Dockyard as a lecturer in its Ship Surveyor Course. The First Technical Seminar Held in Thailand (jointly organized by ClassNK and the Thai Shipowners' Association) was held in November. M.D. M. Murakami from ClassNK and his cohost, Mr. Sumate Tanthuwani, Chairman of the Thai Shipowners' Association, welcomed the honorable guest, the Secretary General to the Office of the Maritime Promotion Commission, Ministry of Transportation and more than 150 distinguished guests from the Thai maritime community to a luncheon reception, followed by a Technical Seminar at the Montien Riverside Hotel in Bangkok. Many of the distinguished guests play active roles in maritime activities in Thailand. ClassNK staff gave presentations on ClassNK's Recent Activities, the Annual Report on Port State Control 2000, the PSC Report on the ISM Code 2000, the ClassNK CAP, and ETAS. The Technical seminar concluded with a better understanding of these topics by most the participants and was an overwhelming success.

The Society granted DOCs for ISM Code compliance to Sinsimon Navigation Co., Ltd, while Asian Marine Services Public Co., Ltd. and Unithai Shipyard and Engineering Co., Ltd. were authorized as thickness measurement firms.

In **Vietnam**, the Haiphong office was again one of the busiest in Asia, with the number of ship surveys slightly



increased compared with the number last year. More than 30 large NK-classed ships (with ESP notation) docked at Hyundai-Vanashin shipyard for repair and inspections. In newbuilding activity, the *Vinh An*, the sister ship of the first newbuilding ship *Vinh Thuan*, was delivered from Bach Dang Shipyard to Vietnam Ocean Shipping Company (VOSCO) under NK Class. After the *Vinh Thuan*, this is the second largest newbuilding in Vietnam. NK Haiphong is also carrying out the following classification surveys during construction: the third 6,500 dwt newbuilding ship at Bach Dang Shipyard to be delivered in June 2002; six 2,500 dwt self-loading coal barges at Nam Trieu Shipyard; and six 1000 PS tug boats at Song Cam Shipyard and Tam Bac Shipyard for a Singapore owner. All are expected to be delivered at the beginning of 2002.

Bach Dang Shipyard completed the establishment of a Quality Management System in accordance with ISO 9001:2000. The assessment and

registration for verifying its implementation was conducted in November. This was the first ISO 9001 assessment and registration conducted by the Society in Vietnam.

In order to further support the shipbuilding yards in the Haiphong area that are in the process of newbuilding small ships, a Technical Seminar on Small Ships was held in Haiphong in October, presented by experts from Head Office.

In regular business, the Society approved welding consumable(s) from Viet-Duc Welding Electrode Company.

New Century 1

A 52,863 gt vehicles carrier constructed by Mitsubishi Heavy Industries, Ltd. for Feng Li Maritime Corporation

Europe

The Society's office in Antwerp, **Belgium** moved to a new address, but was able to continue to offer business as usual, completing over 170 surveys. In **Cyprus**, the Society granted DOCs for ISM Code compliance and ISO 9002 certification for ship management of cargo ships to Kotani Shipmanagement Ltd. In the **Czech Republic**, the Society approved the manufacturing process of steel casting/forging(s) from ZDAS, a.s. Metallurgical Plant.

In **Denmark**, regular business was maintained at last year's levels, while in **Finland**, the Society approved pipe flange joint and attachments from GS-Hydro Oy.

In **France**, it is expected that there will be an increase in LNG newbuildings entering NK class. As part of the business development activities of the Society, a presentation was given introducing highly specialized technology at a training seminar on membrane type gas carriers held in Paris. In related business, the Society granted Type Approval to flameproof type electrical equipment from DTS and expansion joint(s) for low-temperature services of liquefied gas carriers from S.F.Z.S.A.S. The Society also approved flameproof type electrical equipment from IDRМ, and the manufacturing process of steel casting /forging(s) from HOWMET SA - Dives sur Mer Plant.

In **Germany**, ship surveys and inspections of machinery and equipment both increased slightly. Type Approval was granted to:

- Lifeboat(s) from FR. Fassmer,
- Division(s) as fire protection equipment from AIK Flammadur Brandschutz GmbH,
- Primary deck covering(s) as fire protection equipment from G. Theodar Freese GmbH,
- Flexible metal hose(s) from Senior Flexonics Berghofer GmbH,
- Programmable electric system(s) from Siemens,
- Hydraulic hose assembly(s) from Aeroquip, ZN der Aeroquip Vickers International GmbH.

Individual Approval was granted to:

- Launching Appliance(s) from Davit International,
- Launching Appliance(s), Lifeboat(s) and Rescue Boat(s) from

Ernst Hatecke.

The Society approved the manufacturing process of:

- Steel casting/forging(s) from Thyssen Umformtechnik + Guss GmbH,
- Steel casting/forging(s) from Saarschmiede GmbH Freiformschmiede.

The Society approved standardized drawings for:

- Cooler(s) from Behr Industrietechnik GmbH & Co.,
- Condenser(s) from Bitzer Kuehlmaschinenbau GmbH,
- Air reservoir(s) from Neuehauser Kompressorenbau GmbH.





Akili

A 52,301 dwt bulk carrier built by Tsuneishi Shipbuilding Co., Ltd. for Akela Navigation Co., Ltd. and managed by Almi Marine Management S.A.

The Society also approved diesel engine(s) from Motoren-und Turbinen-Union Friedrichshafen GmbH.

The number of class surveys decreased slightly in **Greece**, but inspections of materials and equipment more than doubled. A number of newbuildings were delivered and more ordered for Greek owners, including the *Akili*, built for Almi Marine Management SA by Tsuneishi Nakamura Shipyard, and *Futuro Dos*, built for Allied Marine Inc. by Mitsui Chiba.

Three companies were authorized as radio-service companies: Intermarine Electronics, Hellenic Radioelectric Services and Radiohellenic Ltd.

Three companies were authorized as thickness measurement firms: Advanced Marine Services Ltd., Glafcos Marine Ltd. and Shiptech Ltd.

Three companies were authorized as in-water survey firms: Dynamic Divers, Koumpios Hellas Divers and Nick Segredakis Diving Ltd.

The Society also granted DOCs for ISM Code compliance to two compa-

nies: Kouros Maritime Enterprises Inc. and Phoenix Shipholding Corp.

A technical seminar was held for shipowners, shipyards and others in the marine industry and included presentations on hull structural damage in bulk carriers and the NK CAP.

In **Ireland**, Navcom Electronics Ltd. was authorized as a radio-service company.

Staff from the Genova office in **Italy** presented a lecture on fire-fighting systems and their deficiencies, and about the ISM during annual training for newly appointed PSC officers in Genova. There was a general increase

in surveys of ships in the whole territory, as well as an increase of production and supply of ABB T/S T/C and spare parts under the previously approved mass production system. Inspections on couplings and on turbochargers were undertaken on behalf of the Japanese Government. The Society approved diesel engine(s) from SEATEK.

In **Latvia**, Hanza Elektronika Ltd. was authorized as a radio-service company.

The Rotterdam office in **The Netherlands** was very busy as usual during 2001. The number of ships surveyed and inspections for



Futuro Dos

A 50,212 dwt bulk carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. for Futuro Dos Navigation Ltd. and managed by Allied Maritime Inc.

material and equipment was about the same as the previous year, however, there was an increase in new activities as a Notified Body under the EC Directive 96/98 on Marine Equipment. Approvals by the Society included Individual Approval of Launching Appliance(s) from Maritime Design Office, Type approval of division(s) as fire protection equipment from Beele Engineering B.V., and approval of use of air pipe head(s) from Winteb. Alpatron Marine B.V. was authorized as a radio-service company.

The Nor-Shipping international maritime trade fair, which is held in Oslo, **Norway** every other year, was held at the Norges Varemesse (Sjølyst Exhibition Center) from May 29 to June 1. Local and Head Office staff attended the exhibition to greet visitors to the ClassNK booth who came from all over the world, as well as many locals from Scandinavia. Presentations made by the Society were favorably commented on by many visitors.

In regular business, the inspection of equipment increased, including Sperre Industri AS which was approved as an approved manufacturer. The Society granted Individual Approval to Launching Appliance(s) and Lifeboat(s) from Norsafe AS, and Radio Inspection, Telenor Nett AS was authorized as a radio-service company. The Society also Type Approved Launching Appliance(s)

Naming ceremony of the Appenzell
A 46,492 dwt bulk/lumber carrier built by Mitsui Engineering & Shipbuilding Co., Ltd. for the Massoel Group, Switzerland and managed by V. Ships Switzerland S.A.

from Umoe Schat Harding AS. and CRT monitor(s) from Jskob Hattelamd Instrument A/S.

A lecture was given on Failure Mode of Sea Ice Sheet-Cleavage Cracking at the 11th International Offshore and Polar Engineering Conference and Exhibition (ISOPE 2001) held in Stavanger, Norway.

The Society approved the manufacturing process of steel casting/forging(s) from Mahle Krotoszyn S.A. in **Poland** and Przedsiębiorstwo Usług Technicznych Newtech s.c. was authorized as a thickness measurement firm. In regular business, there was an increase in class surveys, particularly Special Surveys.

In **Portugal**, surveys slightly increased compared with last year, due to surveys carried out not only in Portugal but abroad as well, mainly at ports in the north and south of Spain, and ISM shipboard audits increased significantly.

S.C. Imsat Maritime S.A. was authorized as a radio-service company in **Romania** and Daewoo-Mangalia Heavy Industries S.A. was authorized as a thickness measurement firm.

In **Spain**, the Bilbao office was kept very busy with a small increase in class and statutory survey activities.

The Society granted Type Approval to flexible metal hose(s) from Witzemann Sverige AB. and purifier(s) from Alfe Laval Tumba AB. in **Sweden**, while in **Switzerland**, the Society approved exhaust expansion joint(s) from BOA AG. Also, several ships were built for Swiss owners, including the *Appenzell*, the *Uri* and the *Glarus*, sistership bulk/lumber carriers built by Mitsui Engineering & Shipbuilding Co., Ltd. for the Massoel Group, Switzerland and managed by V. Ships Switzerland S.A.

Turkey was again prominent in the Society's European activities. The Society granted ISO 9002 certification



Yasa H. Mehmet

A 52,407 dwt bulk carrier built by Tsuneishi Heavy Industries (Cebu) Inc. for Yasa Denizcilik Sanayi Ve Ticaret A.S.

for ship management of bulk carriers to Ya-sa Gemi Isletmeciligi Ve Ticaret A.S., which was also granted DOCs for ISM Code compliance. A technical seminar was held for shipowners, shipyards and others in the marine industry in Turkey and Greece. Presentations were made on the activities of the Society, PrimeShip-HULL, ClassNK CAP and bulk carrier damage. In total, seven handy-size bulkers were built in Japan and/or the Philippines, and delivered to 4 Turkish owners:

- Yasa Denizcilik Sanayi Ve Ticaret A.S.,
- Nemtas Nemrut Liman Isletmeciligi A.S.,
- Aktif Denizcilik Bilgisayar Form Mumessillik San. Ve Tic. A.S.,
- Incetrans Deniz Tasihaciligi Ltd. Sti.

NK expanded its activities in the **U.K.** with a local area representative being appointed in Woking, bringing the total number of exclusive surveyors in England to four. Survey applications dealt with in 2001 increased by 25%. The Society took charge of giving a



presentation to summarize the FSA work being done on bulk carriers by Japan at a lecture meeting held under the auspices of the Japanese government to introduce this topic at IMO MSC74, which was held at the headquarters of the IMO in London.

In other regular work, Type Approval was granted to:

- Oil content meter(s) for 15ppm bilge alarm from Rivertrace Engineering Ltd.,
- Visual display(s), minitower PC(s), desktop PC(s), Monitor(s), HP

procurve switch(es), HP workstation(s) from Mariner Systems (UK) Ltd.,

- Oil mist detector(s) from Kiddie Fire Protection,
- Intrinsically safe type electrical equipment from MTL,
- Intrinsically safe type electrical equipment from The Wolf Safety Lam.

Oilfield Testing Services was authorized as a thickness measurement firm and Cummins Engine Co., Ltd. was approved as a manufacturer.



Noble Spirit

A 45,282 dwt chemical carrier constructed by Minaminippon Shipbuilding Co., Ltd. for Noble Shipholding S.A.

Americas

Of particular interest in this region, the Buenos Aires Office in **Argentina** was engaged in the new-building survey of a second bulk carrier of 27,000 dwt, from a series of three sister ships under construction at the local shipyard Astilleros Rio Santiago, for Calanda Shipping Co. The ship's keel was laid on April 20, 2001 and her delivery is expected in April 2003. Regular survey activities were maintained at around 180 cases for the year, despite the difficult economic situation that strongly affected the local import and export business. Also in Buenos Aires, the ISM Lead Auditor carried out two annual audits on local companies' DOCs and 17 intermediate and initial audits on ships' SMSs.

In addition to regular business in **Brazil**, TECNOEND-Tecnologia em Ensaios Não Destrutivos Ltda., was authorized as a thickness measurement firm and Aqua Port Reparos Navais e Mergulhos Ltda. was authorized as an in-water survey firm.

A local firm, Dominion Diving Limited, was also newly authorized as an in-water survey firm in Nova Scotia, **Canada**. A technical seminar on the CAP, PrimeShip and other topics was also given to owners and managing companies in Vancouver by staff from Head Office.

In Valparaiso, **Chile**, the increase in survey business noted last year was maintained at the same level this year. The local staff also made an ISM Code presentation to the local firm, Empresa

de Desarrollo Pesquero S.A. Two firms were authorized as radio-service companies, Electronic Marine Ltda. and Selmar Ltda., JRC Chile while CATOX Ltda. was authorized as a thickness measurement firm.

In the **Netherlands Antilles**, Miami Diver International N.V. was also authorized as an in-water survey firm.

In **Panama**, there was an increase in the number of surveys carried out by exclusive surveyors partly as a result of taking over all statutory surveys from non-exclusive surveyors. Global Marine Electronics and Hi-Tek Marine, S.A. were authorized as radio-service companies and Marine Inspection & Maintenance Services, S.A. was authorized as an in-water survey firm.

Across the **U.S.A.**, Mackay Marine, in Houston, Miami and San Francisco, was authorized as a radio-service company, as was Radio Holland USA Inc. Cummins Industrial Center was approved as an approved manufacturer, and inspections of LNG pumps to

be installed on three gas carriers built at MHI were carried out at Ebara International Corporation Cryodynamic Division, Nevada. The Society granted ISO 9001 certification for Shipping Agency Services to Dow Line America Co., Ltd.

The number of ships surveyed for class or statutory matters in the Los Angeles office during 2001 was over 150 and the number of appraisals was nine. In New Orleans, the number of surveys (class/statutory) increased by approx. 10% over the year 2000. The Caribbean Sea Islands (except Cuba and Dominican Republic) began to be covered by the New Orleans office from June 2001.

A number of seminars were presented across the U.S.A., including: The survey of gas turbines installed on the Techno Super Liner to the General Electric Company, carried out on behalf of the Japanese Government, Consideration of Safety Assessment of Very Large Floating Structures—Classification Survey for Large-Scale Oil Storage Systems at the 24th UJNR/MFP (United States-Japan Cooperative Program in Natural Resources/Marine Facilities Panel) held in Honolulu, Hull Girder Strength of a Tanker Under Longitudinal Bending Considering Strength Diminution Due to Corrosion at the 8th International Conference on Structural Safety and Reliability (ICOSAR 2001), held in Newport Beach, and Assessment of Fatigue Strength of Low Alloy Steels for Ship's Crankshaft at the 10th International Conference on Fracture (ICF10), held in Honolulu.



Middle East and

Despite conflict in the area later in the year, activity in the Middle East generally increased. In **Bahrain**, Arab Shipbuilding & Repair Yard Co. (ASRY) was authorized as a thickness measurement firm.

In Alexandria, **Egypt**, survey numbers increased during 2001, especially outside the country. There were increases in SMC Audits and first initial ISM Company Audits as well as increases in the number of Company's Annual Audits. Staff of the Alexandria office also started training Syrian Government inspectors as part of their increased business promotion in Syria and Lebanon. Navigator Center was authorized as a radio-service company in **Kuwait**, as was Key

Communications Development Co., Ltd. in **Saudi Arabia**.

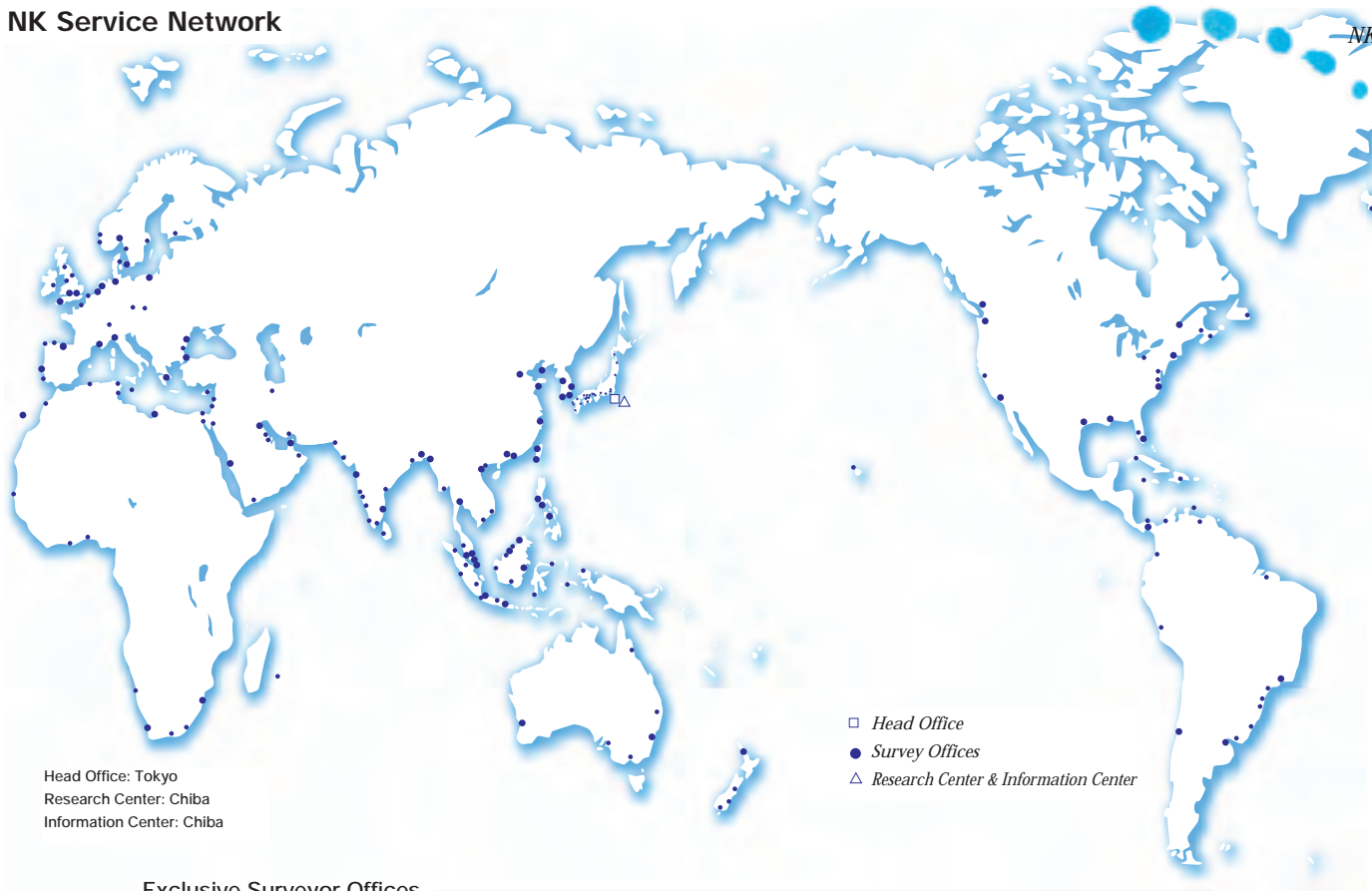
Since the opening of the NK office in Durban, **South Africa**, activity in the region has steadily increased, including an 11% increase in number of ships surveyed during 2001. Additionally, Kelly Marine CC was authorized as a radio-service company and Hydroscan C.C. was authorized as a thickness measurement firm.

In the **U.A.E.**, the number of surveys/audits overall was stable, but the number of surveys/audits undertaken by exclusive surveyors increased by



Golden Gate Bridge

A 71,376 dwt container carrier constructed by Hyundai Heavy Industries Co., Ltd. for Noel Shipping Corp.



Head Office: Tokyo
 Research Center: Chiba
 Information Center: Chiba

□ Head Office
 ● Survey Offices
 △ Research Center & Information Center

Exclusive Surveyor Offices

Japan

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

Asia, Oceania and the Middle East

- Auckland
- Balikpapan
- Bangkok
- Batam
- Batangas
- Beijing
- 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
- Miri
- Mumbai (Bombay)
- Pusan
- Qingdao
- Seoul
- Shanghai
- Singapore
- Surabaya
- Sydney
- Taipei
- Ulsan

Europe and Africa

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

North and South America


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



NK in International Affairs



"Modern ship classification is a global activity and NK must actively engage a wide range of international partners in order to operate successfully on a global scale."



Modern ship classification is a global activity and NK must actively engage a wide range of international partners in order to operate successfully on a global scale. One major element of this is the work the Society undertakes on behalf of foreign governments. In 2001, the Commonwealth of Dominica and the Cayman Islands authorized ClassNK for the first time to perform a range of duties on ships flying their flags, bringing the number of countries that have authorized ClassNK to carry out surveys and issue certificates on their behalf to 95 by the end of 2001.

The Society also has a long and committed history of contributing to international organizations such as IACS and the IMO. This year, the Society's involvement with IACS was even greater than usual. NK Executive VP Masataka Hidaka, who had assumed the IACS Chairmanship for a tenure of one year from July 1, 2000, passed the mantle to his successor from the Russian Maritime Register of Shipping (RS). During Mr. Hidaka's tenure, he worked hard to "steady the ship" at a time when IACS was under intense scrutiny, and much progress was realized through his leadership in terms of setting standards that all IACS member societies are to implement uniformly.

IACS

As a founding member of IACS, ClassNK has always supported the association's efforts to advance classification rules and procedures, and the Society actively participated in IACS during 2001. ClassNK served as the chair of four groups: the Steering Committee on Bulk Carrier Safety, the Working Party on Materials and Welding, the Ad Hoc Group on Hull

Damages and the Correspondence Group on Mooring and Anchoring. Furthermore, ClassNK contributed to other working groups by sending representatives to a wide range of meetings. During the year, NK participated in the following meetings:

- Council: 2 meetings
- Quality Committee: 2 meetings
- General Policy Group: 2 meetings
- The Steering Committee on Bulk Carrier Safety: 2 meetings
- Working Groups: 23 meetings
- Project Team: 2 meetings

Major topics addressed by the meetings were: IACS strategy, ISM Code implementation, Safety of tankers and bulk carriers, Transparency and confidentiality, Quality Management Review, External relations—assistance to flag administrations, Elimination of substandard ships, Tightening of transfer of class, Improvement of IACS QSCS, Condition Assessment Scheme and amendments to MARPOL 13G, Matters suggested by industry partners, and Outcomes from working groups.

The IMO

ClassNK has also strongly supported the IMO over many years. As a member of a Japanese Government delegation or a representative of IACS, NK participated in the following meetings:

- The 45th Sub-committee on Fire Protection (Japanese Government)
- The Intersessional Meeting of the Maritime Environment Protection Committee (Japanese Government, IACS)
- The 6th Sub-committee on Bulk Liquids & Gases (Japanese Government)
- The 9th Sub-committee on Flag State Implementation (Japanese Government)
- The 44th Sub-committee on Ship Design & Equipment (Japanese Government, IACS)
- The 46th Maritime Environment Protection Committee (Japanese Government, IACS)
- The 74th Maritime Safety Committee (Japanese Government, IACS)



The 43rd meeting of the IACS Council



The 8th meeting of the China Committee

- The 44th Sub-Committee on Stability & Load Lines and on Fishing Vessel Safety (Japanese Government)
- The International Conference on the Control of Harmful Anti-fouling Systems for Ships (Japanese Government)

NK International Offices and Committees

In a practical sense, the core element of NK's international activities is its network of international offices and committees. In 2001, the Society further expanded its offices to include the following:

- Fremantle, Australia (Local Area Representative, Sydney Office)
- Chittagong, Bangladesh (Sub-Office of Singapore Office)
- Batam, Indonesia (Sub-Office of Jakarta Office)

- Balikpapan, Indonesia (Sub-Office of Jakarta Office)
- Surabaya, Indonesia (Sub-Office of Jakarta Office)
- Constantza, Romania (Sub-Office of Piraeus Office)
- Woking, U.K. (Local Area Representative, London Office)
- Montreal, Canada
- Miami, U.S.A (Local Area Representative, New Orleans Office)

The Society now has 91 exclusive surveyor offices in 40 countries, including 22 in Japan. The number of exclusive surveyors assigned to overseas offices continued to increase over the last year by another 36 persons, partly in response to the survey enhancement program of IACS.

The international committees are the key links between the Society and the local maritime industries in many parts of the world. The Society can thus learn about the interests or concerns in a local area, and can also convey important information directly to the local maritime industry. The main subjects of this year's meetings of international Committees were the Report on NK Activities, Ballast Water Exchange and the Phasing Out of TBT Paint, among many others. International committee meetings held during 2001 were as below.

The 10th Greek Committee	8 February	Piraeus
The 2nd Taiwan Committee	15 March	Taipei
The 17th Southeast Asia Committee	26 March	Fukuoka
The 11th Danish Technical Committee	5 April	Copenhagen
The 7th China Technical Committee	25 April	Shanghai
The 12th Korea Committee	10 May	Seoul
The 27th Hong Kong Committee	27 Sept	Hong Kong
The 1st Taiwan Technical Committee	5 Oct	Taipei
The 8th Korea Technical Committee	26 Oct	Pusan
The 8th China Committee	30 Oct	Shanghai
The 1st Indonesia Technical Committee	8 Nov	Jakarta
The 5th Thai Technical Committee	13 Nov	Bangkok
The 5th Philippine Technical Committee	7 Dec	Manila
The 8th Indian Committee	10 Dec	Mumbai
The 5th Singapore Technical Committee	11 Dec	Singapore

Advisory Council

Dr. Chang Yung-fa	Evergreen Group
Frank W.K. Tsao	IMC Group of Companies
Maeng-Kee Lee	Korea Line Group
Kou Ming Koo	Valles Steamship Company, Ltd.

International Committees

China Committee

Chairman

Chen Hong Sheng

Members

Wang Chun Lin	China Business Marine Corp Ltd.
Chen Hong Sheng	China Ocean Shipping (Group) Company
Liu Zheng	China Shipbuilding Industry Corporation
Wu Zhong Xiao	China Shipping (Group) Company
Zhang Xi Ping	China State Shipbuilding Corporation
Wu Shu Xiong	COSCO Container Lines
Yan Ming Yi	Shanghai Shipping (Group) Company and China Shipping Development Co., Ltd., Tanker Company

Secretary to the Committee

M. Kato, NK Beijing Office

Greek Committee

Chairman

Michael D. Chandris

Members

Paul J. Ioannidis	Alexander S. Onassis Foundation
Michael D. Chandris	Chandris (Hellas) Incorporated
Anna G. Dracopoulos	Empros Lines Shipping Company S.A.
Prokopis N. Karnessis	European Navigation Incorporated
Michael E. Veniamis	Golden Union Shipping Company S.A.
Ghikas J. Goumas	J.G.Goumas Shipping Company S.A.
Capt. Z. D. Kritsas	Kritsas Shipping S. A.
Panagiotis C. Laskaridis	Laskaridis Shipping Co., Ltd.
Diamantis P. Diamantides	Marmaras Navigation Limited
George S. Livanos	Sun Enterprises Limited

Constantinos J. Martinos	Thenamaris (Ships Management) Incorporated
Charalambos N. Mylonas	Transmed Shipping Limited
Capt. P. N. Tsakos	Tsakos Shipping & Trading S. A.

Secretary to the Committee

Y. Hiraoka, NK Piraeus Office

Hong Kong Committee

Chairman

Andrew Y. Chen

Vice Chairman

Xu Zunwu

Honorary Chairman

M. H. Liang

Members

Xu Zunwu	COSCO (H.K.) Shipping Co., Ltd.
Robert Alexander Ho	Fairmont Shipping (H.K.) Ltd. and Affiliates
Andrew Y. Chen	Grand Seatrade Shipping Agencies Ltd.
Huang Shao Jie	Hong Kong Ming Wah Shipping Co., Ltd.
Arthur Bowring	Hong Kong Shipowners Association
Frank W. K. Tsao	IMC Group of Companies
Zhu Huai Xin	International United Shipping Agency Ltd.
M. H. Liang	Island Navigation Corporation International Ltd.
Steve G. Hsu	Oak Maritime (H.K.) Inc., Ltd.
Kwai Sze Hoi	Ocean Longevity Co., Ltd.
Michael Y. M. Kwok	Orient Overseas Container Line Ltd.
C. C. Liu	Parakou Shipping Ltd.
M. T. Yung	Patt Manfield & Co., Ltd.
Dr. Peter J. S. Cheng	Peter Cheng Naval Architect & Marine Consultant Ltd.
Raymond Pao	Regent Shipping Ltd.
Kenneth K. W. Lo	Teh-Hu Cargocean Management Co., Ltd.
Edward S. C. Cheng	Unique Shipping (H.K.) Ltd.
Capt. C. A. J. Vanderperre	Univan Ship Management Ltd.
John C. A. Koo	Valles Steamship Company, Ltd.
George Chao	Wah Kwong Shipping Holdings Ltd.

Gerry Buchanan Wallem Shipmanagement Ltd.

Li Hua Worlder Shipping Ltd.

Secretary to the Committee

H. Yamamoto, NK Hong Kong Office

Indian Committee

Chairman

Arun Mehta

Vice Chairman

R. L. Pai

Members

Madhusudan P. Dhanuka Advani-Oerlikon Limited

S. K. Sood Century Shipping

Deepak L. Chowgule Chowgule Steamships Ltd.

Capt. Sam B. Aga Ericson & Richards

S. Govindrajan Essar Shipping Limited

Ajoy Chatterjee Government of India
Ministry of Shipping
Mercantile Marine Department

K. M. Sheth The Great Eastern Shipping
Co., Ltd.

H. Ansari Insurance Regulatory and
Development Authority

R. L. Pai Reliance Industries Limited

R. K. Mitra The Shipping Corporation of
India Ltd.

Arun Mehta Varun Shipping Company
Limited

B. L. Mehta Varun Shipping Company
Limited

C. Dayal General Manager
V.M. Salgaocar & Brother
Private Ltd.

Secretary to the Committee

A. V. Pradhan, NK Mumbai Office

Korea Committee

Chairman

Jong-Kew Park

Members

Sung Leep Jung Daewoo Shipbuilding & Marine
Engineering Co., Ltd.

Woo-Shik Lee Hanjin Heavy Industries &
Construction Co., Ltd.

Kil-Seon Choi Hyundai Heavy Industries
Co., Ltd.

Yung-Won Hyun

Hyundai Merchant Marine
Co., Ltd.

Hak-Se Jang Korea Line Corporation

Jong-Kew Park KSS Line Ltd.

Yung-Woo Yoon Pan Ocean Shipping Co., Ltd.

Youn-Jae Lee Samho Heavy Industries Co., Ltd.

Jing-Wan Kim Samsung Heavy Industries
Co., Ltd.

Seung-Gwon Lee SK Shipping Co., Ltd.

Secretary to the Committee

J. J. Kang, NK Seoul Office

Southeast Asia Committee

Chairman

Lua Cheng Eng

Members

Drs. H. Firdaus Wajdi Indonesian National
Shipowners' Association

Dato' Hj. Mohd Ali Hj. Yasin Malaysia International Shipping
Corporation Berhad

Lua Cheng Eng Neptune Orient Lines Limited

Carlos C. Salinas Philippine Transmarine
Carriers, Inc.

Sumate Tanthuanit Regional Container Lines

Secretary to the Committee

M. Sakamoto, NK Singapore Office

Taiwan Committee

Chairman

Lin Sun-San

Members

Danny Wang Cheng Lie Navigation Co., Ltd.

Chiang Yuan-Chang China Shipbuilding Corp.

Donald K.L. Chao China Steel Express Corp.

H. N. Chu Chinese Petroleum Corp. / CPC

Shang-Wen Liao ET Internet Technology Corp.

Cheng Chin-Chuang Evergreen International Corp.

Lin Sun-San Evergreen Group

Joseph J. M. Jhu First Steamship Co., Ltd.

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

Harvey Chiu Hsin Chien Marine Co., Ltd.

C. H. Chen Kien Hung Shipping Co., Ltd.

Michael M. K. Hsiao Mingtai Navigation Co., Ltd.

Lan Juin Der	Shih Wei Navigation Co., Ltd.
Mathias K. Y. Chen	Sincere Industrial Corp.
Fred C. P. Tsai	Sincere Navigation Corp.
J. T. Chwang	Ta-Ho Maritime Corp.
I. Y. Chang	Taiwan Navigation Co., Ltd.
Ching Wun Su	TMT Co., Ltd.
C. S. Chen	U-Ming Marine Transport Corp.
Loh Yao-fon	Uniglory Marine Corp.
C. C. Lin	Unison Marine Corp.
Chao-Hon Chen	Wan Hai Lines Ltd.
David C. H. Liu	Yang Ming Marine Transport Corp.

Secretary to the Committee

N. Takahashi, NK Taipei Office

Technical Committees

China Technical Committee

Chairman

Lu Zhi Ping

Members

Guo Zhi Bing	China Business Marine Corporation Limited
Capt. Dong Ming	China Ocean Shipping (Group) Company
Luan Fukai	China Ocean Shipping (Group) Company
Xiao Yanjun	China Ocean Shipping (Group) Company
Li Xue Qiang	China Shipping Container Lines Co., Ltd.
Fang Meng	China Shipping (Group) Company
Lin Zhi Shui	China Shipping (Group) Company
Wang Yong Fu	COSCO Bulk Carrier Co., Ltd.
Qiu Xin Yao	COSCO Container Lines
Zhang Ming Hua	COSCO Industry Company
Sun Bo	Dalian New Shipbuilding Heavy Industry Co., Ltd.
Liu Gou Man	Dalian Ocean Shipping Company
Zhao Zhan Jun	Dalian Shipyard
Ding Nong	Guangzhou Maritime Transport (Group) Co., Ltd.

Zhou Zhou	Guangzhou Ocean Shipping Company
Ye Pei Hua	Guangzhou Shipyard International Co., Ltd.
Cao Zhi Teng	Hudong Shipbuilding
Hu Ke Yi	Jiangnan Shipyard (Group) Co., Ltd.
Yang Shi Ming	Jiangnan Shipyard (Group) Co., Ltd.
Xu Zi Qiu	Liaoning Bo Hai Shipyard
Yu Bao Jun	State Ship Eng. & Tech. Research Centre Marine Design & Research Institute of China
Kohsaka Akira	Nantong COSCO KHI Ship Engineering Co., Ltd.
Li Yu Ping	Qingdao Ocean Shipping Company
Lu Zhi Ping	Shanghai Merchant Ship Design & Research Institute
Zhang Jia Long	Shanghai Ship & Shipping Research Institute Ministry of Communications
Xu Hui	Shanghai Shipping (Group) Co. China Shipping Development Co., Ltd., Tanker Company
Zhang Ming Xian	Shanghai Shipyard
Zhang Li Feng	Xingang Shipyard

Secretary to the Committee

A. Takezaki, NK Shanghai Office

Danish Technical Committee

Chairman

Prof. Preben Terndrup Pedersen

Members

Christian Breinholt	Safety & Environmental Legislation Division Danish Maritime Authority
Valdemar Ehlers	Dampskibsselskabet TORM A/S
Flemming Schmidt-Andersen	Lauritzen Kosan Tankers A/S
Peter Tang-Jensen	Odense Steel Shipyard Limited
Erik Møller	Quantum Tankers A/S
Bengt Sangberg	ShipTech A/S
Prof. Preben Terndrup Pedersen	Department of Naval Architecture and Offshore Engineering, Technical University of Denmark

Secretary to the Committee

K. Ikegami, NK Copenhagen Office

Indonesia Technical Committee

Chairman

Widihardja Tanudjaja

Members

Sopardi Somantri	PT. Andhini Baruna Lines
Andy A. Mallian	PT. Arpeni Pratama Ocean Line
Widihardja Tanudjaja	PT. Berlian Laju Tanker Tbk
Djoko Mulyanto	PT. Djakarta Lloyd
Budhi Halim	PT. Humpuss Intermoda Transportasi Tbk
Hendrato	PT. Gesuri Lloyd
A. L. Soebagio Windoe	PT. Samudra Indonesia Tbk
H. Soenarto	PT. Gurita Lintas Samudra
Ibrahim Hasyim	PERTAMINA
Barens Th. Saragih	INSA (Indonesia National Shipowner Association)
Saur Maruli Pohan	IPERINDO (Shipbuilding & Offshore Industries Association)
Dr. Adwin H. Suryohadiprojo	PT. PAL Surabaya
Irnanda Laksanawan	PT. DKB Jakarta
Capt. Sahid	Sea Communication (DITJENLA)
Professor Soegiono	Institut Teknologi Surabaya (ITS)

Secretary to the Committee

K. Yasuda, NK Jakarta Office

Korea Technical Committee

Chairman

Dr. Eng. Sung-Won Kang

Members

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Authorization to Class NK for ships other than passenger ships

(As of December 2001)

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		*	*	*				

Areas/Countries	LL	SOLAS				MARPOL 73/78		TM
		SC	SE	SR	SMC	IOPP	NLS	
Liberia								
Libya							*	*
Luxembourg								
Madeira								
Malaysia	*	*	*	*	*	*	*	*
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								
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)

NK on SHIPS

Most readers will already be aware of the opening of the new NK Information Center. Among the main aims of the Center is to take the lead role in the development and promotion of information management and information technology within the Society, and to provide continuous business support on a global scale 24 hours a day, 365 days a year. The Information Center, in combination with the NK Research Center, located right across the street, will now serve as a base for the technical development and advanced information technology activities of the Society into the new century.

The first tangible result of this strategy for many NK clients has been the recent launch of the upgraded NK-SHIPS service. For those readers not already familiar with the NK-SHIPS service, it is ClassNK's online information service for owners and managers of NK-classed ships. It enables users to monitor and check key infor-

hours a day, 365 days a year, from anywhere in the world via the Internet.

NK-SHIPS has recently been significantly upgraded. Just a few of the upgraded functions include:

A Fleet Management Service which is designed to support survey planning for an entire fleet. NK-SHIPS will display a list of vessels under a user's control, together with graphs indicating the due dates for each. This will enable users to clearly and easily grasp the distribution of due dates for the entirety of the fleet. Most information can be displayed as simple text as well as graphically.

The new online Viewing of Certificates and Survey Records service will reduce the time and labor needed for arranging, safekeeping and searching for such documents. NK-SHIPS will allow users not only to access past survey information, but also to view a graphic image of the original survey documents and the

actual certificates issued as a result of surveys, which can also be readily downloaded and printed, if required.

Also recently upgraded and relaunched was the NK Web site (www.classnk.or.jp). New features include direct online access to the NK Register of Ships, and a new listing of Class suspensions and withdrawals. Approvals lists have also been upgraded to include ISM, ISO, materials, manufacturers, service providers and others.

For more information on the NK Web site or to register for NK-SHIPS, please contact the Information Service Department at the NK Information Center:

Fax +81-43-294-7204
Email isd@classnk.or.jp



mation relating to ship management, including survey status, periodical survey items and survey due dates 24

hours a day, 365 days a year, from anywhere in the world via the Internet. The new upgraded NK-SHIPS service requires registration, but can be accessed free of charge using a computer and Internet browser (no special software is

Fiscal 2001 Report on Survey Fee Income

Survey fee income consists of ship hull and equipment survey fees, plus additional survey fees. ClassNK posted a total survey fee income of ¥16,102 million in fiscal 2001, up 10.2% from the previous year.

A breakdown of major business segments follows.

	Million Yen	Million Yen	
	2001	2000	% change
New ships	3,270	3,134	4.34
Ships in service	6,493	6,082	6.76
All ship hull, machinery and equipment survey fees Subtotal	9,763	9,216	5.94
Other Survey fees Subtotal	6,339	5,398	17.43
Total Survey Fees	16,102	14,614	10.18

Total income from survey fees in fiscal 2001 rose ¥1,488 million over the same period in 2000, owing to an increase in the following segments: ¥547 million in ship hull, machinery and equipment survey fees and ¥941 million in other survey fees, including, for example, ¥299 million in other marine equipment survey fees, ¥294 million in material/welding survey fees and ¥115 million in management system appraisals.

Survey fees account for 90% of ClassNK's net income.

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Annual Report 2001
Published by Nippon Kaiji Kyokai
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