標題

IMO Resolution A.744(18)改正に伴うばら積貨物船及び油タンカーの検査準備について(その 2)

ClassNK
テクニカル
インフォメーション

No. TEC-0685
発行日 2006 年 12 月 13 日

各位

2006 年 7 月 5 日発行の ClassNK テクニカルインフォメーション No.TEC-0665 にて既にお知らせしておりますように、2007 年 1 月 1 日以降実施される ESP の対象となるばら積貨物船及び油タンカーに対する定期検査並びに建造後 10 年を超えるばら積貨物船及び油タンカーに対する中間検査においては、検査に先立ち新書式の SURVEY PROGRAMME(受検要領書)の提出が必要になります。また、受検要領書の作成に先立ち SURVEY PLANNING QUESTIONNAIRE(検査計画調査票)も必要となります。
検査計画調査票の書式と受検要領書の改正書式を新たに作成いたしましたので、2007 年 1 月 1 日以降申請される当該検査に際し、検査に先立って添付の記載例を参考に検査計画調査票及び受検要領書を検査事務所へ提出いただけますようお願いいたします。また受検地未定の場合は弊会検査技術部へご提出下さい。

これら書式の電子ファイル（Word文書及びPDF）については弊会Webサイトに掲載しておりますのでご利用下さい。（アドレス: http://www.classnk.or.jp/hp/download/dl_applij.asp）

なお、本件に関してご不明な点は、以下の部署にお問い合わせください。

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添付:

1. ばら積貨物船用検査計画調査票(SURVEY PLANNING QUESTIONNAIRE)と新受検要領書（SURVEY PROGRAMME）記載例
2. Single hull 油タンカー用検査計画調査票(SURVEY PLANNING QUESTIONNAIRE)と新受検要領書（SURVEY PROGRAMME）記載例
3. Double hull 油タンカー用検査計画調査票(SURVEY PLANNING QUESTIONNAIRE)と新受検要領書（SURVEY PROGRAMME）記載例

ClassNK

SURVEY PROGRAMME for Bulk Carriers

Basic Information and Particulars

Name of Ship	:	***NK BULKER I***
IMO Number	:	*8888888*
Flag State	:	*Panama*
Port of Registry	:	*Panama*
Gross Tonnage	:	*37,000*
Deadweight (metric tonnes)	:	*80,000*
Length between perpendiculars (m)	:	*215.00*
Shipbuilder	:	*NK Heavy Industries*
Hull number	:	*555*
Recognized Organization (RO)	:	*Nippon Kaiji Kyokai*
RO Ship Identity (Class Number)	:	*899999*
Date of delivery of the ship	:	*1989 December 1*
Owner	:	*NK Shipping*
Thickness Measurement Firm	:	*NK TM co.*

Prepared by the owner in co-operation with the Classification Society.

Date : *1 January 2007*

Alex N.K.
( )
(name and signature of authorized owner's representative)

Date :

( )
Surveyor to Nippon Kaiji Kyokai
Branch/Office

1 Preamble

1.1 Scope

1.1.1 The present Survey Programme covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo length area, cargo holds, ballast tanks, including fore and aft peak tanks, required by the NK Rules.

1.1.2 The arrangements and safety aspects of the survey should be acceptable to the attending surveyor(s).

1.2 Documentation

All documents used in the development of the survey programme should be available onboard during the survey.

2 Arrangement of Cargo holds, tanks and spaces

This section of the survey programme should provide information (either in the form of plans or text) on the arrangement of cargo holds, tanks and spaces that fall within the scope of the survey.

Hold & Tank Arrangement*/~~Hold & Tank List~~*, which is attached to next page is to be referred.

(*: Delete as appropriate)

3. List of cargo holds, tanks and spaces with information on their use, extent of coatings and corrosion protection system

This section of the survey programme should indicate any changes relating to (and should update) the information on the use of the cargo holds and ballast tanks of the ship, the extent of coatings and the corrosion protective system provided in the Survey Planning Questionnaire.

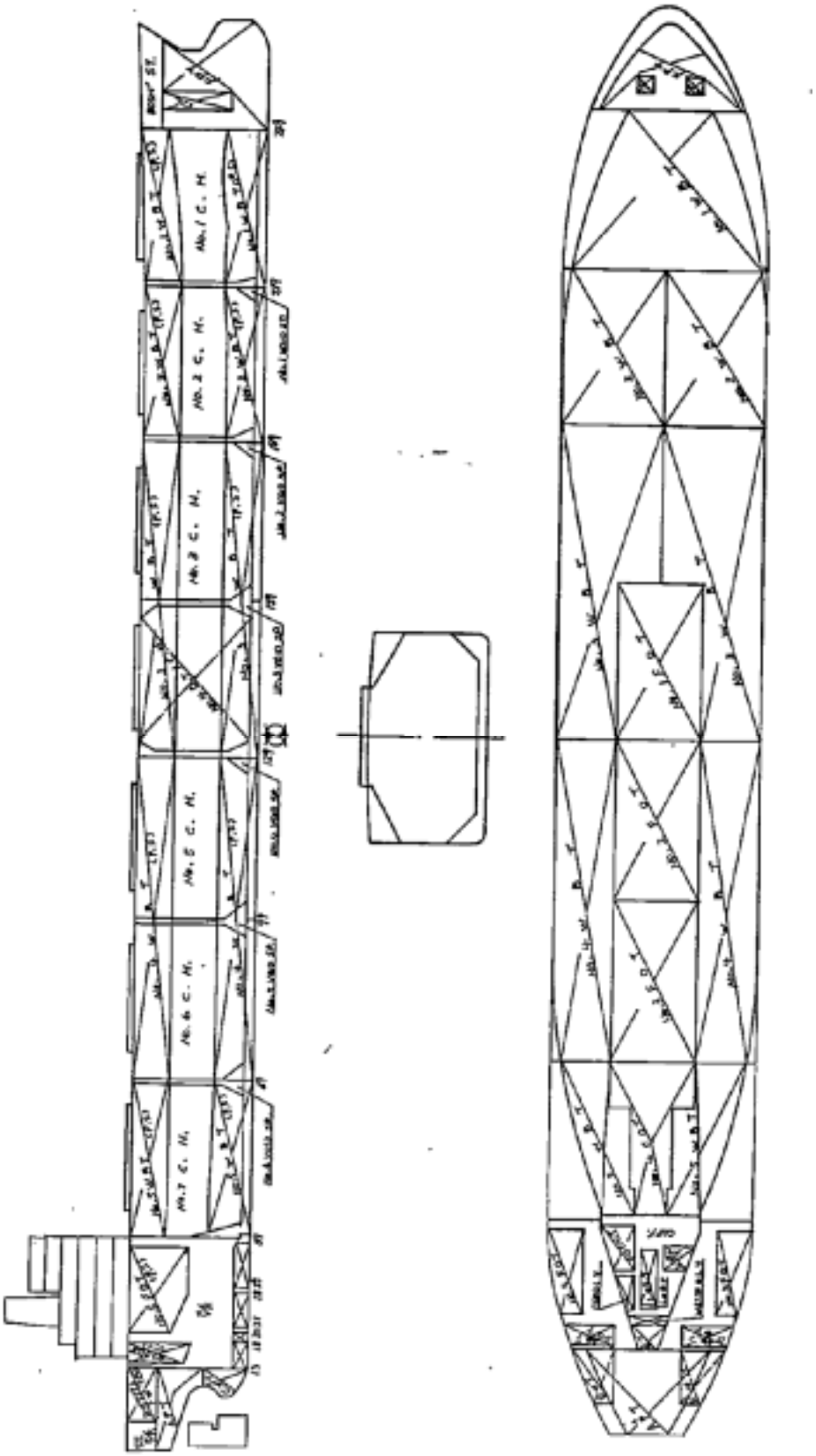
Spaces	Fr. No	Corrosion Protection (1)	Coating Extent (2)	Coating Condition (3)

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection; CS=clad steel; SS=stainless steel

2) U=upper part; M=middle part; L=lower part; C=complete

3) G=good; F=fair; P=poor, RC=recoated (during the last 3 years)

Hold & Tank Arrangement*~~/Hold & Tank List*~~(*: Delete as appropriate)



4 Conditions for survey

This section of the survey programme should provide information on the conditions for survey, e.g. information regarding cargo hold and tank cleaning, gas freeing, ventilation, lighting, etc.

4.1 The owner should provide the necessary facilities for a safe execution of the survey.

4.2 In order to enable the attending surveyors to carry out the survey, provisions for proper and safe access should be agreed between the owner and NK.

4.3 In cases where the provisions of safety and required access are judged by the attending surveyors not to be adequate, the survey of the spaces involved should not proceed.

4.4 Cargo holds, tanks and spaces are to be safe for access. Cargo holds, tanks and spaces should be gas free and properly ventilated. Prior to entering a tank, void or enclosed space, it should be verified that the atmosphere in that space is free from hazardous gas and contains sufficient oxygen.

4.5 Cargo holds, tanks and spaces should be sufficiently clean and free from water, scale, dirt, oil residues, sediments etc., to reveal corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating. In particular this applies to areas which are subject to thickness measurement.

4.6 Sufficient illumination should be provided to reveal significant corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

4.7 The attending surveyor(s) should always be accompanied by at least one responsible person assigned by the Company experienced in tank and enclosed spaces inspection. In addition a backup team of at least two experienced persons should be stationed at the hatch opening of the tank or space that is being surveyed. The back-up team should continuously observe the work in the tank or space and should keep lifesaving and evacuation equipment ready for use.

4.8 Where Soft Coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures, which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed.

4.9 A communication system is to be arranged between the survey party in the tank or space being examined, the responsible officer on deck and, as the case may be, the navigation bridge. The communication arrangements are to be maintained throughout the survey. This system should also include the personnel in charge of ballast pump handling if boats or rafts are used.

4.10 Survey at sea or at anchorage may be accepted provided the surveyor is given the necessary assistance from the personnel on board.

Complete cargo/ballast discharge to be confirmed by : *Chief Officer & Shipyard staff*

O2 content measurement and gas detection to be confirmed by : *Chief Officer & Shipyard staff*

Cleanliness in cargo holds/ballast tanks to be confirmed by : *Chief Officer & Shipyard staff*

5 Provisions and method of access to structures

This section of the survey programme should indicate any changes relating to (and should update) the information on the provisions and methods of access to structures provided in the Survey Planning Questionnaire.

Hold/Tank No.	Structure	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore Peak					
A.P.	Aft Peak					
Cargo Holds	Hatch side coamings					
	Topside sloping plate					
	Upper stool plating					
	Cross deck					
	Side shell, frames and brackets					
	Transverse bulkhead					
	Hopper tank platting					
	Lower stool					
	Tank top					
Topside Tanks	Underdeck structure					
	Side shell and structure					
	Sloping plate and structure					
	Webs and bulkheads					
Hopper Tanks	Hopper sloping plate and structure					
	Side shell and structure					
	Bottom structure					
	Webs and bulkheads					
	Double bottom structure					
	Upper stool internal structure					
	Lower stool internal structure					
Wing tanks of double Ore Carriers	Underdeck and structure					
	Side shell and structure					
	Side shell vertical web and structure					
	Longitudinal bulkhead and structure					
	Longitudinal bulkhead web and structure					
	Bottom plating and structure					
	Cross ties/stringers					

See Table SPQ1 of Survey Planning Questionnaire.

5.1 For overall survey, means should be provided to enable the surveyor to examine the structure in a safe and practical way.

5.2 For close-up surveys, one or more of the following means for access, acceptable to the surveyor, should be provided:

(1) For close-up surveys of the hull structure, other than cargo hold shell frames:

(a) Permanent staging and passages through structures

(b) Temporary staging and passages through structures

(c) Lifts and movable platforms

(d) Boats or rafts provided the structural capacity of the tank is sufficient to withstand static loads at all levels of water

(e) Portable ladders

(f) Other equivalent means

(2) For close-up surveys of the cargo hold shell frames of bulk carriers less than 100,000DWT:

(a) Permanent staging and passages through structures

(b) Temporary staging and passages through structures

(c) Portable ladder restricted to not more than 5m in length may be accepted for surveys of lower section of a shell frame including bracket

(d) Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms

(e) Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water

(f) Other equivalent means

(3) For close-up surveys of the cargo hold shell frames of bulk carriers of 100,000DWT or more:

(a) For Special survey No.1:

i) Permanent staging and passages through structures

ii) Temporary staging and passages through structures

iii) Hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms

iv) Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water

v) Other equivalent means

Notwithstanding the above, the use of a portable ladder fitted with a mechanical device to secure the upper end of the ladder is acceptable for the close-up survey of side frames at Annual surveys. However, it is not acceptable for the close-up survey of suspect area identified at the previous survey or the ongoing survey.

(b) For Subsequent Intermediate Surveys and Special surveys:

i) Permanent staging and passages through structures

ii) Temporary staging and passages through structures

iii) Hydraulic arm vehicles such as conventional cherry pickers for surveys of lower and middle part of side frames

iv) Lifts and movable platforms

v) Boats or rafts provided the structural capacity of the hold is sufficient to withstand static loads at all levels of water

vi) Other equivalent means

5.3 Surveys of tanks by means of boats or rafts may only be undertaken with the agreement of the surveyor, who should take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions.

5.4 When rafts or boats will be used for close-up survey conditions to keep safety and effectiveness should comply with the equivalent criteria for the cases on tankers.

6 List of equipment for survey

This section of the survey programme should identify and list the equipment that will be made available for carrying out the survey and the required thickness measurements.

The following safety equipment is available on board.

a) O_2 content meter / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : *Chief Officer, Annually calibrated by ashore Company*
b) Gas detector / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : *Chief Officer, Annually calibrated by ashore Company*
c) Portable Safety Light / No.: 6 sets of *explosive proof* type
d) Available breathing apparatus: 6 sets of *SCBA* type
e) Other safety equipment, if any: *Safety Helmet, Safety Shoes, Lifeline, Gloves Walkie talkie, etc.*

f) Are the other safety equipment also available at repair yard ? Yes / ~~No~~

7 Survey requirements

7.1 Overall survey

This section of the survey programme should identify and list the spaces that should undergo a overall survey in accordance with the requirements of the Rules.

See, Appendix 3.1 – Overall Survey Requirements

.1 Cargo Hold

All cargo holds

.2 Ballast Tank

All water ballast tanks

.3 Other Tanks/Spaces

All fuel oil tanks
All lubrication oil tanks
All fresh water tanks
Cofferdam
Engine Room
Void Spaces

7.2 Close-up survey

This section of the survey programme should identify and list the hull structures that should undergo a close up survey for the ship in accordance with the requirements of the Rules.

See, Appendix 3.2 – Close-up Survey Requirements

.1 Ballast tanks

Structural members	Tank
One web frame ring	N.A.
Half of web frame rings	N.A.
All web frame rings	No.1-5 Top side tanks, No.1-5 Bilge hopper tanks, FPT, APT
Both T.BHDs	N.A.
All T.BHDs	No.1-5 Top side tanks, No.1-5 Bilge hopper tanks, FPT, APT

.2 Cargo holds

Location	Hold
All hold frames with shell	*No.1-7 Cargo holds*
Lower part of one T.BHD	*N.A.*
All plates of T.BHDs	*No.1-7 Cargo holds*
Decks (cross deck)	*No.1-7 Cargo holds*
Hatch covers and coamings	*No.1-7 Cargo holds*

8 Identifications of tanks for tank testing

This section of the survey programme should identify and list the tanks that should undergo tank testing for the ship in accordance with the Rules.

See, Appendix 3.3 – Tank Testing Requirements

Ballast Tanks:	*All*
Deep Ballast Hold	*No.4 Cargo hold*
Fuel Oil Tanks:	*All*
Lubrication Oil Tanks:	*All*
Fresh Water Tanks:	*All*

9 Minimum thickness of hull structures

This section of the survey programme should specify the minimum thickness for hull structures of the ship that are subject to the Guidelines (indicate either (a) or preferably (b), if such information is available):

(a) ☒ Determined from the attached* wastage allowance table and the original thickness according to the hull structure plans of the ship;

(b) ☐ Given in the following table(s)

*: The wastage allowance tables should be attached to the survey programme.

See, Appendix 3.5 – The Wastage Allowance

10 Thickness measurement company

This section of the survey programme should identify changes, if any, relating to the information on the thickness measurement company provided in the Survey Planning Questionnaire.

No change of TM firm nominated in Survey Planning Questionnaire

11 Identification of areas and sections for thickness measurements

This section of the survey programme should identify the areas and sections where thickness measurements should be taken in accordance with the Rules.

See, Appendix 3.4 – Thickness Measurement Requirements

Location	TM requirements
Suspect area:	■Applicable ☐ Not Applicable
Structural members subject to close-up survey	***Sea paragraph 7.2***
Each deck plating outside line of cargo hatch openings	■ Applicable ☐ Not Applicable
All deck plating	☐ Applicable ■ Not Applicable
Each bottom plate	☐ Applicable ■ Not Applicable
Transverse section:	☐ 1 section, ■ 2 sections, ☐ 3 sections **Fr.130, Fr.195**
Selected wind and water strake outside cargo area	■ Applicable ☐ Not Applicable
Wind and water strakes in 2 transverse sections	☐ Applicable ■ Not Applicable
All wind and water strakes within cargo area	■ Applicable ☐ Not Applicable
All wind and water strakes full length	☐ Applicable ■ Not Applicable
Internals in FPT & APT	■ Applicable ☐ Not Applicable
All main deck plate outside of cargo length area	☐ Applicable ■ Not Applicable
Representative exposed superstructure deck plate	☐ Applicable ■ Not Applicable
All keel plates full length	☐ Applicable ■ Not Applicable
Additional bottom plates	☐ Applicable ■ Not Applicable
Others:	*Nil.*

12 Damage experience related to the ship

This section of the survey programme should, using the tables provided below, provide details of the hull damages for at least the last three years in way of the cargo and ballast tanks and void spaces within the cargo area. These damages are subject to survey.

Hull damages sorted by location for this ship

Cargo Hold, Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair

Hull damages for sister or similar ships (if available) in the case of design related damage

Cargo Hold, Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair
No.4 BHT(P)		Crack on the trans. web on hopper plate	Trans. web around slot	Renewed	2001 Jan.

13 Areas identified with substantial corrosion from previous surveys

This section of the survey programme should identify and list the areas of substantial corrosion from previous surveys.

Nil.

14 Critical structural areas and suspect areas

This section of the survey programme should identify and list the critical structural areas and the suspect areas, if such information is available.

Lower stool of trans.Bhd between No.3-4 C/H and No.4-5 C/H are assigned as suspect area due to substantial corrosion.

15 Other relevant comments and information

This section of the survey programme should provide any other comments and information relevant to the survey.

Nil.

Appendices

Appendix 1 - List of Plans

The Rules require that main structural plans of cargo and ballast tanks (scantling drawings), including information on regarding use of high tensile steel (HTS), to be available. This appendix of the survey programme should identify and list the main structural plans which form part of the survey programme.

Appendix 2 - Survey Planning Questionnaire

The Survey Planning Questionnaire, which has been submitted by the owner, should be appended to the survey programme.

Appendix 3 - Other documentation

This part of the survey programme should identify and list any other documentation that forms part of the survey programme.

.1 **Overall Survey Requirements**, as referred to Paragraph 7.1 "Overall survey" is attached to this survey programme.

.2 **Close-up Survey Requirements**, as referred to Paragraph 7.2 "Close-up survey" is attached to this survey programme.

.3 **Tank Testing Requirements**, as referred to Paragraph 8 "Identification of tanks for tank testing" is attached to this survey programme.

.4 **Thickness Measurement Requirements**, as referred to Paragraph 11 "Identification of areas and sections for thickness measurements" is attached to this survey programme.

.5 **The Wastage Allowance**, as referred to Paragraph 9 "Minimum thickness of hull structures" is attached to this survey programme.

Appendix 1 - List of Plans

1. **Basic ship information and particulars;**
   See, attached survey status

2. **Main structural plans of cargo holds and ballast tanks (scantling drawings), including information regarding use of high tensile steels (HTS);**
   - Midship Section and Typical Trans. BHD
   - Construction Profile & Decks
   - Shell Expansion (Fore & Aft)
   - Transverse Bulkheads
   - Forward Construction
   - Afterward Construction

3. **Arrangements of Tanks;**
   - General Arrangement

4. **List of tanks with information on their use, extent of coatings and corrosion protection systems;**
   See, paragraph 3 of SURVEY PROGRAMME.

5. **Conditions for survey (e.g. information regarding tank cleaning, gas freeing, ventilation, lighting, etc.);**
   See, paragraph 4 of SURVEY PROGRAMME.

6. **Provisions and methods for access to structures;**
   See, paragraph 5 of SURVEY PROGRAMME.

7. **Equipment for survey;**
   See, paragraph 6 of SURVEY PROGRAMME.

8. **Identification of tanks and areas for the close-up survey;**
   See, paragraph 7.2 of SURVEY PROGRAMME.

9. **Identification of areas and sections for thickness measurement;**
   See, paragraph 11 of SURVEY PROGRAMME.

10. **Identification of tanks for tank testing;**
    See, paragraph 8 of SURVEY PROGRAMME and General Arrangement.

11. **Identification of the thickness measurement company;**
    See, paragraph 10 of SURVEY PROGRAMME.

12. **Damage experience related to the ship in question; and**
    See, paragraph 12 of SURVEY PROGRAMME.

13. **Critical Structural and Suspect Areas, where relevant.**
    See, paragraph 14 of SURVEY PROGRAMME.

Appendix 2 - SURVEY PLANNING QUESTIONNAIRE

The following information will enable the owner in co-operation with ClassNK to develop a survey programme complying with the requirements of the Rules. It is essential that the owner provides, when completing the present questionnaire, up-to-date information. The present questionnaire, when completed, should provide all information and material required by the Rules.

Particulars

Ship's name	: *NK BULKER I*
IMO number	: *8888888*
Flag State	: *Panama*
Port of registry	: *Panama*
Owner	: *NK Shipping*
RO ship identity (Class Number)	: *899999*
Gross tonnage	: *37,000*
Deadweight (metric tonnes)	: *80,000*
Date of delivery	: *1 December 1989*

Information on access provision for close-up surveys and thickness measurement:

The owner should indicate, in the table below, the means of access to the structures subject to close-up survey and thickness measurement. A close-up survey is an examination where the details of structural components are within the close visual inspection range of the attending surveyor, i.e. preferably within reach of hand.

Table SPQ1

Hold/Tank No.	Structure	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore Peak	√		√		
A.P.	Aft Peak				√	
Cargo Holds	Hatch side coamings	√			√	
	Topside sloping plate					Cherry picker
	Upper stool plating					Cherry picker
	Cross deck					Cherry picker
	Side shell, frames and brackets	√				
	Transverse bulkhead	√				
	Hopper tank platting					
	Lower stool				√	
	Tank top				√	
Topside Tanks	Underdeck structure	√				
	Side shell and structure			√	√	
	Sloping plate and structure				√	
	Webs and bulkheads	√			√	
Hopper Tanks	Hopper sloping plate and structure	√			√	
	Side shell and structure	√			√	
	Bottom structure				√	
	Webs and bulkheads	√			√	
	Double bottom structure				√	
	Upper stool internal structure				√	
	Lower stool internal structure				√	
Wing tanks of double Ore Carriers	Underdeck and structure					
	Side shell and structure					
	Side shell vertical web and structure					
	Longitudinal bulkhead and structure					
	Longitudinal bulkhead web and structure					
	Bottom plating and structure					
	Cross ties/stringers					

Not applicable

Applicable access provisions are to be ticked.

History of bulk cargoes of corrosive nature (e.g. high sulphur content)
Carried SULPHUR UN 1350 in year 2002 or 2003

Owner's inspections

Using a format similar to that of the table below (which is given as an example), the owner should provide details of the results of their inspections, for the last 3 years on all cargo holds and ballast tanks and void spaces within the cargo area, including peak tanks.

Table SPQ2

Hold or Tank No.	Corrosion protection (1)	Coating extent (2)	Coating condition (3)	Structural deterioration (4)	Hold and Tank damage history (5)
Cargo holds					
No.1 C/H	HC	U, M	F	N	
No.2 C/H	HC	U, M	F	N	
No.3 C/H	HC	U, M	F	Y	
No.4 C/H	HC	U, M	P	Y	
No.5 C/H	HC	U, M	P	Y	
No.6 C/H	HC	U, M	F	Y	
No.7 C/H	HC	U, M	F	N	
Ballast tanks					
Aft peak	HC, A	C	G	N	
No.1 TST(P/S)	HC, A	C	F	N	
No.2 TST(P?S)	HC, A	C	F	N	
No.3 TST(P/S)	HC, A	C	F	Y	
No.4 TST(P/S)	HC, A	C	F	Y	
No.5 TST(P/S)	HC, A	C	F	Y	
No.1 BHT(P/S)	HC, A	C	F	Y	
No.2 BHT(P/S)	HC, A	C	F	N	
No.3 BHT(P/S)	HC, A	C	F	N	
No.4 BHT(P/S)	HC, A	C	F	N	DR
No.5 BHT(P/S)	HC, A	C	F	N	
Fore peak	HC, A	C	F, RC	Y	
Miscellaneous spaces					

Note: Indicate tanks which are used for oil/ballast

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection;
2) U=upper part; M=middle part; L=lower part; C=complete
3) G=good; F=fair; P=poor; RC=recoated (during the last 3 years)
4) N= no findings recorded; Y= findings recorded, description of findings is to be attached to the questionnaire
5) DR=damage & repair; L= Leakages; CV= Conversion (description should be attached to this questionnaire)

Name of owner's representative:

NK Shippng

Signature: *Alex N.K.*

Date: *10 October 2006*

Reports of Port State Control inspections

List the reports of Port State Control inspections containing hull structural related deficiencies and relevant information on the rectification of the deficiencies:
Nil.

Safety Management System

List non-conformities related to hull maintenance, including the associated corrective actions:
Nil.

Name and address of the approved thickness measurement company:

NK TM co.

Other information:

Nil.

Appendix 3.1 – Overall Survey Requirements

Overall survey requirements for Special Survey No.1
1. All cargo holds
2. All tanks and spaces adjacent to cargo holds (ballast tanks (see note 1), pipe tunnels, cofferdams and void spaces)
3. Water tanks (tanks used for fresh or sea water) except above 2
4. Fuel oil tanks other than those of double bottom (see note 2)
5. Cofferdam
6. Machinery spaces and other spaces

Overall survey requirements for Special Survey No.2
1. Tanks and spaces subject to an examination carried out at Special Survey No.1
2. Fuel oil tanks in double bottom (see note 3)

Overall survey requirements for Special Survey No.3
1. Tanks and spaces subject to an examination carried out at Special Survey No.2 (see note 4)
2. Lubrication oil tanks (see note 5)

Overall survey requirements for Special Survey No.4 and subsequent Special Surveys
1. Tanks and spaces subject to an examination carried out at Special Survey No.3 (see note 6)

Notes:

1 For ballast tanks where a protective coating is found in poor condition, and it is not renewed or where a protective coating has not been applied, an internal examination is to be carried out at annual intervals.

2 An internal examination of the deep fuel oil tanks except both peak tanks may be omitted provided the Surveyor is satisfied with the condition of tanks after the external examination of the tanks.

3 Fuel oil tanks excluding both peak tanks need not all examined internally, provided, after an external examination and from an internal examination of each one double bottom tank forward and aft and of one selected deep tank, including one or more tank located in cargo area, if fitted, the Surveyor is satisfied with the condition of the tanks.

4. Fuel oil tanks excluding both peak tanks need not all be examined internally, provided, after an external examination and from an internal examination of each one double bottom tank amidship, forward and aft and of a half numbers of deep tanks, including two or more tanks located in cargo area and one or more tank located in engine room, if fitted, the Surveyor is satisfied with the condition of the tanks.

5. Lubrication oil tanks need not be examined internally, provided, after an external examination, the Surveyor is satisfied with the condition of the tanks.

6. It is not allowed to dispense with the internal examination of fuel oil tanks and lubrication oil tanks for ships over 15 years of age

Appendix 3.2 – Close up Survey Requirements

Close-up survey requirements for Special Survey No.1
1. All shell frames in all cargo holds including their end attachments and adjacent shell plating (see note 1)
2. Two selected cargo hold transverse bulkheads and lower part of remaining transverse bulkheads (including stiffeners and girders) (see note 3)
3. One transverse web with associated plating and longitudinals in two representative ballast tanks of each type (topside or bilge hopper tank) (see note 2)
4. Air pipes and sounding pipes in cargo holds : in way of tank top

Close-up survey requirements for Special Survey No.2
1. All shell frames in all cargo holds including their end attachments and adjacent shell plating (see note 1)
2. All transverse bulkheads (including stiffeners and girders) in all cargo holds (see note 3)
3. About half of transverse webs with associated plating and longitudinals, and upper and lower parts of each bulkhead in a representative ballast tank of each type (topside or bilge hopper tank) (see note 2)
4. One transverse web with associated plating and longitudinals in each of the remaining ballast tanks (see note 2)
5. Both forward and aft transverse bulkheads (including stiffeners and girders) in one ballast tank (see note 2)
6. All deck plating and under deck structure inside line of hatch openings between cargo hold hatches (see note 4)
7. Structural members specified in 4. in the column of Special Survey No.1

Close-up survey requirements for Special Survey No.3
1. All shell frames in all cargo holds including their end attachments and adjacent shell plating (see note 1)
2. All transverse bulkheads (including stiffeners and girders) in all cargo holds (see note 3)
3. All transverse webs with associated plating and longitudinals and all transverse bulkheads (including stiffeners and girders) in each ballast tank (see note 2)
4. Structural members specified in 6. and 7. in the column of Special Survey No.2

Close-up survey requirements for Special Survey No.4 and subsequent Special Surveys
As Special Survey No.3

Notes: Abbreviations in above tables mean:

1 Cargo hold transverse frames, or stiffeners on side shell or longitudinal bulkhead in double side tanks

2 Transverse web frame ring or watertight transverse bulkhead in fore and aft peak, topside, bilge hopper and double side ballast tanks including adjacent structural members

3 Cargo hold transverse bulkheads plating, stiffeners and girders

4 Deck plating and under deck structure inside line of hatch openings between cargo hold hatches

Appendix 3.3 – Tank Testing Requirements

Tank testing requirements for Special Survey No.1
1. All boundaries of ballast tanks, deep tanks and cargo holds used for ballast within the cargo length area
2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo length area
3. All water tanks (see note 1)
4. All fuel oil tanks (see note 2)
5. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.2
As Special Survey No.3

Tank testing requirements for Special Survey No.3
1. All water tanks including cargo holds used for ballast
2. All fuel oil tanks (see note 4)
3. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.4 and subsequent Special Surveys
1. All water tanks including cargo holds used for ballast, all fuel oil tanks and all lubrication oil tanks

Notes:

1 Special consideration may be, however, given to limit testing of fresh water tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

2 Special consideration may be, however, given to limit testing of fuel oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

3 Special consideration may be, however, given to limit testing of lubrication oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

4 Special consideration may be, however, given to limit testing of double bottom tanks to representative tanks including one forward and one aft tank and of deep tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

Appendix 3.4 – Thickness Measurement (hereinafter, TM) Requirements

TM Requirements for Special Survey No.1
1. Suspect areas
2. For general assessment and recording of corrosion pattern (1) Lower parts of webs and lower end brackets of each three hold frames at a fore/middle/aft part of both sides in each cargo hold of single side skin (2) At least one plate of lowest strake of each transverse bulkhead (3) Other structural members subject to close-up survey

TM Requirements for Special Survey No.2
1. Suspect areas
2. Structural members within the cargo length area: (1) Two transverse sections of deck plating, outside line of cargo hatch openings (2) All deck plating, where log cargoes or other cargoes being prone to accelerate corrosion are loaded
3. For general assessment and recording of corrosion pattern: (1) All shell frames including their end brackets in the forward cargo hold of single side skin (2) Sufficient number (at least 1/4 of total number) of shell frames including their end brackets at a fore/middle/aft part of both sides in each remaining cargo hold of single side skin (3) Other structural members subject to close-up survey
4. Wind and water strakes in way of the transverse sections considered under the above 2.(1)
5. Selected wind and water strakes outside the cargo length area

TM Requirements for Special Survey No.3
1. Suspect areas
2. Structural members within the cargo length area: (1) Each deck plating outside line of cargo hatch openings (2) Two transverse sections, one in the amidship area, outside line of cargo hatch openings
3. For general assessment and recording of corrosion pattern: (1) All shell frames including their end brackets in the forward and one other selected cargo hold of single side skin (2) Sufficient number (at least 1/2 of total number) of shell frames including their end brackets at a fore/middle/aft part of both sides in each remaining cargo hold of single side skin (3) Other structural members subject to close-up survey
4. Internals in fore and aft. peak tank
5. All wind and water strakes within the cargo length area
6. Selected wind and water strakes outside the cargo length area

TM Requirements for Special Survey No.4 and subsequent Special Surveys
1. Suspect areas
2. Structural members within the cargo length area: (1) Each deck plating outside line of cargo hatch openings (2) Three transverse sections, one in the amidship area, outside line of cargo hatch openings (3) Each bottom plate
3. For general assessment and recording of corrosion pattern: (1) All shell frames including their end brackets in all cargo holds of single side skin (2) Other structural members subject to close-up survey
4. Internals in fore and after peak tanks
5. All exposed main deck plating outside the cargo length area
6. Representative exposed superstructure deck plating (poop, bridge and forecastle deck)
7. All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space, and aft end of tanks
8. Plating of sea chests. Shell plating in way of overboard discharges as deemed necessary by the Surveyor
9. All wind and water strakes

Notes:

1 The surveyor may extend the thickness measurements as deemed necessary.

2 Where substantial corrosion is found, the extent of thickness measurements should be increased accordingly.

3 Transverse sections are to be selected in consideration of (a), (b) and (c) below.

(a) One transverse section within 0.4L of the hull girder length and the other transverse section between 0.4L and 0.5L amidships are to be chosen.

(b) Transverse sections should be chosen such that thickness measurements can be taken for as many different tanks in corrosive environments as possible. Ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils and cargo tanks permitted to be filled with sea water should be selected where present.

(c) Transverse sections should be located where the largest thickness reductions are suspected to occur or are revealed from deck plating measurements and should be clear of areas which have been locally renewed or reinforced.

Appendix 3.5 - The Wastage Allowance

(1) Principal structural hull members

(i) The wastage allowance (diminution limits) for plates and stiffeners are shown in the following table.

(ii) The wastage allowance for longitudinal strength members given in the following table are based on the condition that the diminution limit of longitudinal strength of the hull has not been reached.

(iii) The values of the wastage allowance indicate limit values in case of uniform wear of members.

(iv) Notwithstanding the following table, the wastage allowance for local corrosion such as stress corrosion and pitting are to be decided at the discretion of the Surveyor. The standard diminution limit for local corrosion other than stress corrosion is to be taken as 40% of the original thickness.

(v) Notwithstanding the following table, the wastage allowance for the ships subject to the retroactive requirements for existing bulk carrier is to be assessed ship by ship.

Structural Member	Wastage Allowance
- Shell plates - Strength deck plates - Longitudinal beams (flat bar) on shear strake and strength deck - Tight bulkheads in deep tanks - Inner bottom plates	20% of original thickness + 1 mm
- Floors and girders in double bottom - Primary members (web & face) - Web, face and bracket of hold frames - Watertight bulkhead plates	25% of original thickness ***1**
- Web and face of frames (excluding hold frames), longls beams, stiffeners and brackets - Effective deck plates - Hatch cover and hatch beam	30% of original thickness ***2**

***1** For bulk carriers, the survey status of which has the Information "STRUCTURAL AND STABILITY REQUIREMENTS AGAINST FLOODING OF ALL CARGO HOLDS COMPLIED (in some cases, No.1 & 4 CARGO HOLD etc.)."(The ship complies with the requirements of **31A** in Part **C** of the Rules), the permissible diminution limit of corrugated bulkhead plates is to be 3.0 mm. When diminution is within range 2.5 – 3.0 mm, coating or annual gauging is required.

***2** For bulk carriers, building contract date of which is after 1st July 1998, the permissible diminution of the hatch covers located forward of 0.25L from the forward end of L is to be 1.5 mm. When diminution is within range 1.0 – 1.5 mm, coating or annual gauging is required.
Further, when the plate of double plating type hatch cover is renewed, the surveyor needs to request the gauging of internal members, permissible diminution of which is to be 1.5 mm.

(2) Minimum thickness for high tensile steel members

If high-tensile steel is used in bottom longitudinals of tankers with a single bottom construction, the wear and tear limit of the web is taken as 25% of the original thickness. If high-tensile steel is used in other structural members, the wear and tear limit is to be in accordance with (1) and (2) above.

(3) Measure against corrosion

When remarkable corrosion is found in the results of thickness measurement, the Surveyor should examine the pattern and extent of the corrosion through intensive inspection or thickness measurement and take a necessary measure such as (i) & (ii) below. Where *substantial corrosion* is found, the additional thickness measurement is required. ***Substantial corrosion*** **is an extent of corrosion such that assessment of corrosion pattern indicates a wastage in excess of 75% of allowable margins, but within acceptable limits.**

(i) Corrosion exceeding acceptable limit

The Surveyor should require repair such as renewal of the corroded plate exceeding acceptable limit. However, special consideration may be given for structural members whose actual scantling surpasses much the Rule requirements.

(ii) *Substantial corrosion*

Necessary instruction for further inspection of corrosion which does not exceed acceptable limit, but where continuous monitoring is deemed necessary should be given. S*ubstantial corrosion* in excess of 75% of allowable margin is to be nominated as *suspect area* and thickness measurement and necessary inspections of the area is to be carried out at subsequent Intermediate Survey.

ClassNK

SURVEY PROGRAMME for Single Hull Tankers

Basic Information and Particulars

Name of Ship	:	**NK TANKER I**
IMO Number	:	8599999
Flag State	:	Japan
Port of Registry	:	Tokyo
Gross Tonnage	:	150,000
Deadweight (metric tonnes)	:	250,000
Length between perpendiculars (m)	:	300.00
Shipbuilder	:	NK Shipbuilding Co., Ltd.
Hull number	:	1000
Recognized Organization (RO)	:	Nippon Kaiji Kyokai
RO Ship Identity (Class Number)	:	900999
Date of delivery of the ship	:	1 July 1990
Owner	:	NK Management Co., Ltd.
Thickness Measurement Firm	:	NK Gauging Co., Ltd.

Prepared by the owner in co-operation with the Classification Society.

Date : 1 January 2007

Taro Kaiji

(Taro Kaiji)

(name and signature of authorized owner's representative)

Date :

( )

Surveyor to Nippon Kaiji Kyokai

Branch/Office

1 Preamble

1.1 Scope

1.1.1 The present Survey Programme covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo area, ballast tanks, including fore and aft peak tanks, required by the NK Rules.

1.1.2 The arrangements and safety aspects of the survey should be acceptable to the attending surveyor(s).

1.2 Documentation

All documents used in the development of the survey programme should be available onboard during the survey.

2 Arrangement of Tanks and Spaces

This section of the survey programme should provide information (either in the form of plans or text) on the arrangement of tanks and spaces that fall within the scope of the survey.

Tank Arrangement*/~~Tank List*~~, which is attached to next page is to be referred.

(*: Delete as appropriate)

3. List of tanks with information on their use, extent of coatings and corrosion protection system

This section of the survey programme should indicate any changes relating to (and should update) the information on the use of the tanks of the ship, the extent of coatings and the corrosion protective system provided in the Survey Planning Questionnaire.

Spaces	Fr. No	Corrosion Protection (1)	Coating Extent (2)	Coating Condition (3)

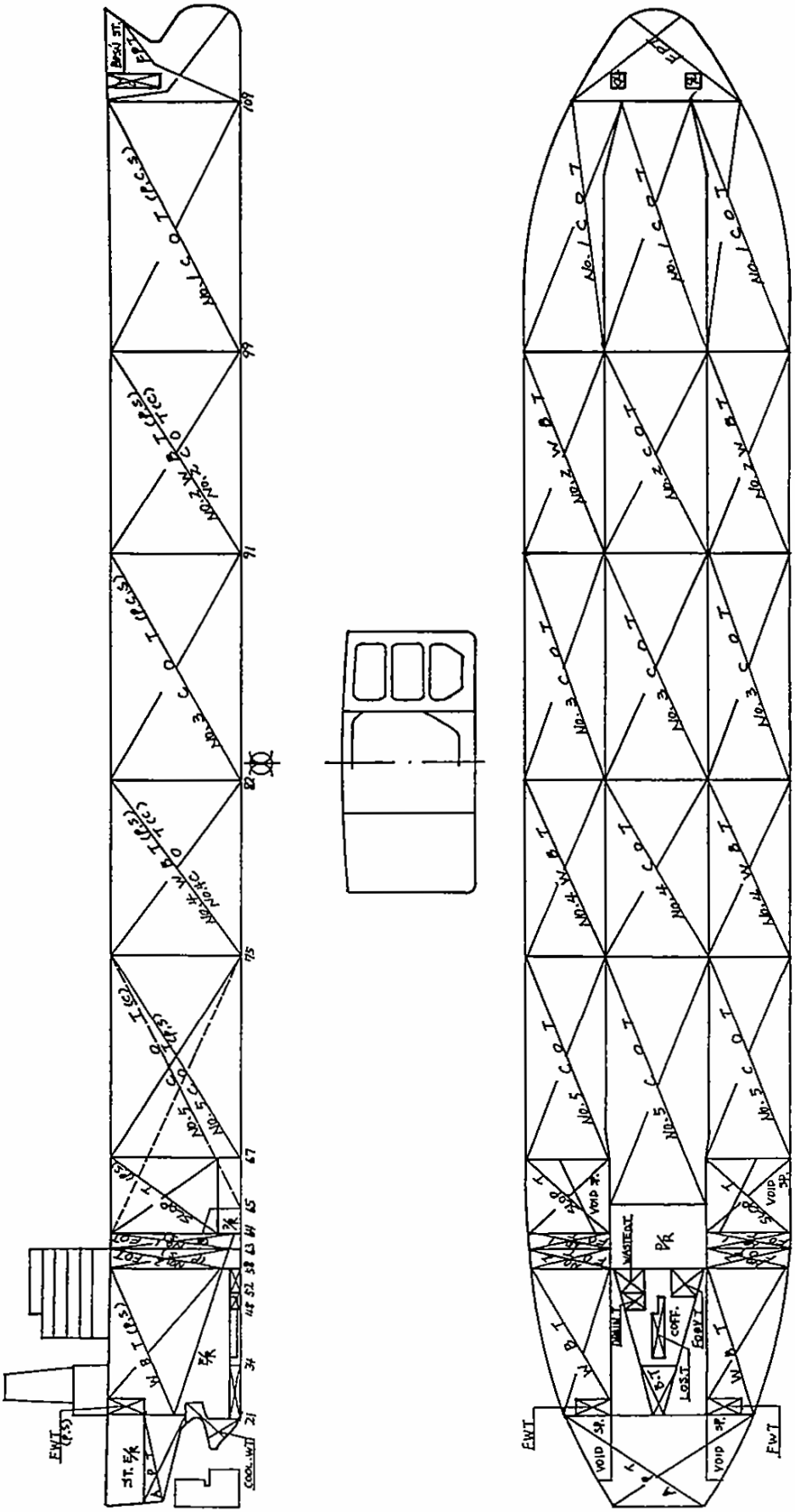
See Table SPQ2 of Survey Planning Questionnaire.

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection; CS=clad steel; SS=stainless steel

2) U=upper part; M=middle part; L=lower part; C=complete

3) G=good; F=fair; P=poor, RC=recoated (during the last 3 years)

Tank Arrangement*/~~Tank List~~* (*: Delete as appropriate)



4 Conditions for survey

This section of the survey programme should provide information on the conditions for survey, e.g. information regarding cargo hold and tank cleaning, gas freeing, ventilation, lighting, etc.

4.1 The owner should provide the necessary facilities for a safe execution of the survey.

4.2 In order to enable the attending surveyors to carry out the survey, provisions for proper and safe access should be agreed between the owner and NK.

4.3 In cases where the provisions of safety and required access are judged by the attending surveyors not to be adequate, the survey of the spaces involved should not proceed.

4.4 Tanks and spaces are to be safe for access. Tanks and spaces should be gas free and properly ventilated. Prior to entering a tank, void or enclosed space, it should be verified that the atmosphere in that space is free from hazardous gas and contains sufficient oxygen.

4.5 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces should be cleaned including removal from surfaces of all loose accumulated corrosion scale. Spaces should be sufficiently clean and free from water, scale, dirt, oil residues etc. to reveal corrosion, deformation, fractures, damages, or other structural deterioration as well as the condition of the coating. However, those areas of structure whose renewal has already been decided by the owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed.

4.6 Sufficient illumination should be provided to reveal significant corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

4.7 The attending surveyor(s) should always be accompanied by at least one responsible person assigned by the Company experienced in tank and enclosed spaces inspection. In addition a backup team of at least two experienced persons should be stationed at the hatch opening of the tank or space that is being surveyed. The back-up team should continuously observe the work in the tank or space and should keep lifesaving and evacuation equipment ready for use.

4.8 Where Soft Coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures, which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed.

4.9 A communication system is to be arranged between the survey party in the tank or space being examined, the responsible officer on deck and, as the case may be, the navigation bridge. The communication arrangements are to be maintained throughout the survey. This system should also include the personnel in charge of ballast pump handling if boats or rafts are used.

4.10 Survey at sea or at anchorage may be accepted provided the surveyor is given the necessary assistance from the personnel on board.

Complete cargo/ballast discharge to be confirmed by : Chief Officer

O2 content measurement and gas detection to be confirmed by : Chief Officer

Cleanliness in cargo/ballast tanks to be confirmed by : Chief Officer

Cargo Tank Cleaning Procedures

Indicate the frequency of the tank washing, especially uncoated tanks:

- After cargo discharging
- Before dry docking

Washing medium used :

- Crude oil : Yes
- Heated seawater : Yes
- Other medium (specify) : Cold sea water

Inert Gas System installed : Yes / ~~No~~

- Details of inert gas plant : Exhaust gas type
- Indicate average oxygen content during inerting : less than 5 %

Reference are made to

- *IACS Recommendation 39 - Guidelines for the use of Boats or Rafts for Close-up surveys; and,*
- *Chapter 10 of the International Safety Guide for Oil Tankers and Terminals (ISGOTT) - Entry into and working in enclosed spaces.*

5 Provisions and method of access to structures

This section of the survey programme should indicate any changes relating to (and should update) the information on the provisions and methods of access to structures provided in the Survey Planning Questionnaire.

Tank No.	Structure	C (Cargo) / B (Ballast)	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore peak						
A.P.	Aft peak						
Wing Tanks	Under deck						
	Side shell						
	Bottom transverse						
	Longitudinal						
	Transverse						
Centre Tanks	Under deck						
	Bottom transverse						
	Transverse						

See Table SPQ1 of Survey Planning Questionnaire.

5.1 For overall survey, means should be provided to enable the surveyor to examine the structure in a safe and practical way.

5.2 For close-up surveys, one or more of the following means for access, acceptable to the surveyor, should be provided:

.1 Permanent staging and passages through structures;

.2 Temporary staging and passages through structures;

.3 Lifts and moveable platforms;

.4 Boats or rafts;

.5 Portable ladders;

.6 Other equivalent means.

5.3 Surveys of tanks by means of boats or rafts may only be undertaken with the agreement of the surveyor, who should take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions.

5.4 When rafts or boats will be used for close-up survey the following conditions should be observed:

.1 Only rough duty, inflatable rafts or boats, having satisfactory residual buoyancy and stability even if one chamber is ruptured, should be used;

.2 The boat or raft should be tethered to the access ladder and an additional person should be stationed down the access ladder with a clear view of the boat or raft;

.3 Appropriate lifejackets should be available for all participants;

.4 The surface of water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed 0.25 m) and the water level either stationary or falling. On no account should the level of the water be rising while the boat or raft is in use;

.5 The tank or space must contain clean ballast water only. Even a thin sheen of oil on the water is not acceptable;

.6 At no time should the water level be allowed to be within 1 m of the deepest under deck web face flat so that the survey team is not isolated from a direct escape route to the tank hatch. Filling to levels above the deck transverses should only be contemplated if a deck access manhole is fitted and open in the bay being examined, so that an escape route for the survey party is available at all times. Other effective means of escape to the deck may be considered;

.7 If the tanks (or spaces) are connected by a common venting system, or Inert Gas system, the tank in which the boat or raft should be used should be isolated to prevent a transfer of gas from other tanks (or spaces).

5.5 Rafts or boats alone may be allowed for inspection of the under deck areas for tanks or spaces if the depth of the webs is 1.5 m or less.

5.6 If the depth of the webs is more than 1.5 m, rafts or boats alone may be allowed only:

.1 When the coating of the under deck structure is in GOOD condition and there is no evidence of wastage; or

.2 If a permanent means of access is provided in each bay to allow safe entry and exit. This means of access should be direct from the deck via a vertical ladder with a small platform fitted approximately 2 m below the deck. Other effective means of escape to the deck may be considered.

If neither of the above conditions are met, then staging or other equivalent means should be provided for the survey of the under deck areas.

5.7 The use of rafts or boats alone in 5.5 and 5.6 does not preclude the use of boats or rafts to move about within a tank during a survey.

6 List of equipment for survey

This section of the survey programme should identify and list the equipment that will be made available for carrying out the survey and the required thickness measurements.

The following safety equipment is available on board.

a) O_2 content meter / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : Chief Officer, Annually calibrated by ashore Company
b) Gas detector / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : Chief Officer, Annually calibrated by ashore Company
c) Portable Safety Light / No.: 6 sets of explosive proof type
d) Available breathing apparatus: 6 sets of SCBA type
e) Other safety equipment, if any: Safety Helmet, Safety Shoes, Lifeline, Gloves
Walkie talkie, etc.

f) Are the other safety equipment also available at repair yard ? Yes / ~~No~~

7 Survey requirements

7.1 Overall survey

This section of the survey programme should identify and list the spaces that should undergo a overall survey in accordance with the requirements of the Rules.

See, Appendix 3.1 – Overall Survey Requirements

.1 Cargo Tank

All cargo oil tanks

.2 Ballast Tank

All water ballast tanks

.3 Other Tanks/Spaces

All fuel oil tanks
All lubrication oil tanks
All fresh water tanks
Cofferdam
Pump room
Engine room
Steering gear room
Void spaces

7.2 Close-up survey

This section of the survey programme should identify and list the hull structures that should undergo a close up survey for the ship in accordance with the requirements of the Rules.

See, Appendix 3.2 – Close-up Survey Requirements

.1 Ballast wing tanks

Structural members	Tank(s)
One web frame ring*	N.A.
All web frame rings*	No.2 & 4 (P/S)
One deck transverse	N.A.
Lower part of one T.BHD	N.A.
Both T.BHDs	N.A.
All T.BHDs	No.2 & 4 (P/S)

*: In way of ballast wing tank, if any, or a cargo tank used primarily for water ballast within cargo area.

.2 Ballast center tanks

Structural members	Tank(s)
All web frame rings	N.A.
One deck transverse	N.A.
Lower part of one T.BHD	N.A.
All T.BHDs	N.A.

.3 Cargo wing tanks

Structural members	Tank(s)
All web frame rings	No.3 (P)
Min. 30% of web frame rings	No.1, 5 & Slop Tank (P/S) and No.3 (S)
One deck transverse	N.A.
Lower part of one T.BHD	N.A.
All T.BHDs	No.1, 3 & 5 (P/S)

.4 Cargo center tanks

Structural members	Tank(s)
One deck transverse	N.A.
Min. 30% of deck transverse	No.1, 2, 3, 4 & 5
Min. 30% of bottom transverse	Ditto
Lower part of one T.BHD	N.A.
All T.BHDs	No.1, 2, 3, 4 & 5

8 Identifications of tanks for tank testing

This section of the survey programme should identify and list the tanks that should undergo tank testing for the ship in accordance with the Rules.

See, Appendix 3.3 – Tank Testing Requirements

Cargo Tanks:	All
Ballast Tanks:	All
Fuel Oil Tanks:	All
Lubrication Oil Tanks:	All
Fresh Water Tanks:	All

9 Minimum thickness of hull structures

This section of the survey programme should specify the minimum thickness for hull structures of the ship that are subject to the Guidelines (indicate either (a) or preferably (b), if such information is available):

(a) ☒ Determined from the attached* wastage allowance table and the original thickness according to the hull structure plans of the ship;

(b) ☐ Given in the following table(s)

*: The wastage allowance tables should be attached to the survey programme.

See, Appendix 3.5 – The Wastage Allowance

10 Thickness measurement company

This section of the survey programme should identify changes, if any, relating to the information on the thickness measurement company provided in the Survey Planning Questionnaire.

No change of TM firm nominated in Survey Planning Questionnaire

11 Identification of areas and sections for thickness measurements

This section of the survey programme should identify the areas and sections where thickness measurements should be taken in accordance with the Rules.

See, Appendix 3.4 – Thickness Measurement Requirements

Location	TM requirements
Suspect area:	■ Applicable ☐ Not Applicable See paragraph 14
Structural members subject to close-up survey	***See paragraph 7.2***
Each deck plating in one transverse section*	☐ Applicable ■ Not Applicable
Each deck plate	■ Applicable ☐ Not Applicable
Each bottom plate	■ Applicable ☐ Not Applicable
Transverse section:	☐ 1 section, ■ 2 sections, ☐ 3 sections Fr.No.80 & 93
Selected wind and water strake outside cargo area	■ Applicable ☐ Not Applicable
All wind and water strakes within cargo area	■ Applicable ☐ Not Applicable
All wind and water strakes full length	☐ Applicable ■ Not Applicable
Internals in FPT & APT	■ Applicable ☐ Not Applicable
Expose main deck plate outside of cargo area	☐ Applicable ■ Not Applicable
Representative exposed superstructure deck plate	☐ Applicable ■ Not Applicable
All keel plates full length	☐ Applicable ■ Not Applicable
Additional bottom plates	☐ Applicable ■ Not Applicable
Others:	Cargo piping on Upper Deck

*: In way of ballast tank, if any, or a cargo tank used primarily for water ballast within cargo area.

12 Damage experience related to the ship

This section of the survey programme should, using the tables provided below, provide details of the hull damages for at least the last three years in way of the cargo and ballast tanks and void spaces within the cargo area. These damages are subject to survey.

Hull damages sorted by location for this ship

Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair

See the attached Survey Records for the last 3 years.

Hull damages for sister or similar ships (if available) in the case of design related damage

Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair
No.2 WBT(P/S) and No.3 COT(S)		Crack in horizontal stiffener on T.Bhd at toe end of bracket for side longl.	Horizontal Stiffener	Renewed	Year 2003 or later
No.3 COT(P)		Crack in side longl. around toe end of bracket on T.BHD	Side longl.	Renewed	Year 2003 or later

13 Areas identified with substantial corrosion from previous surveys

This section of the survey programme should identify and list the areas of substantial corrosion from previous surveys.

Nil.

14 Critical structural areas and suspect areas

This section of the survey programme should identify and list the critical structural areas and the suspect areas, if such information is available.

Forward parts of upper deck plating around Bos'n Store are nominated as suspect area due to heavy corrosion.

15 Other relevant comments and information

This section of the survey programme should provide any other comments and information relevant to the survey.

Internal examination in way of FPT is to be carried out at annual intervals due to poor condition of coating.

Appendices

Appendix 1 - List of Plans

The Rules require that main structural plans of cargo and ballast tanks (scantling drawings), including information on regarding use of high tensile steel (HTS), to be available. This appendix of the survey programme should identify and list the main structural plans which form part of the survey programme.

Appendix 2 - Survey Planning Questionnaire

The Survey Planning Questionnaire, which has been submitted by the owner, should be appended to the survey programme.

Appendix 3 - Other documentation

This part of the survey programme should identify and list any other documentation that forms part of the survey programme.

.1 **Overall Survey Requirements**, as referred to Paragraph 7.1 “Overall survey” is attached to this survey programmne.

.2 **Close-up Survey Requirements**, as referred to Paragraph 7.2 “Close-up survey” is attached to this survey programmne.

.3 **Tank Testing Requirements**, as referred to Paragraph 8 “Identification of tanks for tank testing” is attached to this survey programmne.

.4 **Thickness Measurement Requirements**, as referred to Paragraph 11 “Identification of areas and sections for thickness measurements” is attached to this survey programmne.

.5 **The Wastage Allowance**, as referred to Paragraph 9 “Minimum thickness of hull structures” is attached to this survey programmne.

Appendix 1 - List of Plans

1. **Basic ship information and particulars;**
   See, attached survey status

2. **Main structural plans of cargo and ballast tanks (scantling drawings), including information regarding use of high tensile steels (HTS);**
   - Midship Section and Typical Trans. BHD
   - Construction Profile & Decks
   - Shell Expansion (Fore & Aft)
   - Transverse Bulkheads
   - Forward Construction
   - Afterward Construction

3. **Arrangements of Tanks;**
   - General Arrangement

4. **List of tanks with information on their use, extent of coatings and corrosion protection systems;**
   See, paragraph 3 of SURVEY PROGRAMME.

5. **Conditions for survey (e.g. information regarding tank cleaning, gas freeing, ventilation, lighting, etc.);**
   See, paragraph 4 of SURVEY PROGRAMME.

6. **Provisions and methods for access to structures;**
   See, paragraph 5 of SURVEY PROGRAMME.

7. **Equipment for survey;**
   See, paragraph 6 of SURVEY PROGRAMME.

8. **Identification of tanks and areas for the close-up survey;**
   See, paragraph 7.2 of SURVEY PROGRAMME.

9. **Identification of areas and sections for thickness measurement;**
   See, paragraph 11 of SURVEY PROGRAMME.

10. **Identification of tanks for tank testing;**
    See, paragraph 8 of SURVEY PROGRAMME and General Arrangement.

11. **Identification of the thickness measurement company;**
    See, paragraph 10 of SURVEY PROGRAMME.

12. **Damage experience related to the ship in question; and**
    See, paragraph 12 of SURVEY PROGRAMME.

13. **Critical Structural and Suspect Areas, where relevant.**
    See, paragraph 14 of SURVEY PROGRAMME.

ClassNK

Appendix 2 - SURVEY PLANNING QUESTIONNAIRE

The following information will enable the owner in co-operation with ClassNK to develop a survey programme complying with the requirements of the Rules. It is essential that the owner provides, when completing the present questionnaire, up-to-date information. The present questionnaire, when completed, should provide all information and material required by the Rules.

Particulars

Ship's name	: NK TANKER I
IMO number	: 8599999
Flag State	: Japan
Port of registry	: Tokyo
Owner	: NK Management Co., Ltd.
RO ship identity (Class Number)	: 900999
Gross tonnage	: 150,000
Deadweight (metric tonnes)	: 250,000
Date of delivery	: 1 July 1990

Information on access provision for close-up surveys and thickness measurement:

The owner should indicate, in the table below, the means of access to the structures subject to close-up survey and thickness measurement. A close-up survey is an examination where the details of structural components are within the close visual inspection range of the attending surveyor, i.e. preferably within reach of hand.

Table SPQ1

Tank No.	Structure	C (Cargo) / B (Ballast)	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore peak	B		√		√	
A.P.	Aft peak	B			√	√	
Wing Tanks	Under deck	C/B		√			
	Side shell	C/B		√			
	Bottom transverse	C/B		√		√	
	Longitudinal	C/B		√			
	Transverse	C/B		√			
Centre Tanks	Under deck	C		√			
	Bottom transverse	C		√		√	
	Transverse	C		√			

Applicable access provisions are to be ticked.

History of cargo with H_2S content or heated cargo for the last 3 years together with indication as to whether cargo was heated and, where available, Marine Safety Data Sheets (MSDS)*
Crude oil (no heated)

** Refer to resolution MSC.150(77) on Recommendation for material safety data sheets fro MARPOL Annex I cargoes and marine fuel oils.*

Ballast history for the last 3 years
Ballasting around Japan and de-ballasting around Persian Gulf

Owner's inspections

Using a format similar to that of the table below (which is given as an example), the owner should provide details of the results of their inspections, for the last 3 years on all cargo and ballast tanks and void spaces within the cargo area, including peak tanks.

Table SPQ2

Tank No.	Corrosion protection (1)	Coating extent (2)	Coating condition (3)	Structural deterioration (4)	Tank damage history (5)
No.1 COT (C)	HC	U, B	G	N	
No.2 COT (C)	HC	U, B	G	N	
No.3 COT (C)	HC	U, B	G	N	
No.4 COT (C)	HC	U, B	G	N	
No.5 COT (C)	HC	U, B	G	N	
No.1 COT (P)	HC	U, B	G	N	
No.1 COT (S)	HC	U, B	G	N	
No.3 COT (P)	HC	U, B	G	N	DR
No.3 COT (S)	HC	U, B	G	N	DR
No.5 COT (P)	HC	U, B	G	N	
No.5 COT (S)	HC	U, B	G	N	
Slop Tank (P)	HC	C	G	N	
Slop Tank (S)	HC	C	G	N	
FPT	HC, A	C	P	N	DR
No.2 WBT (P)	HC, A	C	F	N	DR
No.2 WBT (S)	HC, A	C	F	N	DR
No.4 WBT (P)	HC, A	C	F	N	DR
No.4 WBT (S)	HC, A	C	F	N	DR
Aft WBT (P)	HC, A	C	G	N	
Aft WBT (S)	HC, A	C	G	N	
APT	HC, A	C	G	N	
Void Space (P)	HC	C	G	N	
Void Space (S)	HC	C	G	N	

Note: Indicate tanks which are used for oil/ballast

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection; SS=stainless steel
2) U=upper part; M=middle part; L=lower part; C=complete
3) G=good; F=fair; P=poor; RC=recoated (during the last 3 years)
4) N= no findings recorded; Y= findings recorded, description of findings is to be attached to the questionnaire
5) DR=damage & repair; L= Leakages; CV= Conversion (description should be attached to this questionnaire)

Name of owner's representative:

NK Management CO., Ltd.

Signature: Taro Kaiji *Taro Kaiji*

Date: 15 December 2006

Reports of Port State Control inspections

List the reports of Port State Control inspections containing hull structural related deficiencies and relevant information on the rectification of the deficiencies:
Nil.

Safety Management System

List non-conformities related to hull maintenance, including the associated corrective actions:
Nil.

Name and address of the approved thickness measurement company:

Name: NK Gauging Co., Ltd.
Address: 4-7, Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan

Other information:

Nil.

Appendix 3.1 – Overall Survey Requirements

Overall survey requirements for Special Survey No.1
1. All cargo tanks
2. All tanks and spaces adjacent to cargo tanks (ballast tanks (see note 1), pump rooms, pipe tunnels, cofferdams and void spaces)
3. Water tanks (tanks used for fresh or sea water) except above 2
4. Fuel oil tanks other than those of double bottom (see note 2)
5. Cofferdam
6. Machinery spaces and other spaces

Overall survey requirements for Special Survey No.2
1. Tanks and spaces subject to an examination carried out at Special Survey No.1
2. Fuel oil tanks in double bottom (see note 3)

Overall survey requirements for Special Survey No.3
1. Tanks and spaces subject to an examination carried out at Special Survey No.2 (see note 4)
2. Lubrication oil tanks (see note 5)

Overall survey requirements for Special Survey No.4 and subsequent Special Surveys
1. Tanks and spaces subject to an examination carried out at Special Survey No.3 (see note 6)

Notes:

1 For ballast tanks where a protective coating is found in poor condition, and it is not renewed or where a protective coating has not been applied, an internal examination is to be carried out at annual intervals.

2 An internal examination of the deep fuel oil tanks except both peak tanks may be omitted provided the Surveyor is satisfied with the condition of tanks after the external examination of the tanks.

3 Fuel oil tanks excluding both peak tanks need not all examined internally, provided, after an external examination and from an internal examination of each one double bottom tank forward and aft and of one selected deep tank, including one or more tank located in cargo area, if fitted, the Surveyor is satisfied with the condition of the tanks.

4. Fuel oil tanks excluding both peak tanks need not all be examined internally, provided, after an external examination and from an internal examination of each one double bottom tank amidship, forward and aft and of a half numbers of deep tanks, including two or more tanks located in cargo area and one or more tank located in engine room, if fitted, the Surveyor is satisfied with the condition of the tanks.

5. Lubrication oil tanks need not be examined internally, provided, after an external examination, the Surveyor is satisfied with the condition of the tanks.

6. It is not allowed to dispense with the internal examination of fuel oil tanks and lubrication oil tanks for ships over 15 years of age

Appendix 3.2 – Close up Survey Requirements

Close-up survey requirements for Special Survey No.1
1. One web frame ring - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast (see note 1)
2. One deck transverse - in a cargo tank or on deck (see note 2)
3. The lower part of one transverse bulkhead - in a ballast tank (see note 3)
4. The lower part of one transverse bulkhead - in a cargo wing tank (see note 3)
5. The lower part of one transverse bulkhead - in a cargo center tank (see note 3)

Close-up survey requirements for Special Survey No.2
1. All web frame rings - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast (see note 1)
2. One deck transverse - in or on each of the remaining ballast tanks, if any (see note 2)
3. One deck transverse - in or on two cargo wing tanks (see note 2)
4. One deck transverse - in or on two cargo center tanks (see note 2)
5. Both transverse bulkheads - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast (see note 3)
6. The lower part of one transverse bulkhead - in each remaining ballast tank (see note 3)
7. The lower part of one transverse bulkhead - in a cargo wing tank (see note 3)
8. The lower part of one transverse bulkhead - in two cargo center tanks (see note 3)

Close-up survey requirements for Special Survey No.3
1. All web frame rings - in all ballast tanks (see note 1)
2. All web frame rings - in a cargo wing tank (see note 1)
3. A minimum of 30 % of all web frame rings - in each remaining cargo wing tank (see note 1)
4. All transverse bulkheads - in all cargo and ballast tanks (see note 3)
5. A minimum of 30 % of the deck and bottom transverses - in each cargo center tank (see note 4)
6. As considered necessary by the surveyor

Close-up survey requirements for Special Survey No.4 and subsequent Special Surveys
1. As Special Survey No.3
2. Additional transverses included as deemed necessary by the surveyor

Notes: Abbreviations in above tables mean:

1 Cross ties and complete trans. web frame ring including adjacent structural members such as shell plating longitudinal bulkhead, longitudinal stiffeners, brackets, etc.

2 Deck trans. including adjacent deck structural members such as deck plating, longitudinal stiffeners, brackets, etc.

3 Trans. bulkhead including vertical and horizontal girders and adjacent structural members (such as longitudinal bulkhead, inner bottom/hopper plating, bottom girders brackets, stiffeners, etc.) and internal structure of lower and upper stools, where fitted

4 Deck and bottom trans. including adjacent structural members such as deck/bottom plating, longitudinal stiffeners, etc.

5 The 30 % is to be rounded up to the next whole integer

Appendix 3.3 – Tank Testing Requirements

Tank testing requirements for Special Survey No.1
1. Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, fuel oil tanks, pump rooms or cofferdams
2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo area
3. All water tanks (see note 1)
4. All fuel oil tanks (see note 2)
5. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.2
1. All cargo tanks bulkheads
2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo area
3. All water tanks (see note 1)
4. All fuel oil tanks (see note 2)
5. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.3
1. All cargo tanks bulkheads
2. All water tanks
3. All fuel oil tanks (see note 2)
4. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.4 and subsequent Special Surveys
1. All cargo tanks bulkheads
2. All water tanks, all fuel tanks and all lubrication oil tanks

Notes:

1 Special consideration may be, however, given to limit testing of fresh water tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

2 Special consideration may be, however, given to limit testing of fuel oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

3 Special consideration may be, however, given to limit testing of lubrication oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

Appendix 3.4 – Thickness Measurement (hereinafter, TM) Requirements

TM Requirements for Special Survey No.1
1. Suspect areas
2. Each deck plating in one transverse section in way of ballast tank, if any, or a cargo tank used primarily for water ballast within the cargo area
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.2
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 One transverse section
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Selected wind and water strakes outside cargo area
5. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.3
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 Two transverse sections
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Selected wind and water strakes outside cargo area
5. All wind and water strakes within cargo area
6. Internals in fore peak tank and aft peak tank
7. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.4 and subsequent Special Surveys
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 Three transverse sections .3 Each bottom plate
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. All wind and water strakes full length
5. Internals in fore peak tank and aft peak tank
6. Selected exposed main deck plates outside the cargo area
7. Representative exposed superstructure deck plating (poop, bridge and forecastle deck)
8. All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space, and aft end of tanks outside of the cargo area.
9. Plating of sea chests, Shell plating in way of overboard discharges as deemed necessary by the Surveyor.
10. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

Notes:

1 The surveyor may extend the thickness measurements as deemed necessary.

2 Where substantial corrosion is found, the extent of thickness measurements should be increased accordingly.

3 Transverse sections are to be selected in consideration of (a), (b) and (c) below.

(a) One transverse section within 0.4L of the hull girder length and the other transverse section between 0.4L and 0.5L amidships are to be chosen.

(b) Transverse sections should be chosen such that thickness measurements can be taken for as many different tanks in corrosive environments as possible. Ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils and cargo tanks permitted to be filled with sea water should be selected where present.

(c) Transverse sections should be located where the largest thickness reductions are suspected to occur or are revealed from deck plating measurements and should be clear of areas which have been locally renewed or reinforced.

Appendix 3.5 - The Wastage Allowance

(1) Principal structural hull members

(i) The wastage allowance (diminution limits) for plates and stiffeners are shown in the following table.

(ii) The wastage allowance for longitudinal strength members given in the following table are based on the condition that the diminution limit of longitudinal strength of the hull has not been reached.

(iii) The values of the wastage allowance indicate limit values in case of uniform wear of members.

(iv) Notwithstanding the following table, the wastage allowance for local corrosion such as stress corrosion and pitting are to be decided at the discretion of the Surveyor. The standard diminution limit for local corrosion other than stress corrosion is to be taken as 40% of the original thickness.

Structural Member	Wastage Allowance
- Shell plates - Strength deck plates - Longitudinal beams (flat bar) on shear strake and strength deck - Tight bulkheads in deep tanks - Inner bottom plates	20% of original thickness + 1 mm
- Floors and girders in double bottom - Primary members (web & face) - Web, face and bracket of hold frames - Watertight bulkhead plates	25% of original thickness
- Web and face of frames (excluding hold frames), longls beams, stiffeners and brackets - Effective deck plates - Hatch cover and hatch beam	30% of original thickness

(2) Minimum thickness for high tensile steel members

If high-tensile steel is used in bottom longitudinals of tankers with a single bottom construction, the wear and tear limit of the web is taken as 25% of the original thickness. If high-tensile steel is used in other structural members, the wear and tear limit is to be in accordance with (1) and (2) above.

(3) Measure against corrosion

When remarkable corrosion is found in the results of thickness measurement, the Surveyor should examine the pattern and extent of the corrosion through intensive inspection or thickness measurement and take a necessary measure such as (i) & (ii) below. Where *substantial corrosion* is found, the additional thickness measurement is required. ***Substantial corrosion*** **is an extent of corrosion such that assessment of corrosion pattern indicates a wastage in excess of 75% of allowable margins, but within acceptable limits.**

(i) Corrosion exceeding acceptable limit

The Surveyor should require repair such as renewal of the corroded plate exceeding acceptable limit. However, special consideration may be given for structural members whose actual scantling surpasses much the Rule requirements.

(ii) *Substantial corrosion*

Necessary instruction for further inspection of corrosion which does not exceed acceptable limit, but where continuous monitoring is deemed necessary should be given. S*ubstantial corrosion* in excess of 75% of allowable margin is to be nominated as *suspect area* and thickness measurement and necessary inspections of the area is to be carried out at subsequent Intermediate Survey.

ClassNK

SURVEY PROGRAMME for Double Hull Tankers

Basic Information and Particulars

Name of Ship	:	**NK TANKER II**
IMO Number	:	9599999
Flag State	:	Japan
Port of Registry	:	Tokyo
Gross Tonnage	:	160,000
Deadweight (metric tonnes)	:	300,000
Length between perpendiculars (m)	:	320.00
Shipbuilder	:	NK Shipbuilding Co., Ltd.
Hull number	:	2000
Recognized Organization (RO)	:	Nippon Kaiji Kyokai
RO Ship Identity (Class Number)	:	000999
Date of delivery of the ship	:	1 July 2000
Owner	:	NK Management Co., Ltd.
Thickness Measurement Firm	:	NK Gauging Co., Ltd.

Prepared by the owner in co-operation with the Classification Society.

Date : 1 January 2007

Taro Kaiji

(Taro Kaiji)

(name and signature of authorized owne's representative)

Date :

( )

Surveyor to Nippon Kaiji Kyokai

Branch/Office

1 Preamble

1.1 Scope

1.1.1 The present Survey Programme covers the minimum extent of overall surveys, close-up surveys, thickness measurements and pressure testing within the cargo area, ballast tanks, including fore and aft peak tanks, required by the NK Rules.

1.1.2 The arrangements and safety aspects of the survey should be acceptable to the attending surveyor(s).

1.2 Documentation

All documents used in the development of the survey programme should be available onboard during the survey.

2 Arrangement of Tanks and Spaces

This section of the survey programme should provide information (either in the form of plans or text) on the arrangement of tanks and spaces that fall within the scope of the survey.

Tank Arrangement*/Tank List*, which is attached to next page is to be referred.
(*: Delete as appropriate)

3. List of tanks with information on their use, extent of coatings and corrosion protection system

This section of the survey programme should indicate any changes relating to (and should update) the information on the use of the tanks of the ship, the extent of coatings and the corrosion protective system provided in the Survey Planning Questionnaire.

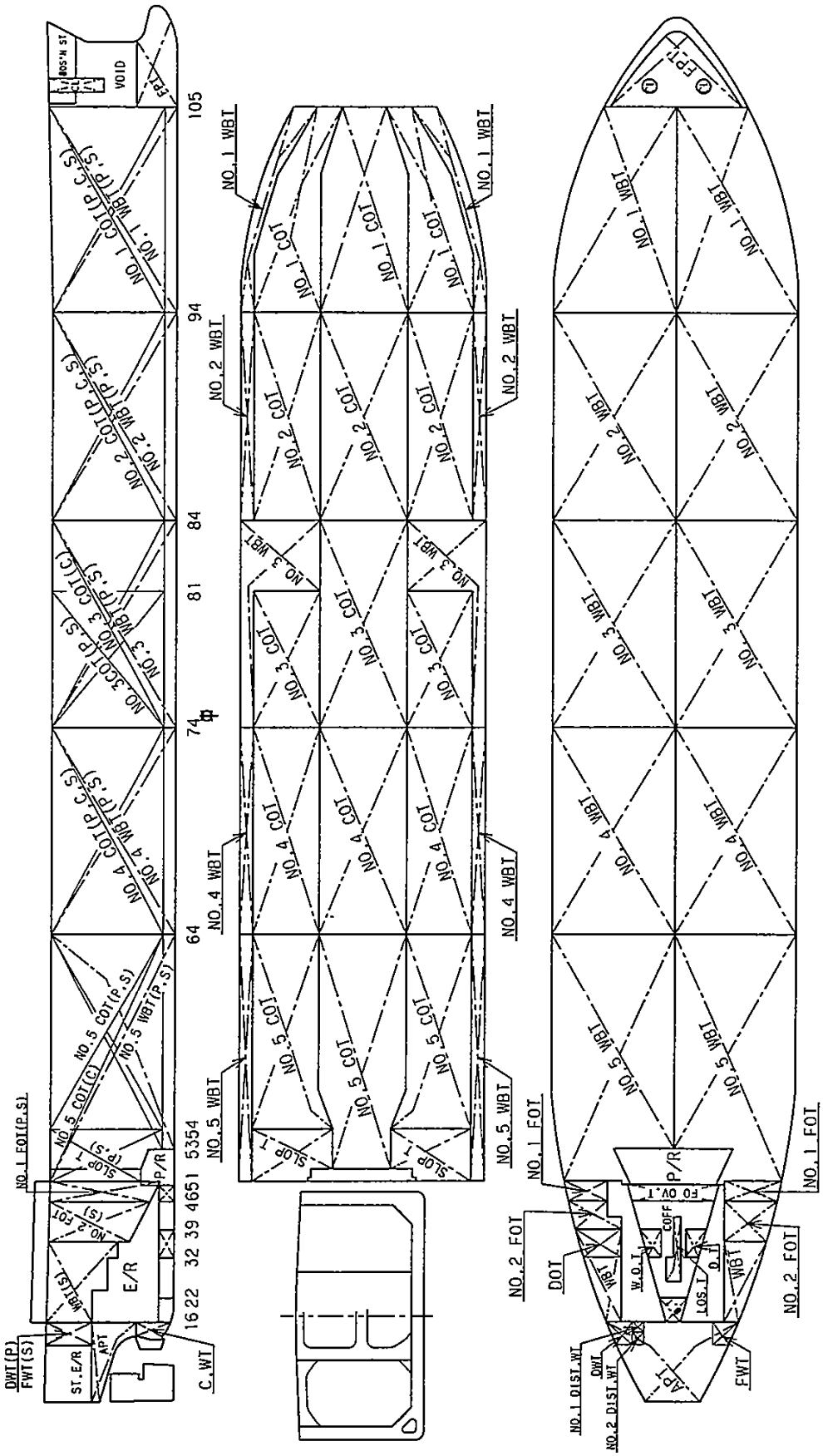
Spaces	Fr. No	Corrosion Protection (1)	Coating Extent (2)	Coating Condition (3)

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection; CS=clad steel; SS=stainless steel

2) U=upper part; M=middle part; L=lower part; C=complete

3) G=good; F=fair; P=poor, RC=recoated (during the last 3 years)

Tank Arrangement*/Tank List* (*: Delete as appropriate)



4 Conditions for survey

This section of the survey programme should provide information on the conditions for survey, e.g. information regarding cargo hold and tank cleaning, gas freeing, ventilation, lighting, etc.

4.1 The owner should provide the necessary facilities for a safe execution of the survey.

4.2 In order to enable the attending surveyors to carry out the survey, provisions for proper and safe access should be agreed between the owner and NK.

4.3 In cases where the provisions of safety and required access are judged by the attending surveyors not to be adequate, the survey of the spaces involved should not proceed.

4.4 Tanks and spaces are to be safe for access. Tanks and spaces should be gas free and properly ventilated. Prior to entering a tank, void or enclosed space, it should be verified that the atmosphere in that space is free from hazardous gas and contains sufficient oxygen.

4.5 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces should be cleaned including removal from surfaces of all loose accumulated corrosion scale. Spaces should be sufficiently clean and free from water, scale, dirt, oil residues etc. to reveal corrosion, deformation, fractures, damages, or other structural deterioration as well as the condition of the coating. However, those areas of structure whose renewal has already been decided by the owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed.

4.6 Sufficient illumination should be provided to reveal significant corrosion, deformation, fractures, damages or other structural deterioration as well as the condition of the coating.

4.7 The attending surveyor(s) should always be accompanied by at least one responsible person assigned by the Company experienced in tank and enclosed spaces inspection. In addition a backup team of at least two experienced persons should be stationed at the hatch opening of the tank or space that is being surveyed. The back-up team should continuously observe the work in the tank or space and should keep lifesaving and evacuation equipment ready for use.

4.8 Where Soft Coatings have been applied, safe access should be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures, which may include spot removal of the coating. When safe access cannot be provided, the soft coating should be removed.

4.9 A communication system is to be arranged between the survey party in the tank or space being examined, the responsible officer on deck and, as the case may be, the navigation bridge. The communication arrangements are to be maintained throughout the survey. This system should also include the personnel in charge of ballast pump handling if boats or rafts are used.

4.10 Survey at sea or at anchorage may be accepted provided the surveyor is given the necessary assistance from the personnel on board.

Complete cargo/ballast discharge to be confirmed by : Chief Officer

O2 content measurement and gas detection to be confirmed by : Chief Officer

Cleanliness in cargo/ballast tanks to be confirmed by : Chief Officer

Cargo Tank Cleaning Procedures

Indicate the frequency of the tank washing, especially uncoated tanks:

- After cargo discharging
- Before dry docking

Washing medium used :

- Crude oil : Yes
- Heated seawater : Yes
- Other medium (specify) : Cold sea water

Inert Gas System installed : Yes / ~~No~~

- Details of inert gas plant : Exhaust gas type
- Indicate average oxygen content during inerting : less than 5 %

Reference are made to

- *IACS Recommendation 39 - Guidelines for the use of Boats or Rafts for Close-up surveys; and,*
- *Chapter 10 of the International Safety Guide for Oil Tankers and Terminals (ISGOTT) - Entry into and working in enclosed spaces.*

5 Provisions and method of access to structures

This section of the survey programme should indicate any changes relating to (and should update) the information on the provisions and methods of access to structures provided in the Survey Planning Questionnaire.

Tank No.	Structure	C (Cargo) / B (Ballast)	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore peak						
A.P.	Aft peak						
Wing Tanks	Under deck						
	Side shell						
	Bottom transverse						
	Longitudinal						
	Transverse						
Centre Tanks	Under deck						
	Bottom transverse						
	Transverse						

5.1 For overall survey, means should be provided to enable the surveyor to examine the structure in a safe and practical way.

5.2 For close-up surveys, one or more of the following means for access, acceptable to the surveyor, should be provided:

.1 Permanent staging and passages through structures;

.2 Temporary staging and passages through structures;

.3 Lifts and moveable platforms;

.4 Boats or rafts;

.5 Portable ladders;

.6 Other equivalent means.

5.3 Surveys of tanks by means of boats or rafts may only be undertaken with the agreement of the surveyor, who should take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions.

5.4 When rafts or boats will be used for close-up survey the following conditions should be observed:

.1 Only rough duty, inflatable rafts or boats, having satisfactory residual buoyancy and stability even if one chamber is ruptured, should be used;

.2 The boat or raft should be tethered to the access ladder and an additional person should be stationed down the access ladder with a clear view of the boat or raft;

.3 Appropriate lifejackets should be available for all participants;

.4 The surface of water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed 0.25 m) and the water level either stationary or falling. On no account should the level of the water be rising while the boat or raft is in use;

.5 The tank or space must contain clean ballast water only. Even a thin sheen of oil on the water is not acceptable;

.6 At no time should the water level be allowed to be within 1 m of the deepest under deck web face flat so that the survey team is not isolated from a direct escape route to the tank hatch. Filling to levels above the deck transverses should only be contemplated if a deck access manhole is fitted and open in the bay being examined, so that an escape route for the survey party is available at all times. Other effective means of escape to the deck may be considered;

.7 If the tanks (or spaces) are connected by a common venting system, or Inert Gas system, the tank in which the boat or raft should be used should be isolated to prevent a transfer of gas from other tanks (or spaces).

5.5 Rafts or boats alone may be allowed for inspection of the under deck areas for tanks or spaces if the depth of the webs is 1.5 m or less.

5.6 If the depth of the webs is more than 1.5 m, rafts or boats alone may be allowed only:

.1 When the coating of the under deck structure is in GOOD condition and there is no evidence of wastage; or

.2 If a permanent means of access is provided in each bay to allow safe entry and exit. This means of access should be direct from the deck via a vertical ladder with a small platform fitted approximately 2 m below the deck. Other effective means of escape to the deck may be considered.

If neither of the above conditions are met, then staging or other equivalent means should be provided for the survey of the under deck areas.

5.7 The use of rafts or boats alone in 5.5 and 5.6 does not preclude the use of boats or rafts to move about within a tank during a survey.

6 List of equipment for survey

This section of the survey programme should identify and list the equipment that will be made available for carrying out the survey and the required thickness measurements.

The following safety equipment is available on board.

a) O_2 content meter / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : Chief Officer, Annually calibrated by ashore Company
b) Gas detector / Type : (Manufacturer's name) / (Type)
Accuracy to be checked by : Chief Officer, Annually calibrated by ashore Company
c) Portable Safety Light / No.: 6 sets of explosive proof type
d) Available breathing apparatus: 6 sets of SCBA type
e) Other safety equipment, if any: Safety Helmet, Safety Shoes, Lifeline, Gloves
Walkie talkie, etc.

f) Are the other safety equipment also available at repair yard ? Yes / ~~No~~

7 Survey requirements

7.1 Overall survey

This section of the survey programme should identify and list the spaces that should undergo a overall survey in accordance with the requirements of the Rules.

See, Appendix 3.1 – Overall Survey Requirements

.1 Cargo Tank

All cargo tanks

.2 Ballast Tank

All ballast tanks

.3 Other Tanks/Spaces

All fuel oil tanks
All fresh water tanks
Pump room
Engine room
Steering gear room
Cofferdam
Bos'n store
Void spaces

7.2 Close-up survey

This section of the survey programme should identify and list the hull structures that should undergo a close up survey for the ship in accordance with the requirements of the Rules.

See, Appendix 3.2 – Close-up Survey Requirements

.1 Ballast double hull tanks

Structural members	Tank(s)
One web frame ring	N.A.
All web frame rings	No.3
Knuckle area/upper part of one web frame ring	No.1, 2, 4, 5 (P/S), No.3 (S), WBT in E/R (P/S)
One deck transverse	N.A.
Lower part of one T.BHD	N.A.
One T.BHD	No.1, 2, 3, 4 & 5 (P/S)
All T.BHDs	N.A.

.3 Cargo tanks

Structural members	Tank(s)
One deck transverse	No.3 (C), No.2 (P)
All web frame rings	N.A.
One web frame ring	N.A.
Lower part of one T.BHD	No.2 (P), No.2 & 3 (C)
All T.BHDs	N.A.

8 Identifications of tanks for tank testing

This section of the survey programme should identify and list the tanks that should undergo tank testing for the ship in accordance with the Rules.

See, Appendix 3.3 – Tank Testing Requirements

Cargo Tanks:	All
Ballast Tanks:	All
Fuel Oil Tanks:	All
Lubrication Oil Tanks:	All
Fresh Water Tanks:	All

9 Minimum thickness of hull structures

This section of the survey programme should specify the minimum thickness for hull structures of the ship that are subject to the Guidelines (indicate either (a) or preferably (b), if such information is available):

(a) ☒ Determined from the attached* wastage allowance table and the original thickness according to the hull structure plans of the ship;

(b) ☐ Given in the following table(s)

*: The wastage allowance tables should be attached to the survey programme.

See, Appendix 3.5 – The Wastage Allowance

10 Thickness measurement company

This section of the survey programme should identify changes, if any, relating to the information on the thickness measurement company provided in the Survey Planning Questionnaire.

NK Thickness Measurement Co., Ltd.

1-8-5 Ohnodai, Midori-ku, Chiba 267-0056

(TM firm was changed from the TM firm nominated in Survey Planning Questionnaire.)

11 Identification of areas and sections for thickness measurements

This section of the survey programme should identify the areas and sections where thickness measurements should be taken in accordance with the Rules.

See, Appendix 3.4 – Thickness Measurement Requirements

Location	TM requirements
Suspect area:	■ Applicable ☐ Not Applicable See paragraph 14
Structural members subject to close-up survey	***See paragraph 7.2***
Each deck plating in one transverse section*	☐ Applicable ■ Not Applicable
Each deck plate	■ Applicable ☐ Not Applicable
Each bottom plate	☐ Applicable ■ Not Applicable
Transverse section:	■ 1 section, ☐ 2 sections, ☐ 3 sections Fr.No.77
Selected wind and water strake outside cargo area	■ Applicable ☐ Not Applicable
All wind and water strakes within cargo area	☐ Applicable ■ Not Applicable
All wind and water strakes full length	☐ Applicable ■ Not Applicable
Internals in FPT & APT	☐ Applicable ■ Not Applicable
Expose main deck plate outside of cargo area	☐ Applicable ■ Not Applicable
Representative exposed superstructure deck plate	☐ Applicable ■ Not Applicable
All keel plates full length	☐ Applicable ■ Not Applicable
Additional bottom plates	☐ Applicable ■ Not Applicable
Others:	Cargo piping on Upper Deck

*: In way of ballast tank, if any, or a cargo tank used primarily for water ballast within cargo area.

12 Damage experience related to the ship

This section of the survey programme should, using the tables provided below, provide details of the hull damages for at least the last three years in way of the cargo and ballast tanks and void spaces within the cargo area. These damages are subject to survey.

Hull damages sorted by location for this ship

Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair

See the attached Survey Records for the last 3 years.

Hull damages for sister or similar ships (if available) in the case of design related damage

Tank or space number or area	Possible cause, if known	Description of the damages	Location	Repair	Date of repair
No.5 WBT (P/S)		Crack on web frame stiffener end at the connection of side shell/ L. BHD	Horizontal stiffener	Gauged and re-welded	Year 2003 or later
No.3 COT(C)		Crack in vertical stiffeners on T.BHD at the connection of toe end of bracket on horizontal girder	Vertical stiffeners	Cropped and renewed with modified soft toe bracket	Year 2003 or later

13 Areas identified with substantial corrosion from previous surveys

This section of the survey programme should identify and list the areas of substantial corrosion from previous surveys.

Nil.

14 Critical structural areas and suspect areas

This section of the survey programme should identify and list the critical structural areas and the suspect areas, if such information is available.

Forward parts of upper deck plating around Bos'n Store are nominated as suspect area due to heavy corrosion.

15 Other relevant comments and information

This section of the survey programme should provide any other comments and information relevant to the survey.

Internal examination in way of FPT is to be carried out at annual intervals due to poor condition of coating.

Appendices

Appendix 1 - List of Plans

The Rules require that main structural plans of cargo and ballast tanks (scantling drawings), including information on regarding use of high tensile steel (HTS), to be available. This appendix of the survey programme should identify and list the main structural plans which form part of the survey programme.

Appendix 2 - Survey Planning Questionnaire

The Survey Planning Questionnaire, which has been submitted by the owner, should be appended to the survey programme.

Appendix 3 - Other documentation

This part of the survey programme should identify and list any other documentation that forms part of the survey programme.

.1 **Overall Survey Requirements**, as referred to Paragraph 7.1 "Overall survey" is attached to this survey programmne.

.2 **Close-up Survey Requirements**, as referred to Paragraph 7.2 "Close-up survey" is attached to this survey programmne.

.3 **Tank Testing Requirements**, as referred to Paragraph 8 "Identification of tanks for tank testing" is attached to this survey programmne.

.4 **Thickness Measurement Requirements**, as referred to Paragraph 11 "Identification of areas and sections for thickness measurements" is attached to this survey programmne.

.5 **The Wastage Allowance**, as referred to Paragraph 9 "Minimum thickness of hull structures" is attached to this survey programmne.

Appendix 1 - List of Plans

1. **Basic ship information and particulars;**
   See, attached survey status

2. **Main structural plans of cargo and ballast tanks (scantling drawings), including information regarding use of high tensile steels (HTS);**
   - Midship Section and Typical Trans. BHD
   - Construction Profile & Decks
   - Shell Expansion (Fore & Aft)
   - Transverse Bulkheads
   - Forward Construction
   - Afterward Construction

3. **Arrangements of Tanks;**
   - General Arrangement

4. **List of tanks with information on their use, extent of coatings and corrosion protection systems;**
   See, paragraph 3 of SURVEY PROGRAMME.

5. **Conditions for survey (e.g. information regarding tank cleaning, gas freeing, ventilation, lighting, etc.);**
   See, paragraph 4 of SURVEY PROGRAMME.

6. **Provisions and methods for access to structures;**
   See, paragraph 5 of SURVEY PROGRAMME.

7. **Equipment for survey;**
   See, paragraph 6 of SURVEY PROGRAMME.

8. **Identification of tanks and areas for the close-up survey;**
   See, paragraph 7.2 of SURVEY PROGRAMME.

9. **Identification of areas and sections for thickness measurement;**
   See, paragraph 11 of SURVEY PROGRAMME.

10. **Identification of tanks for tank testing;**
    See, paragraph 8 of SURVEY PROGRAMME and General Arrangement.

11. **Identification of the thickness measurement company;**
    See, paragraph 10 of SURVEY PROGRAMME.

12. **Damage experience related to the ship in question; and**
    See, paragraph 12 of SURVEY PROGRAMME.

13. **Critical Structural and Suspect Areas, where relevant.**
    See, paragraph 14 of SURVEY PROGRAMME.

ClassNK

Appendix 2 - SURVEY PLANNING QUESTIONNAIRE

The following information will enable the owner in co-operation with ClassNK to develop a survey programme complying with the requirements of the Rules. It is essential that the owner provides, when completing the present questionnaire, up-to-date information. The present questionnaire, when completed, should provide all information and material required by the Rules.

Particulars

Ship's name	: NK TANKER II
IMO number	: 9599999
Flag State	: Japan
Port of registry	: Tokyo
Owner	: NK Management Co., Ltd.
RO ship identity (Class Number)	: 000999
Gross tonnage	: 160,000
Deadweight (metric tonnes)	: 300,000
Date of delivery	: 1 July 2000

Information on access provision for close-up surveys and thickness measurement:

The owner should indicate, in the table below, the means of access to the structures subject to close-up survey and thickness measurement. A close-up survey is an examination where the details of structural components are within the close visual inspection range of the attending surveyor, i.e. preferably within reach of hand.

Table SPQ1

Tank No.	Structure	C (Cargo) / B (Ballast)	Temporary staging	Rafts	Ladders	Direct access	Other means (please specify)
F.P.	Fore peak	B		√		√	
A.P.	Aft peak	B			√	√	
Wing Tanks	Under deck	C/B		√			
	Side shell	C/B		√			
	Bottom transverse	C/B		√		√	
	Longitudinal	C/B		√			
	Transverse	C/B		√			
Centre Tanks	Under deck	C		√			
	Bottom transverse	C		√		√	
	Transverse	C		√			

Applicable access provisions are to be ticked.

History of cargo with H_2S content or heated cargo for the last 3 years together with indication as to whether cargo was heated and, where available, Marine Safety Data Sheets (MSDS)*
Crude oil (no heated)

** Refer to resolution MSC.150(77) on Recommendation for material safety data sheets fro MARPOL Annex I cargoes and marine fuel oils.*

Ballast history for the last 3 years
Ballasting around Japan and de-ballasting around Persian Gulf

Owner's inspections

Using a format similar to that of the table below (which is given as an example), the owner should provide details of the results of their inspections, for the last 3 years on all cargo and ballast tanks and void spaces within the cargo area, including peak tanks.

Table SPQ2

Tank No.	Corrosion protection (1)	Coating extent (2)	Coating condition (3)	Structural deterioration (4)	Tank damage history (5)
No.1 COT (C)	HC	U, B	G	N	
No.2 COT (C)	HC	U, B	G	N	
No.3 COT (C)	HC	U, B	G	N	
No.4 COT (C)	HC	U, B	G	N	
No.5 COT (C)	HC	U, B	G	N	
No.1 COT (P/S)	HC	U, B	G	N	
No.2 COT (P/S)	HC	U, B	G	N	
No.3 COT (P/S)	HC	U, B	G	N	
No.4 COT (P/S)	HC	U, B	G	N	
No.5 COT (P/S)	HC	U, B	G	N	
Slop Tank (P/S)	HC	C	G	N	
FPT	HC, A	C	P	N	
No.1 WBT (P/S)	HC, A	C	G	N	
No.2 WBT (P/S)	HC, A	C	G	N	DR
No.3 WBT (P/S)	HC, A	C	G	N	DR
No.4 WBT (P/S)	HC, A	C	G	N	
No.5 WBT (P/S)	HC, A	C	G	N	
WBT in E/R (P/S)	HC, A	C	G	N	
APT	HC, A	C	G	N	

Note: Indicate tanks which are used for oil/ballast

1) HC=hard coating; SC=soft coating; A=anodes; NP=no protection; SS=stainless steel
2) U=upper part; M=middle part; L=lower part; C=complete
3) G=good; F=fair; P=poor; RC=recoated (during the last 3 years)
4) N= no findings recorded; Y= findings recorded, description of findings is to be attached to the questionnaire
5) DR=damage & repair; L= Leakages; CV= Conversion (description should be attached to this questionnaire)

Name of owner's representative:

NK Management CO., Ltd.

Signature: Taro Kaiji *Taro Kaiji*

Date: 15 December 2006

Reports of Port State Control inspections

List the reports of Port State Control inspections containing hull structural related deficiencies and relevant information on the rectification of the deficiencies:
Nil.

Safety Management System

List non-conformities related to hull maintenance, including the associated corrective actions:
Nil.

Name and address of the approved thickness measurement company:

Name: NK Gauging Co., Ltd.
Address: 4-7, Kioi-cho, Chiyoda-ku, Tokyo 102-8567, Japan

Other information:

Nil.

Appendix 3.1 – Overall Survey Requirements

Overall survey requirements for Special Survey No.1
1. All cargo tanks
2. All tanks and spaces adjacent to cargo tanks (ballast tanks (see note 1), pump rooms, pipe tunnels, cofferdams and void spaces)
3. Water tanks (tanks used for fresh or sea water) except above 2
4. Fuel oil tanks other than those of double bottom (see note 2)
5. Cofferdam
6. Machinery spaces and other spaces

Overall survey requirements for Special Survey No.2
1. Tanks and spaces subject to an examination carried out at Special Survey No.1
2. Fuel oil tanks in double bottom (see note 3)

Overall survey requirements for Special Survey No.3
1. Tanks and spaces subject to an examination carried out at Special Survey No.2 (see note 4)
2. Lubrication oil tanks (see note 5)

Overall survey requirements for Special Survey No.4 and subsequent Special Surveys
1. Tanks and spaces subject to an examination carried out at Special Survey No.3 (see note 6)

Notes:

1 For ballast tanks where a protective coating is found in poor condition, and it is not renewed or where a protective coating has not been applied, an internal examination is to be carried out at annual intervals.

2 An internal examination of the deep fuel oil tanks except both peak tanks may be omitted provided the Surveyor is satisfied with the condition of tanks after the external examination of the tanks.

3 Fuel oil tanks excluding both peak tanks need not all examined internally, provided, after an external examination and from an internal examination of each one double bottom tank forward and aft and of one selected deep tank, including one or more tank located in cargo area, if fitted, the Surveyor is satisfied with the condition of the tanks.

4. Fuel oil tanks excluding both peak tanks need not all be examined internally, provided, after an external examination and from an internal examination of each one double bottom tank amidship, forward and aft and of a half numbers of deep tanks, including two or more tanks located in cargo area and one or more tank located in engine room, if fitted, the Surveyor is satisfied with the condition of the tanks.

5. Lubrication oil tanks need not be examined internally provided, after an external examination, the Surveyor is satisfied with the condition of the tanks.

6. It is not allowed to dispense with the internal examination of fuel oil tanks and lubrication oil tanks for ships over 15 years of age

Appendix 3.2 – Close up Survey Requirements

Close-up survey requirements for Special Survey No.1
1. One web frame ring - in a ballast double hull tank (see note 1)
2. One deck transverse - in a cargo tank or on deck (see note 2)
3. One transverse bulkhead - in a ballast double hull tank (see note 3)
4. The lower part of one transverse bulkhead - in a cargo wing tank (see note 3)
5. The lower part of one transverse bulkhead - in a cargo center tank (see note 3)

Close-up survey requirements for Special Survey No.2
1. All web frame rings - in a ballast double hull tank (see note 1)
2. The knuckle area and the upper part of one web frame ring – in each remaining ballast tank (see note 4)
3. One deck transverse - in or on two cargo tanks (see note 2)
4. One transverse bulkhead - in all ballast double hull tanks (see note 3)
5. The lower part of one transverse bulkhead - in a cargo wing tank (see note 3 & 5)
6. The lower part of one transverse bulkhead - in two cargo center tanks (see note 3)

Close-up survey requirements for Special Survey No.3
1. All web frame rings - in all ballast tanks (see note 1)
2. All web frame rings - in a cargo tank (see note 1)
3. One web frame ring - in each remaining cargo tank (see note 1)
4. All transverse bulkheads - in all cargo and ballast tanks (see note 3)
5. As considered necessary by the surveyor

Close-up survey requirements for Special Survey No.4 and subsequent Special Surveys
1. As Special Survey No.3
2. Additional transverses included as deemed necessary by the surveyor

Notes: Abbreviations in above tables mean:

1 Cross ties and complete trans. web frame ring including adjacent structural members such as shell plating longitudinal bulkhead, longitudinal stiffeners, brackets, etc.

2 Deck trans. including adjacent deck structural members such as deck plating, longitudinal stiffeners, brackets, etc.

3 Trans. bulkhead including vertical and horizontal girders and adjacent structural members (such as longitudinal bulkhead, inner bottom/hopper plating, bottom girders brackets, stiffeners, etc.) and internal structure of lower and upper stools, where fitted

4 The knuckle area and the upper part (5 meters approximately), including adjacent structural members. Knuckle area is the area of the web frame around the connections of the slope hopper plating to the inner hull bulkhead and the inner double bottom plating, up to 2 meters from the corners both on the bulkhead and the double bottom.

5 Where no center cargo tanks are fitted (as in the case of center longitudinal bulkhead), transverse bulkheads in wing tanks are to be surveyed

Appendix 3.3 – Tank Testing Requirements

Tank testing requirements for Special Survey No.1
1. Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, fuel oil tanks, pump rooms or cofferdams
2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo area
3. All water tanks (see note 1)
4. All fuel oil tanks (see note 2)
5. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.2
1. All cargo tanks bulkheads
2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo area
3. All water tanks (see note 1)
4. All fuel oil tanks (see note 2)
5. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.3
1. All cargo tanks bulkheads
2. All water tanks
3. All fuel oil tanks (see note 2)
4. All lubrication tanks (see note 3)

Tank testing requirements for Special Survey No.4 and subsequent Special Surveys
1. All cargo tanks bulkheads
2. All water tanks, all fuel tanks and all lubrication oil tanks

Notes:

1 Special consideration may be, however, given to limit testing of fresh water tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

2 Special consideration may be, however, given to limit testing of fuel oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

3 Special consideration may be, however, given to limit testing of lubrication oil tanks other than tanks to representative tanks provided that, after an internal and external examination of the tanks, the Surveyor is satisfied with the condition of the tanks.

Appendix 3.4 – Thickness Measurement (hereinafter, TM) Requirements

TM Requirements for Special Survey No.1
1. Suspect areas
2. Each deck plating in one transverse section in way of ballast tank, if any, or a cargo tank used primarily for water ballast within the cargo area
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.2
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 One transverse section
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Selected wind and water strakes outside cargo area
5. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.3
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 Two transverse sections
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. Selected wind and water strakes outside cargo area
5. All wind and water strakes within cargo area
6. Internals in fore peak tank and aft peak tank
7. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

TM Requirements for Special Survey No.4 and subsequent Special Surveys
1. Suspect areas
2. Within the cargo area: .1 Each deck plate .2 Three transverse sections (at least one section should be within 0.5L amidship) .3 Each bottom plate
3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
4. All wind and water strakes full length
5. Internals in fore peak tank and aft peak tank
6. Selected exposed main deck plates outside the cargo area
7. Representative exposed superstructure deck plating (poop, bridge and forecastle deck)
8. All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space, and aft end of tanks outside of the cargo area.
9. Plating of sea chests, Shell plating in way of overboard discharges as deemed necessary by the Surveyor.
10. Cargo oil, fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other pipings in pump room and on weather decks, when deemed necessary by the Surveyor as a consequence of general examination.

Notes:

1 The surveyor may extend the thickness measurements as deemed necessary.

2 Where substantial corrosion is found, the extent of thickness measurements should be increased accordingly.

3 Transverse sections are to be selected in consideration of (a), (b) and (c) below.

(a) One transverse section within 0.4L of the hull girder length and the other transverse section between 0.4L and 0.5L amidships are to be chosen.

(b) Transverse sections should be chosen such that thickness measurements can be taken for as many different tanks in corrosive environments as possible. Ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils and cargo tanks permitted to be filled with sea water should be selected where present.

(c) Transverse sections should be located where the largest thickness reductions are suspected to occur or are revealed from deck plating measurements and should be clear of areas which have been locally renewed or reinforced.

Appendix 3.5 - The Wastage Allowance

(1) Principal structural hull members

(i) The wastage allowance (diminution limits) for plates and stiffeners are shown in the following table.

(ii) The wastage allowance for longitudinal strength members given in the following table are based on the condition that the diminution limit of longitudinal strength of the hull has not been reached.

(iii) The values of the wastage allowance indicate limit values in case of uniform wear of members.

(iv) Notwithstanding the following table, the wastage allowance for local corrosion such as stress corrosion and pitting are to be decided at the discretion of the Surveyor. The standard diminution limit for local corrosion other than stress corrosion is to be taken as 40% of the original thickness.

Structural Member	Wastage Allowance
- Shell plates - Strength deck plates - Longitudinal beams (flat bar) on shear strake and strength deck - Tight bulkheads in deep tanks - Inner bottom plates	20% of original thickness + 1 mm
- Floors and girders in double bottom - Primary members (web & face) - Web, face and bracket of hold frames - Watertight bulkhead plates	25% of original thickness
- Web and face of frames (excluding hold frames), longls beams, stiffeners and brackets - Effective deck plates - Hatch cover and hatch beam	30% of original thickness

(2) Minimum thickness for high tensile steel members

If high-tensile steel is used in bottom longitudinals of tankers with a single bottom construction, the wear and tear limit of the web is taken as 25% of the original thickness. If high-tensile steel is used in other structural members, the wear and tear limit is to be in accordance with (1) and (2) above.

(3) Measure against corrosion

When remarkable corrosion is found in the results of thickness measurement, the Surveyor should examine the pattern and extent of the corrosion through intensive inspection or thickness measurement and take a necessary measure such as (i) & (ii) below. Where *substantial corrosion* is found, the additional thickness measurement is required. ***Substantial corrosion*** **is an extent of corrosion such that assessment of corrosion pattern indicates a wastage in excess of 75% of allowable margins, but within acceptable limits.**

(i) Corrosion exceeding acceptable limit

The Surveyor should require repair such as renewal of the corroded plate exceeding acceptable limit. However, special consideration may be given for structural members whose actual scantling surpasses much the Rule requirements.

(ii) *Substantial corrosion*

Necessary instruction for further inspection of corrosion which does not exceed acceptable limit, but where continuous monitoring is deemed necessary should be given. S*ubstantial corrosion* in excess of 75% of allowable margin is to be nominated as *suspect area* and thickness measurement and necessary inspections of the area is to be carried out at subsequent Intermediate Survey.