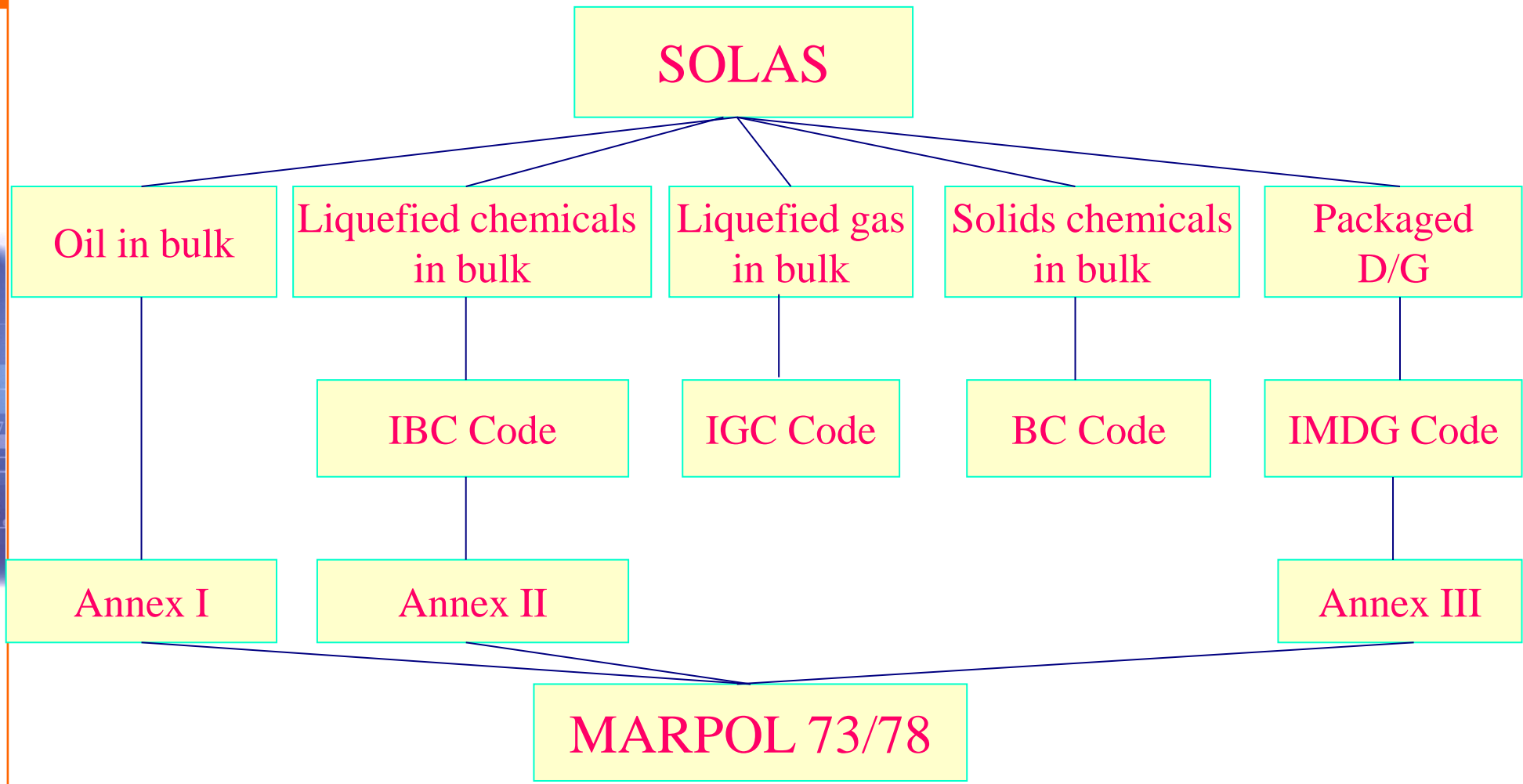


Noxious Liquid Substances in Bulk

Chemical Tanker Training





Revised mandatory instruments

MARPOL, Annex II:

Resolution MEPC 118(52), adopted 15 October 2004
Entry into force 1 January 2007

IBC Code:

Resolutions MEPC 119(52), adopted 15 October 2004
and MSC 176(79) adopted 10 December 2004
Entry into force 01/01/07.

MARPOL Annex II

Application

- MARPOL Annex.II applies to all ships certified to carry Noxious Liquid Substances in bulk.
- Where a cargo subject to the provisions of Annex.I of the MARPOL Convention is carried in a cargo space of an NLS tanker, the appropriate requirements of Annex.I of the MARPOL Convention shall also apply.

Definitions

- **Associated piping** : the pipeline from the suction point in cargo tank to the shore connection used for unloading the cargo and includes all ship's piping, pumps and filters which are in open connection with the cargo underloading line
- **ppm** : ml/m³
- **Residue** : any NLS which remains disposal
- **Residue/water mixture** : residue to which has been added for any purpose (e.g. tank cleaning, ballasting, bilge slops)
- **Solidifying substance** :
 - in the case of a substance with a melting point of less than 15°C, is at a temperature of less than 5°C above its melting point at the time of unloading; or
 - in the case of a substance with a melting point of equal to or greater than 15°C, is at a temperature of less than 10°C above its melting point at the time of unloading.

Categorization and listing of NLS and other substances

- **Category X:**

Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a major hazard to either marine resources or human health and, therefore, justify the prohibition of the discharge into the marine environment;

Categorization and listing of NLS and other substances

- **Category Y:**

Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea and therefore justify a limitation on the quality and quantity of the discharge into the marine environment;

Categorization and listing of NLS and other substances

- **Category Z:**

Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a minor hazard to either marine resources or human health and therefore justify less stringent restrictions on the quality and quantity of the discharge into the marine environment;

Categorization and listing of NLS and other substances

- **Other Substances:**

substances indicated as OS (Other Substances) in the pollution category column of chapter 18 of the International Bulk Chemical Code which have been evaluated and found to fall outside Category X, Y or Z as defined in previous slides of MPOLE Annex.II because they are, at present, considered to present no harm to marine resources, human health, amenities or other legitimate uses of the sea when discharged into the sea from tank cleaning or deballasting operations. The discharge of bilge or ballast water or other residues or mixtures containing only substances referred to as "Other Substances" shall not be subject to any requirements of MPOLE Annex.II.

Pollution categories

Pollution category	Hazard during tank cleaning or deballasting operations	Discharge
X	Major hazard to either marine resources or human health	Discharge prohibited
Y	Hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea	Restriction on quality and quantity of discharge
Z	Minor hazard to either marine resources or human health	Less stringent restriction on quality and quantity of discharge
Other substances (OS)	No harm to marine resources	No restrictions

PUMPING, PIPING UNLOADING ARRANGEMENTS. Reg.12

Pollution Category	Maximum	Discharge	Quantity	
	New ships	Existing IBC	Existing BCH	Other vessels
X	75 L + prewash	100L + 50L tolerance + prewash	300L + 50L tolerance + prewash	No carriage
Y	75 L	100L + 50L tolerance	300L + 50L tolerance	No carriage
Z	75L	300L + 50L tolerance	900L + 50L tolerance	<u>New ships:</u> 75L <u>Existing ships:</u> Empty tanks to the most practicable extent
OS	Unrestricted	Unrestricted	Unrestricted	Unrestricted

PUMPING, PIPING UNLOADING ARRANGEMENTS. Reg.12

- Pumping performance tests referred previous slide shall be approved.
- Pumping performance tests shall use water as the test medium.
- Pumping performance test to be carried out during the Initial Survey.
- Ships certified to carry substances of Category X, Y or Z shall have an underwater discharge outlet (or outlets).



WATER - TEST OF THE CARGO PUMPING/STRIPPING SYSTEMS.

In accordance with the Procedures and Arrangements Standards, Resolution MEPC 18(22)



Record No : SGI0/GFN/201101114604 PM

Name of Ship BV Register: 16205R	Distinctive number or letters	Nationality Port of Registry	IMO	Gross Tonnage	Date Keel Laid
KOKUKA GLORIOUS	3FHT5 41450-TJ	Panama PANAMA	9568500	19349	July 20,2009

Annex to the Record on board No : SGI0/GFN/201101101848 PM
 Issued at : Shanghai, P.R. China On the : March 17, 2011
 Test carried out at : Zhoushan, P.R. China On the : March 3, 2011

1	Trim (maximum 3°) : 0.2°
2	List (maximum 1°) : 0.26°
3	End of unloading procedure : yes Hours : 5 Minutes : 55
4	Stripping procedure (summary) : 1) after pumping out the water in cargo tank, purging the pump cargo pipe and deck cargo line, shut off the cargo discharge valve at pump outlet, start the pump, open stripping valve on pump head, start stripping by means of opening the purging valve to let the stripping media such as compressed air or nitrogen gas to strip cargo residue from pump cargo pipe to deck cargo line, when detect frequent speed variation of pump, it mean pump cargo pipe empty, shut off the stripping valve and purging valve in turn, stop the pump, record the stripping time; 2) shut off the manifold valve, start stripping deck cargo line by opening stripping valve on manifold side, when detect no water is discharged from backpressure hose outlet, stop stripping, record the stripping time; 3) collect all residues in cargo tank including suction well&its' vicinity, corners on lower stool top plate, any other entrapped area on cargo tank bottom and low point drain of cargo pump, measure the residue quantity by calibrated container, record the volume; 4) open all low point drain valves on deck cargo line up to manifold valve to collect all residue by vessel, measure the volume by calibrated measuring container, record the volume.
5	Means used to provide a back pressure of not less than 1 bar Loop of 10 meters height <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA Constant pressure valve <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA Actual back-pressure : more than 1 bar
6	Air has finally been used to blow-out the cargo lines <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA Blowing time : 12-35minute Pressure : 7 bar

This form has been completed by a surveyor of BUREAU VERITAS.
 The information contained in this record is a correct description of the arrangements provided on board.

District :	Shanghai, P.R. China
Date :	17/03/2011
Surveyor Name and Signature :	Gerald Fan

16205R

Tank tested	Starting time of stripping procedure	Actual stripping duration	Residual quantities				Similar tanks
			cargo tank	cargo pump	pipng	total	
NO.1(p)	End of unloading procedure	39'11"	25.4L	-	2.3L	27.7L	NO.1(s)
NO.2(s)	End of unloading procedure	28'50"	33.1L	-	3.2L	36.3L	NO.2(p)
NO.3(p)	End of unloading procedure	18'42"	28.1L	-	2.0L	30.1L	NO.3(s)
NO.4(s)	End of unloading procedure	13'39"	32.3L	-	6.2L	38.5L	NO.4(p)
NO.5(p)	End of unloading procedure	24'58"	34.4L	-	6.2L	40.6L	NO.5(s)
NO.6(s)	End of unloading procedure	18'53"	27.2L	-	2.6L	29.8L	NO.6(p)
SLOP TK.(p)	End of unloading procedure	21'41	28.4L	-	1.5L	29.9L	SLOP TK.(s)
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
8	The water-test has been carried-out in accordance with the unloading and stripping procedure describe in the approved P and A manual						<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
9	Clingage calculations (other applicable) The water test results for tanks N° N.A. Do not meet the applicable pumping efficiency requirements, and the calculated clingage quantities for each of the above tanks have to be attached to the present annex						<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA

PUMPING, PIPING UNLOADING ARRANGEMENTS. Reg.12

- For ships constructed before 1 January 2007 and certified to carry substances in Category Z an underwater discharge outlet is not mandatory.
- The underwater discharge outlet (or outlets) shall be located within the cargo area in the vicinity of the turn of the bilge and shall be so arranged as to avoid the re-intake of residue/water mixtures by the ship's seawater intakes.
- Although MARPOL Annex.II does not require the fitting of dedicated slop tanks, slop tanks may be needed for certain washing procedures. Cargo tanks may be used as slop tanks.

Control of discharges of residues of NLS . Reg.13

Discharge provisions

- The discharge into the sea of residues of substances assigned to Category X, Y or Z or of those provisionally assessed as such or ballast water, tank washings or other mixtures containing such substances shall be prohibited unless such discharges are made in full compliance with the applicable operational requirements contained in MPOLEX II.
- Before any prewash or discharge procedure is carried out in accordance with regulation, the relevant tank shall be emptied to the maximum extent in accordance with the procedures prescribed in P&A Manual.
- The carriage of substances which have not been categorized, provisionally assessed or evaluated as cat. X, Y, Z or OS or of ballast water, tank washings or other mixtures containing such residues shall be prohibited along with any consequential discharge of such substances into the sea.

Control of discharges of residues of NLS . Reg.13**Discharge Standards**

- Where the provisions MARPOL Annex.II allow the discharge into the sea of residues of substances in Category X, Y or Z or of those provisionally assessed as such or ballast water, tank washings or other mixtures containing such substances the following discharge standards shall apply:
 1. the ship is proceeding en route at a speed of at least 7 knots in the case of self-propelled ships or at least 4 knots in the case of ships which are not self-propelled;

Control of discharges of residues of NLS . Reg.13

Discharge Standarts

2. the discharge is made below the waterline through the underwater discharge outlet(s) not exceeding the maximum rate for which the underwater discharge outlet(s) is (are) designed; and
- 3. the discharge is made at a distance of not less than 12 nautical miles from the nearest land in a depth of water of not less than 25 metres.
- For ships constructed before 1 January 2007 the discharge into the sea of residues of substances in Category Z or of those provisionally assessed as such or ballast water, tank washings or other mixtures containing such substances below the waterline is not mandatory.

Control of discharges of residues of NLS . Reg.13

Discharge Standards

- The Administration may waive the requirements above requirements for substances in Category Z, regarding the distance of not less than 12 nautical miles from the nearest land for ships solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag, of which, the ship is entitled to fly. In addition, the Administration may waive the same requirement regarding the discharge distance of not less than 12 nautical miles from the nearest land for a particular ship entitled to fly the flag of their State, when engaged in voyages within waters subject to the sovereignty or jurisdiction of one adjacent state after the establishment of an agreement, in writing, of a waiver between the two coastal States involved provided that no third party will be affected. Information on such agreement shall be communicated to the Organization within 30 days for further circulation to the Parties to the Convention for their information and appropriate action if any.

DISCHARGE REQUIREMENTS Reg.13

X	All Substances : Prewash Proceeding en route at 7 knots; Discharge below waterline; At least 12 miles from land; Depth of at least 25m
Y	High viscosiy and Solidifying Substances : Prewash Other Substances : Efficient stripping Proceeding en route at 7 knots; Discharge below waterline; At least 12 miles from land; Depth of at least 25m
Z	All Substances :efficient stripping Proceeding en route at 7 knots; At least 12 miles from land; Depth of at least 25m New ships: Discharge below the waterline

Control of discharges of residues of NLS . Reg.13**Ventilation of cargo residues**

- Ventilation procedures approved by the Administration may be used to remove cargo residues from a tank. Such procedures shall be in accordance with appendix.7 of MPOLO Annex.II.
- Any water subsequently introduced into the tank shall be regarded as clean and shall not be subject to the discharge requirements in MPOLO Annex.II.

Control of discharges of residues of NLS . Reg.13**Exemption for a pre-wash**

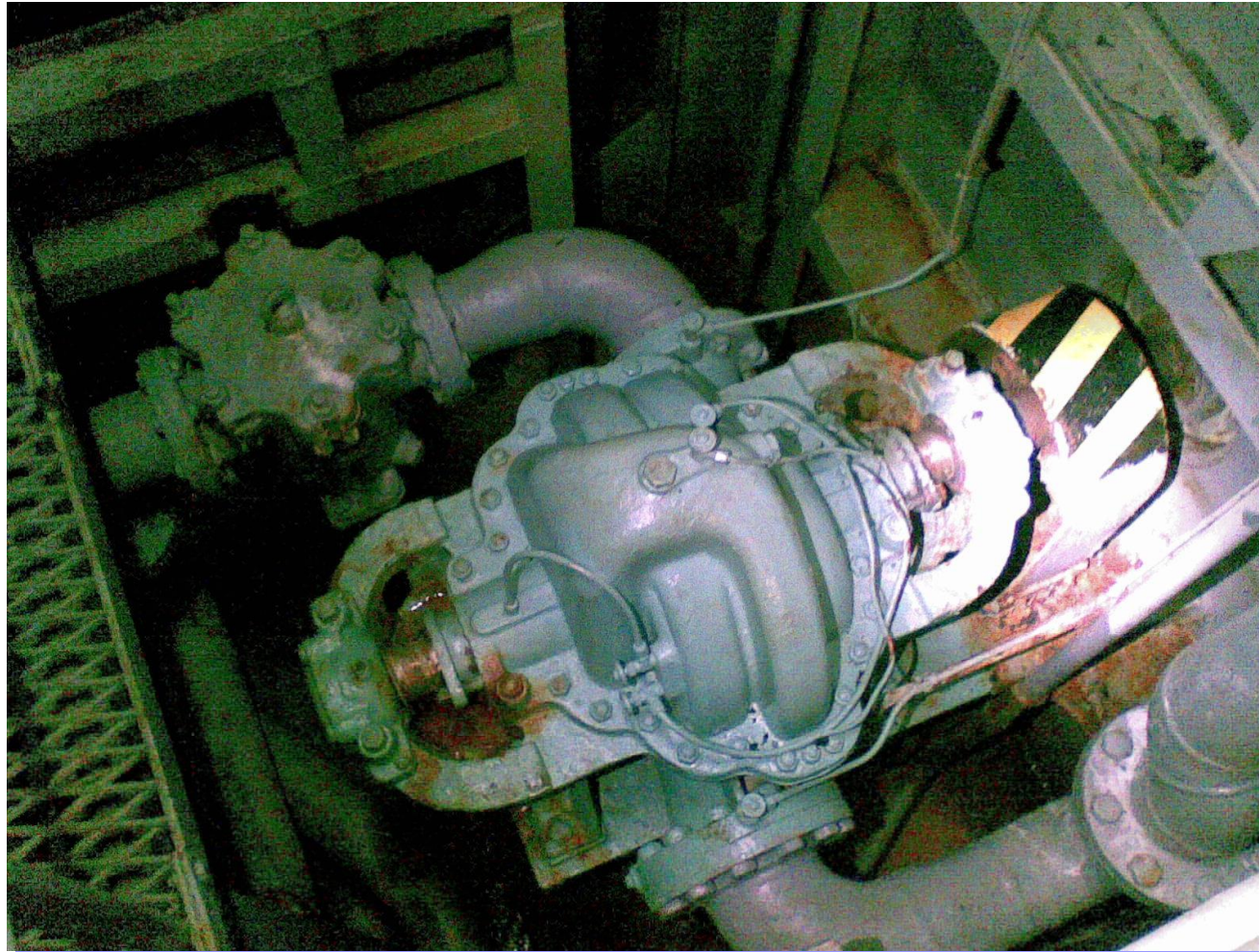
- the unloaded tank is to be reloaded with the same substance or another substance compatible with the previous one and that the tank will not be washed or ballasted prior to loading; or
- the unloaded tank is neither washed nor ballasted at sea,
- the cargo residues will be removed by a ventilation procedure approved by the Administration

Control of discharges of residues of NLS . Reg.13**Discharge of residues of cat. X**

- A tank from which a substance in Category X has been unloaded, shall be prewashed before the ship leaves the port of unloading. The resulting residues shall be discharged to a reception facility until the concentration of the substance in the effluent to such facility, as indicated by analyses of samples of the effluent taken by the surveyor, is at or below 0.1% by weight. When the required concentration level has been achieved, remaining tank washings shall continue to be discharged to the reception facility until the tank is empty. Appropriate entries of these operations shall be made in the Cargo Record Book and endorsed by the surveyor,
- Any water subsequently introduced into the tank may be discharged into the sea in accordance with the discharge standards

Control of discharges of residues of NLS . Reg.13

TANK WASHING PUMP



Control of discharges of residues of NLS . Reg.13**Discharge of residues of cat. Y and Z**

- If the unloading of a substance of Category Y or Z is not carried out in accordance with the Manual, a prewash shall be carried out before the ship leaves the port of unloading, unless alternative measures are taken to the satisfaction of the surveyor to remove the cargo residues from the ship to quantities specified in this Annex.
- The resulting tank washings of the prewash shall be discharged to a reception facility at the port of unloading or another port with a suitable reception facility provided that it has been confirmed in writing that a reception facility at that port is available and is adequate for such a purpose.

Control of discharges of residues of NLS . Reg.13**Discharge of residues of cat. Y and Z**

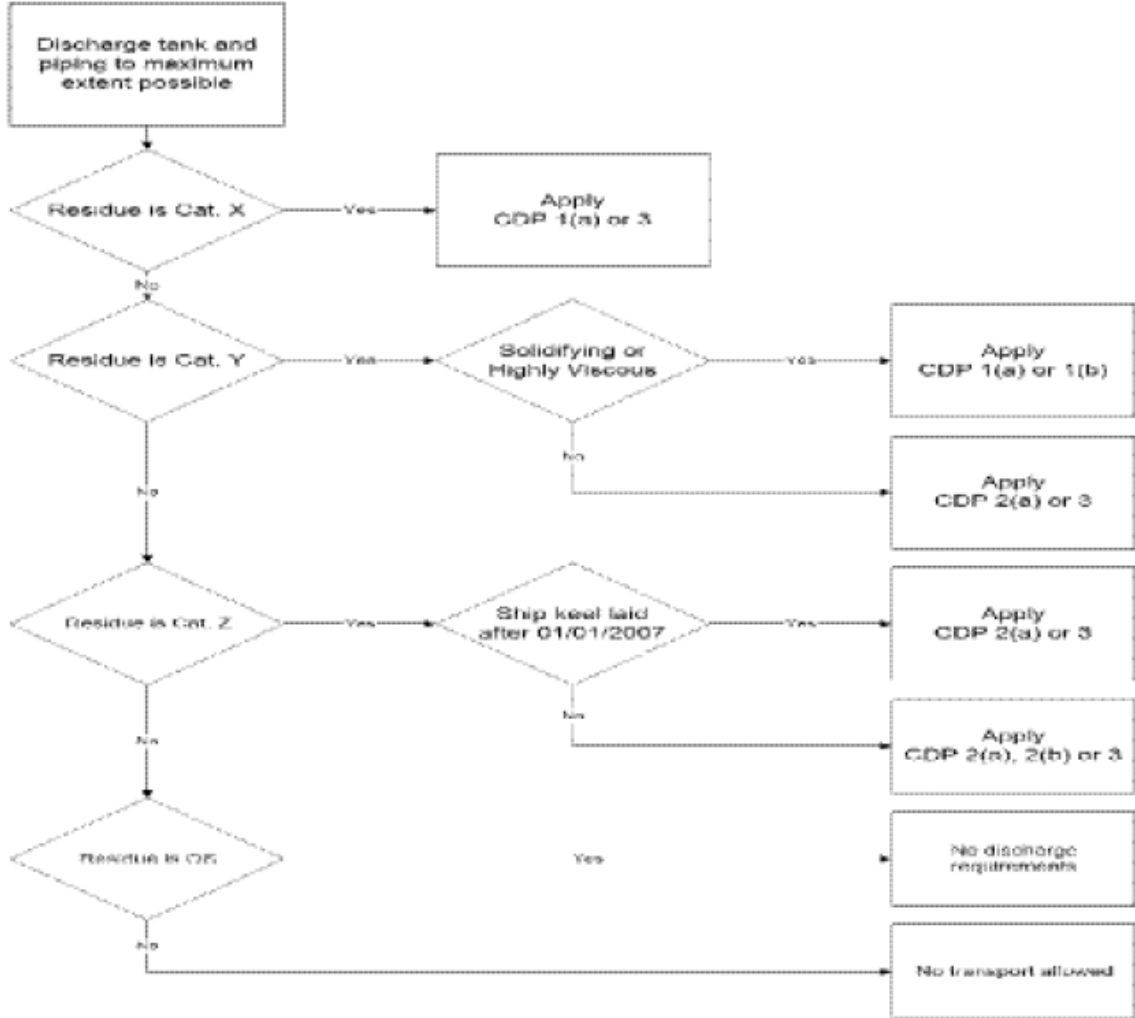
- For High-Viscosity or Solidifying Substances in Category Y the following shall apply:
- a prewash procedure of MPOLO Annex.II shall be applied;
- the residue/water mixture generated during the prewash shall be discharged to a reception facility until the tank is empty; and
- any water subsequently introduced into the tank may be discharged into the sea in accordance with the discharge standards.

Procedure and Arrangement Manual . Reg.14

- **Every ship certified to carry substances of Category X, Y or Z shall have on board a Manual approved by the Administration. The Manual shall have a standard format in compliance with Appendix.4 of MPOL Annex.II.**
- **In the case of a ship engaged in international voyages on which the language used is not English, French or Spanish, the text shall include a translation into one of these languages.**
- **The main purpose of the Manual is to identify for the ship's officers the physical arrangements and all the operational procedures with respect to cargo handling, tank cleaning, slops handling and cargo tank ballasting and deballasting which must be followed in order to comply with the requirements of MPOL Annex.II.**

Control of discharges of residues of NLS . Reg.13

Flow Diagrams - Cleaning of Cargo Tanks and Disposal of Tank Washings/Ballast Containing Residues of Category X,Y, and Z Substances



Control of discharges of residues of NLS . Reg.13

Flow Diagrams - Cleaning of Cargo Tanks and Disposal of Tank Washings/Ballast Containing Residues of Category X,Y, and Z Substances

Cleaning and disposal procedures (CDP)						
(Start at the top of the column under the CDP number specified and complete each item procedure in the sequence where marked)						
No.	Operation	Procedure Number				
		1 (a)	1 (b)	2 (a)	2 (b)	3
1	Strip tank and piping to maximum extent, at least in compliance with the procedures in section 3 of this Manual	X	X	X	X	X
2	Apply prewash in accordance with Addendum B of this Manual and discharge residue to reception facility	X	X			
3	Apply subsequent wash, additional to the prewash, with: a complete cycle of the cleaning machine(s) <i>for ships built before 1 July 1994</i> a water quantity not less than calculated with "k" <i>=1.0 for ships built on or after 1 July 1994</i>		X			
4	Apply ventilation procedure in accordance with Addendum C of this Manual					X
5	Ballast tanks or wash tank to commercial standards	X		X	X	X
6	Ballast added to tank		X			
7	Conditions for discharge of ballast/residue/water mixtures other than prewash:					
	.1 distance from land > 12 nautical miles	X		X	X	
	.2 ship's speed > 7 knots	X		X	X	
	.3 water depth > 25 metres	X		X	X	
	.4 Using underwater discharge (not exceeding permissible discharge rate)	X		X		
8	Conditions for discharge of ballast:					
	.1 distance from land > 12 nautical miles		X			
	.2 water depth > 25 metres		X			
9	Any water subsequently introduced into a tank may be discharged into the sea without restrictions	X	X	X	X	X



Cargo Record Book . Reg.15

- Every ship to which MPOLE Annex.II applies shall be provided with a Cargo Record Book,
- After completion of any operation, the operation shall be promptly recorded in the Cargo Record Book.
- In the event of an accidental discharge of a NLS or a mixture containing such a substance or a discharge, an entry shall be made in the Cargo Record Book stating the circumstances of, and the reason for, the discharge.
- Each entry shall be signed by the officer or officers in charge of the operation concerned and each page shall be signed by the master of the ship. The entries in the Cargo Record Book shall be at least in English, French or Spanish. Where entries in an official national language of the State whose flag the ship is entitled to fly are also used, this shall prevail in case of a dispute or discrepancy

Cargo Record Book . Reg.15

- The Cargo Record Book shall be kept in such a place as to be readily available for inspection and, except in the case of unmanned ships under tow, shall be kept on board the ship. **It shall be retained for a period of three years after the last entry has been made.**
- The competent authority of the Government of a Party may inspect the Cargo Record Book on board, while the ship is in its port, and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the ship's Cargo Record Book shall be made admissible in any judicial proceedings as evidence of the facts stated in the entry.



Shipboard Marine Pollution Emergency Plan (SMPEP) . Reg.17

- Every ship of 150 gross tonnage and above certified to carry Noxious Liquid Substances in bulk shall carry on board a shipboard marine pollution emergency plan for Noxious Liquid Substances approved by the Administration.
- The plan shall consist at least of:
- the procedure to be followed by the master or other persons having charge of the ship to report a Noxious Liquid Substances pollution incident, as required in article 8 and Protocol I of the present Convention,
- the list of authorities or persons to be contacted in the event of a Noxious Liquid Substances pollution incident;
- a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of Noxious Liquid Substances following the incident; and
- the procedures and point of contact on the ship for co-ordinating shipboard action with national and local authorities in combating the pollution.
- In the case of ships MPOL Annex I also applies, such a plan may be combined with the shipboard oil pollution emergency plan required under reg.37 of Annex I of the Convention. In this case, the title of such a plan shall be “**Shipboard marine pollution emergency plan**”.

Exemption

- An Administration may exempt ships from the carriage requirements under reg.11 for ships certified to carry individually identified vegetable oils identified by the relevant footnote in chapter.17 of the IBC Code, provided the ship complies with the following conditions:
- Subject to this regulation, the NLS tanker shall meet all requirements for ship type 3 as identified in the IBC Code except for cargo tank location;
- under this regulation, cargo tanks shall be located at the following distances inboard. The entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oil as follows:
- wing tanks or spaces shall be arranged such that cargo tanks are located inboard of the moulded line of the side shell plating nowhere less than 760 mm;
- double bottom tanks or spaces shall be arranged such that the distance between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating is not less than $B/15$ (m) or 2.0 m at the centreline, whichever is the lesser. The minimum distance shall be 1.0 metre; and
- the relevant certificate shall indicate the exemption granted.



NLS RECORD

1 GENERALS

1.1	Certification
As regards safety related hazards matters, ship's construction and equipment are in compliance with :	
- the IBC Code	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
- the BCH Code, including amendments 1 to	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA
1.2	Location of cargo tanks, slop tanks, ballast tanks :
Complete diagram hereunder with following indications : CT : Cargo tanks ST : Slop tanks BT : Ballast tanks	
1.3	Similar tanks
State which cargo tanks, including their piping, pumping and stripping systems are considered to be similar ones :	
All cargo tanks are similar except slop tanks	
1.4	Information on the list of carriage products :
(Reference should be made to the list annexed to the certificate of fitness and to the hull classification certificate).	
Indicate the cargo tanks in which noxious liquid substances of the following categories are currently carried :	
NLS category X: Tanks N°	ALL CTs
NLS category Y : Tanks N°	ALL CTs
NLS category Z : Tanks N°	ALL CTs
NLS category OS : Tanks N°	ALL CTs
1.5	Documentation
Confirmation that the following documents are available :	
1.5.1	Approved Procedures and Arrangements Manual <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
1.5.2	Approved loading Manual <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
1.5.3	Cargo Record Book <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
1.5.4	Cargo information (shipping document) <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA

PART 2 : SHIP'S CONSTRUCTION AND EQUIPMENT

2. SHIP'S CONSTRUCTION AND EQUIPMENT

2.1	Piping and pumping system																					
2.1.1	Cargo tanks fitted with individual pumps <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																					
2.1.2	Cargo tanks are served by a common pump and piping system <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> NA																					
2.2	Stripping system																					
2.2.1	Stripping operations carried-out by means of cargo-pumps <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																					
2.2.2	Stripping operations carried-out <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																					
2.2.3	For stripping purposes, is any cargo tank served by its own stripping/cargo pumping and piping system - Capacity? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																					
2.2.4	If not, state the tanks served by a common stripping or pumping system :																					
<table border="1"> <thead> <tr> <th>Stripping or pumping system N°</th> <th>Capacity</th> <th>Cargo tanks served by this system</th> </tr> </thead> <tbody> <tr><td>1</td><td>-</td><td>-</td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> </tbody> </table>		Stripping or pumping system N°	Capacity	Cargo tanks served by this system	1	-	-	2			3			4			5			6		
Stripping or pumping system N°	Capacity	Cargo tanks served by this system																				
1	-	-																				
2																						
3																						
4																						
5																						
6																						
2.2.5	Means for discharge to reception facilities : FROM MANIFOLD																					
2.3	Means to blow-out the cargo-lines, if any available on board :																					
<table border="1"> <thead> <tr> <th></th> <th>Pressure</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>Air</td> <td>7 bar</td> <td>Air compressor</td> </tr> <tr> <td>Nitrogen</td> <td>7 bar</td> <td>Nitrogen Gas Generator</td> </tr> <tr> <td>Inert Gas</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Pressure	Capacity	Air	7 bar	Air compressor	Nitrogen	7 bar	Nitrogen Gas Generator	Inert Gas	-	-									
	Pressure	Capacity																				
Air	7 bar	Air compressor																				
Nitrogen	7 bar	Nitrogen Gas Generator																				
Inert Gas	-	-																				
Is an inert gas fitted on board? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																						
Make : Gloryholder Liquefied Gas Machinery (Dalian) Co.,Ltd																						
Type : LGM-N1650-95																						

NLS RECORD

2.4 Ventilation equipment																					
2.4.1	Is any cargo tank equipped with ventilation arrangements <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
If not, states which tanks are fitted with such arrangements : N.A.																					
Fans: Maker : Qingdao Henet Marine Model : CBL71D/CSL Equipment Manufacture Co., Ltd/																					
Flow-rate : 12000m3/h Number per tank : 1 fixed for all CTs; 2 portable water power gas-freeing fan for all CTs																					
Inlet diameter of the tank opening : filling through cargo oil piping																					
2.4.2	Confirmation that ventilation equipment is placed in the tank opening closest to the tank sump or suction point <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
2.4.3	Confirmation that ventilation equipment is positioned so that the airjet is directed at the tank sump or suction point and impingement of the airjet on tank structural members is avoided <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
2.4.4	Confirmation that ventilation equipment produces an airjet which can reach the tank bottom (Ref. table C-1 of Appendix C of the P and A Standards) <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
2.5 Washing and pre-washing arrangements																					
Washing machines :																					
Make : TANKTECH CO. LTD. (BUSAN-COREA) Model : UPM-4050(FIXED) & UPM40P (PORTABLE)																					
Type (fixed/portable) : 26 FIXED, 2 PORTABLE																					
Capacity : 23.5m3/h for UPM-4050; 21.2m3/h for UPM-4050																					
Pressure : 0.8 MPa																					
<table border="1"> <thead> <tr> <th>Tank number</th> <th>Number per Tank</th> </tr> </thead> <tbody> <tr> <td>CT1-6(P&S)</td> <td>2</td> </tr> <tr> <td>ST(P&S)</td> <td>1</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>		Tank number	Number per Tank	CT1-6(P&S)	2	ST(P&S)	1														
Tank number	Number per Tank																				
CT1-6(P&S)	2																				
ST(P&S)	1																				
2.5.1	Confirmation that washing machines are of the rotary water-jet type <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
2.5.2 Washing water supply system :																					
Pumps used : TANK WASHING BY FRESH WATER OR SEA WATER Number : 1																					
Make : FRANK MOHN FUSA AS (FUSA-NOR) Model : SD125-W6 DUHH63-B318																					
Rate : 175L/Min Water head : 120m																					
2.5.3	Is the system fitted with a water-heating system <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				
2.5.4	Are means provided to monitor the washing/pre-washing water temperature? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA																				

**RECORD OF CONSTRUCTION AND EQUIPMENT
FOR PREVENTION OF POLLUTION BY NOXIOUS LIQUID SUBSTANCES**

PART 3 : SHIPS'S CONSTRUCTION AND EQUIPMENT (Continuation)

3. SHIP'S CONSTRUCTION AND EQUIPMENT (Continuation)

3.1 Discharge arrangements :						
3.1.1	Number of discharge outlets : 1					
3.1.2	Are all of them located below the water-line? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA					
If not, arrangements made to separate, if required, the discharge outlets below the water-line from those located above the water-line : -						
3.1.3 Location of the discharge outlets :						
Within the cargo area ? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA						
In the vicinity of the turn of the bilge ? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA						
3.1.4 Arrangements made to avoid the re-intake of residue/water mixtures by the ship's sea water-intakes ? yes						
Port Side						
Inner diameter	Outlet N°1	Outlet N°2	Outlet N°3	Outlet N°4	Outlet N°5	Outlet N°6
Distance from the forward perpendicular	132.85m					
Maximum rate of discharge through the outlet (maximum discharge-rate of the pump)	150m3/h					
Angle made between the discharge and the normal to shell plating	90 degree					
Angle-made between the discharge and the horizontal plane (+ : upwards/ - : downwards)	0 degree					
Starboard Side						
Inner diameter	Outlet N°1	Outlet N°2	Outlet N°3	Outlet N°4	Outlet N°5	Outlet N°6
Distance from the forward perpendicular						
Maximum rate of discharge through the outlet (maximum discharge-rate of the pump)						
Angle made between the discharge and the normal to shell plating						
Angle-made between the discharge and the horizontal plane (+ : upwards/ - : downwards)						
3.1.5	State which of the above outlets serve the slop tanks : No.1					

NLS RECORD

3.2	Discharge of category B residue/water mixture (applicable to existing ships not fitted with an efficient stripping system)	
3.2.1	Means provided to record actual starting and stopping discharge times (GMT or other standard time)	
	Make : -	Model : -
3.2.1.1	Is the system automatically activated when a discharge is performed	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
3.2.1.2	Is the date automatically recorded	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
3.2.2	Means provided to control the discharge rate :	
3.2.2.1	Variable - capacity pump	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
3.2.2.1.1	Capacity range: From : to :	
3.2.2.1.2	Flow rate recording device :	
	Flow-meter : Make :	Model :
	Flow-recording unit : Make :	Model :
3.2.2.1.3	Test of flow-rate recording device :	
	Indicated flow :	
	Actual flow :	
3.2.2.2	Fixed-rated pumping system	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
	Capacity :	
3.2.2.3	Throttling arrangement of the pump discharge side	
	Maximum rate of the pump :	
	Capacity range of the throttling arrangement : From : to :	
3.2.3	Manual alternative method provided in case of failure of the actual discharge times and flow-rate recording devices :	
3.3	Miscellaneous	
3.3.1	Are all cargo tanks fitted with a cargo heating system ?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
	If not, which cargo tanks are fitted with such means ? -	
3.3.2	Are cargo-tanks fitted with means for detection of liquid remains ?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
	In the affirmative, state which tanks : All CTs	

4. PLAN APPROVAL

The following drawings are available on board :

Drawing N°	Designation	Approved by / on
-	P & A Manual	Bureau Veritas/March 11,2011
-	SMPEP	Bureau Veritas/March 4,2011
-	Location and construction of overboard hole	Bureau Veritas
-	Oil discharge monitoring and Control system manual	Bureau Veritas/March 11,2011

Ch.3 Survey and certification

Products category	Applicable Rules	BV Service Notation	Statutory Certificate
Chemicals IBC Ch. 17 Cat X, Y, Z	IBC Code MARPOL Annex II	Chemical tankers	FITNESS Certificate
Vegetable Oils IBC Ch. 17 Cat. Y	IBC Code MARPOL Annex II	Chemical Tanker (Type 2)	FITNESS Certificate
Chemicals IBC Ch. 18 Cat Z	MARPOL Annex II	FLS Tankers Oil tankers certified to carry NLS	NLS Certificate
Chemicals IBC Ch. 18 Cat (OS)		Tankers	
Liquefied Gases	IGC Code MARPOL Annex II	Gas Carrier	FITNESS Gas Certificate NLS Certificate

	New Chemical Tankers: keel laid or converted to a chemical tanker after 01/01/2007					IBC Ships: keel laid on or after 01/07/1986 until 01/01/2007					BCH Ships: keel laid before 01/01/1986				
	X	Y	Z (17)	Z (18)	OS	X	Y	Z (17)	Z (18)	OS	X	Y	Z (17)	Z (18)	OS
Stripping quantity (litres)	75	75	75	75	-	150	150	350	350	-	350	350	950	950	-
Underwater discharge outlet	√	√	√	√	-	√	√	-	-	-	√	√	-	-	-
P&A Manual	√	√	√	√	-	√	√	√	√	-	√	√	√	√	-
SMPEP	√	√	√	√	-	√	√	√	√	-	√	√	√	√	-
Cargo Record Book	√	√	√	√	-	√	√	√	√	-	√	√	√	√	-
Damage stability	√	√	√	-	-	√	√	√	-	-	√	√	√	-	-
NLS Certificate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Certificate of Fitness	√	√	√	√	-	√	√	√	√	-	√	√	√	√	-

	Other ships: keel laid before 01/01/2007					Other ships: keel laid after 01/01/2007				
	X	Y	Z (17)	Z (18)	OS	X	Y	Z (17)	Z (18)	OS
Stripping quantity (litres)	-	-	-	-	-	-	-	-	75	-
Underwater discharge outlet	-	-	-	-	-	-	-	-	√	-
P&A Manual	-	-	-	√	-	-	-	-	√	-
SMPEP	-	-	-	√	-	-	-	-	√	-
Cargo Record Book	-	-	-	√	-	-	-	-	√	-
Damage stability	-	-	-	-	-	-	-	-	-	-
NLS Certificate	-	-	-	√	-	-	-	-	√	-
Certificate of Fitness	-	-	-	-	-	-	-	-	-	-