International Board October 2010 Item 5(ii)

KIMO

KOMMUNENES INTERNASJONALE MILJØORGANISASJON

Inspections of Container lashings by the Dutch Government

Following questions raised by KIMO President Albert de Hoop and the Queen's Commissioner for Friesland. It was decided that the Port of Rotterdam, Transport and Water Management Inspectorate would carry out further research into the observance of the rules in the field of lashing and loading of containers in the form of a themed action.

The objective of the themed action was to determine the degree to which containers on board sea-going vessels are lashed according to the stipulated standards. Legal conditions have been stipulated for securing and loading (lashing) containers on board a sea-going vessel. Every container ship must have an approved Cargo Securing Manual (CSM). It also describes the way that unit loads should be secured and which (dynamic) forces could affect this.

The themed action was implemented in collaboration with the Port of Rotterdam by carrying out a quick scan of 57 container sea-going vessels in the Rotterdam harbour area during the period from October to December 2009. This themed action is an evaluation showing the status at the end of 2009. This is a benchmark because it is the first measurement of its type. No administrative or criminal measures will be taken in this themed action.

The most important findings are:

1. All the ships inspected have a compulsory CSM onboard;
2. 46 % of the inspected sea-going vessels do not lash containers in accordance with the CSM regulations;
3. The weights that are used for calculating the container lashing on board the sea-going vessels often (63%) do not correspond with the weights stated in the ship's manifest.

A full breakdown of the conclusions and recommendations are included in sections 6 and 7 of the attached report.

Links to International Action Plan

This work fulfils the commitment in **Section 3** of the KIMO International Action Plan - **Increase Influence Nationally and Internationally/Lobby National Governments and the EU**

Objective	Action	Actor	Target	Date
Influence EU policy	Influence MEP's and Commissioners	Secretariat	Forward KIMO Resolutions to MEP's and commissioners	November 2010
Maritime Safety	Campaign on existing Resolutions	Secretariat/ Networks	Raise issues at any appropriate fora	Ongoing
Campaign for a Reduction in lost Containers	Secretariat	Raise issue with MEP's	Ongoing	2010

Action Requested

Members are requested to consider and discuss the report and approve the following actions. The Secretariat will forward the information to the MEP's on the Transport Committee and the DG MOVE. National coordinators should send the report to their national regulators suggesting they undertake a similar inspection programme.

Inspectie Verkeer en Waterstaat
Ministerie van Verkeer en Waterstaat

Themed action for lashings

Themed action for Lashings

Date 30 August 2010
Status

Colophon

Issued by	IVW/Shipping
Implemented by	Port of Rotterdam, Transport and Water Management Inspectorate
Date	30 August 2010

Contents

1 Management summary

About 18 million containers travel over the Dutch section of the North Sea annually. Between 5 and 67 containers per year fell overboard in the period 2004 to 2009 as a result of various incidents. Questions were asked about this by the Mayor of Ameland and the Queen's Commissioner for Friesland. It was decided that the Inspectorate would carry out further research into the observance of the rules in the field of lashing and loading of containers in the form of a themed action

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The most important findings are:
1. All the ships inspected have a compulsory CSM onboard;
2. 46 % of the inspected sea-going vessels do not lash containers in accordance with the CSM regulations;
3. The weights that are used for calculating the container lashing on board the sea-going vessels often (63%) do not correspond with the weights stated in the ship's manifest.

It can be concluded that the rules are not being observed properly: it is true that all the ships have a CSM on board, but in more than half the cases the lashings are not executed in accordance with the CSM. Furthermore if the CSM is observed it is unclear whether the lashings can resist all the forces confronting the containers at sea. This also depends on the underlying calculations used.

The number of incidents of containers falling overboard is relatively small in respect to the number of container ships and transported containers.
On this basis the inspection has come to the conclusion that the lack of observance is high, the risks are estimated as average (to low): containers fall overboard relatively seldom. However, if and when it happens the consequences could be considerable.

The most important findings are:
- The Inspectorate will submit the results to the Classification Societies and the ship-owners (association) for discussion. The objective of this is to draw the at-

tention of these parties to the safety risks and to gain insight into the measures these parties take to improve the observance of the rules.

- The Inspectorate proposes that research is done into the forces occurring at sea and the impact of those forces on the stability calculations onboard the ships.
- The Inspectorate will exchange the results with other international supervisory bodies (The Australian AMSA held a similar themed action in the spring of 2010).
- In view of the lack of observance the Inspectorate wishes to pay attention to the continued inspection of the lashings of containers in the future. The actual inspection effort that will be included in the Long-Range Plan 2011-2015 will also depend on the risks and observance in other fields of Shipping and the available capacity.

2 Introduction/Reason

Reason for the investigation into the lashing of containers
In past years articles have appeared in the written (regional) press about the damage which could be caused by the contents of containers that fall overboard from sea-going vessels The incidents were reason enough for the Mayor of Ameland and the Queen's Commissioner for the province of Friesland and for the members of the Dutch Lower House to express their concern to the Minister and State Secretary of the Ministry of Transport and Water Management. The concern led to a wide range of questions about the number of incidents, the number of containers falling overboard and tracking and finding the containers: the contents of the containers (dangerous materials from damaged containers especially can inflict serious damage to humans, animals and plants if they get into the aquatic environment) and the organisations involved in tracking the containers and their cargoes. The State Secretary for Transport and Water Management answered parliamentary questions in 2008 about this subject and in 2009 the Mayor of Ameland and the Queen's Commissioner provided a written reaction. In the State Secretary's reaction reference is made to the request made to the Inspectorate to implement a themed action about securing containers.

The Sea Shipping Policy Statement "Responsible shipping and a vital fleet" (2008), also announced that an investigation into securing containers will be implemented. Prominent attention has been paid in the Policy Statement to the environmental impact, such as restricting air and water pollution and safety by striving to reduce the number of shipping accidents. The Policy Statement describes the ambition in the coming period to make the Dutch fleet the safest in the world. A separate paragraph is dedicated to reducing the loss of containers with dangerous contents. The Policy Statement says the following about this.

> In view of the risks to both shipping (incl. offshore fishing) and the coast caused by containers falling overboard alongside the attention paid to these issues within the concept of maintenance (PSC), this problem will be discussed internationally to create a basis for international measures.
> The IVW will furthermore instigate an investigation if a Dutch ship loses its cargo on a large scale.
> When a foreign ship loses its cargo, the IVW will address the flag state involved. Furthermore financial support will be given to the lashing@sea project from the MARIN.

Incidents of containers falling overboard
The Coastguard and the Department of Waterways and Public Works publish annual figures relating to incidents with container ships. For this the Department of Waterways and Public Works uses the SOS database, the database of ship's accidents. The Coastguard publishes their long-range numbers in their annual report.

There was a very variable number of incidents in the period between 2004 and 2009; on this basis a trend development cannot (yet) be determined. 2006 and 2007 were two years during which many containers fell overboard; in contrast 2008 was favourable and preliminary figures for 2009 show an increase in the number of lost containers.
The Coastguard is the first body the captain must report to when his ship loses containers. The Coastguard then passes this report on to the Department of Waterways and Public Works. The 2009 annual report from the Coastguard shows a graph of the number of incidents, the containers that fell overboard and the containers found in last 6 years. The text next to a similar graph from the 2008 annual report says that 51 containers fell overboard in one incident (for that matter the containers in the long-range overview in the 2009 annual report can no longer be seen on the graph). It can also be deduced that a large number of the containers that have fallen overboard have been found again. All these containers were classified as non-hazardous. It does not report what happened to the cargo.

Table 1. Number of incidents on the North Sea whereby containers were lost.

Years	2004	2005	2006	2007	2008	2009
Incidents	2	0	3	2	2	4
lost containers	5	0	67	63	53	34
found containers	3	0	42	61	0	11

source: Coastguard annual reports 2008 and 2009, edited by the Inspectorate.

The Policy Statement reports that the North Sea is one of the busiest shipping routes in the world with about 260,000 ship movements per year. More than 110,000 ship movements are to and from the Dutch sea harbours. In addition about 18 million containers are transported annually. In the period 2004 to 2009 between 5 and 67 of them fell overboard. 10 of them landed up on the Wadden Islands, the others did not. Tracking and recovery generally works well. The State Secretary wrote in her letter (January 2009) to the Mayor of Ameland:

> According to figures made available to me by the Dutch Coastguard and the North Sea Foundation roughly 15 containers per year or less have fallen into the North Sea from ships in the last 20 years. However in the last years especially there have been regular incidents where large numbers of containers have fallen overboard at the same time. In 2006 67 containers fell into the sea in 3 different incidents and in 2007 55 fell in as a result of 2 incidents. I do think that such numbers should be seen in proportion to the volume of container transport. In Dutch harbours about 8 million containers are transhipped annually. Since only 30% of sea transport on the North Sea visits a Dutch harbour, the actual container transport on the North Sea is many times greater that 8 million per year.

Previous research
One of the safety aspects given very little attention until recently is determining the container cargo.

There are a few investigative reports about container ships from which containers fell overboard. The Inspectorate knows of the investigation by the MAIB (Marine Investigation Accident Branch) into the incidents on the P&O Nedlloyd Genoa on 27 January 2006 and the Annabella on 26 February 2007. Furthermore the long-range research Review Current Practice (Lashing@sea) from the Marin is a source of information. That report contains an overview of various incidents from which safety lessons have been drawn. The report also contains the following revealing general note:

> "Overall statistics on damages /cargo losses are not available"

The Marin report does not mention if this theory also applies to the North Sea. The writers of the report furthermore state that the involvement of hazardous cargo induces much fuss/commotion and that extreme weather conditions cannot often be found in the statistics as the cause (under-reporting), but that loss of cargo from unknown causes or where the cause appears to be uncontrollable is considered by the sector to be disquieting. In the following chapter in the report in question the writers give many reasons for containers falling overboard. However the cause is unknown in some recent incidents. What does stand out is that good stowage and securing of the containers according to the regulations and the actual weights and dimensions being taken into account reduces the risk of loss of the containers. It often emerges that maintenance to the lashings is overdue so that the cargo cannot be secured properly.

3 Legislation

According to SOLAS 1974 every ship larger than 500 GT must be in possession of a Container Secure Manual (CSM). The CSM is mentioned in chapter VI, Carriage of Cargoes. Paragraph 6 of article 5, Stowage and securing, says that containers must be loaded, stowed and secured during the passage in accordance with the Cargo Securing Manual approved by the Administration. SOLAS refers to the Guidelines for the Preparation of Cargo Securing Manual (MSC/circ.745) for the contents of the SCM.

Chapter VII article 3 of the SOLAS refers the rules in the IMDG code (International Maritime Dangerous Goods) for containers with dangerous materials. The IMDG code refers to the Cargo Securing Manual in paragraph 1.1.2.1.
The CSM is the essential document. It defines the equipment needed to secure the containers during transport and which procedures are to be followed, such as actualisation and approvals. It also defines the requirements the equipment, lashings, twistlocks etc. must comply with. A separate paragraph describes the maintenance, the repairs and the replacement of the equipment. The CSM is specifically formulated for the ship concerned. Classification societies issue a certificate of approval for the CSM. They are responsible for the quality of the CSM and that the CSM has been drawn up according to the guidelines. The CSM must be onboard the ship. It will be made available when supervisors request it.

SOLAS Chapter VI regulation 2.3 states that before loading the shipper must guarantee that the gross weight of the load unit corresponds with the stated weight.

3.1 Role and accountability

The Inspectorate (Flag state) is the "competent authority" for issuing CSMs to sea-going vessels sailing under the Dutch flag. From 2006 Classification Societies are mandated by legislation to issue the CSM to sea-going vessels sailing under the Dutch flag and to check the legal regulations. In practice they issue them completely independently and are responsible for the quality. The Inspectorate (flag state) supervises the Classification Societies by means of audits and ‘reality checks’ (specific inspections to determine that the classification societies are working in accordance with the rules and agreements).

The Inspectorate can only inspect classification societies and address them about sea-going vessels flying the Dutch flag, but classification societies work all over the world and issue CSMs for other authorities. The collective factors are the worldwide regulations (SOLAS, IMDG) about the design, procedure and quality of the CSM.

4 Research report

4.1 Introduction

The Port of Rotterdam and the Inspectorate inspected 57 container ships during the months of October, November and December 2009. The HCC/-CMA incident room had selected these ships by using vessels belonging to the Port of Rotterdam to take photos of incoming ships. All inspections were held in the Rotterdam port area. Both short sea (n=27) and deep sea ships (n=30) were inspected. Types of ships other than container ships were not inspected.

4.2 Objective / Research question

The objective of this themed action is to determine the degree to which containers onboard sea-going vessels are lashed according to the stipulated standards.

To answer the research question the Inspectorate has looked to see whether the required documents were available and whether the containers were actually secured according to the described procedures. The Inspectorate has also looked at the procedures that were followed when the containers were secured (including the use of the correct and authorised material).

4.3 Contents of themed action

A digital inspection form has been designed for the implementation of this themed action which contains questions about the compulsory documentation (CSM) onboard and about the observations made onboard during the physical inspection. The answers to these questions are generally Yes or No. It is possible to add extra comments and calculations in some of the questions about weights. The questions are aimed at the captain or the first officer. This themed action is an evaluation of the observance showing the status at the end of 2009. This is a benchmark because it is the first measurement of its type.

In short, the questions onboard were connected with the following points.

1. Are the CSM and the lashing plans present, complete and valid?
2. Are the procedures in the CSM being followed?
3. Have the required parts also been included in the CSM?
4. Is the described procedure also used and followed?
5. Does the "the stackweight" in the CSM correspond with the stated container weight on the ship's manifest?

The Inspectorate has carried out onboard inspections to determine the degree to which reality onboard differs from the described procedural reality.
The inspections also related to:

1. Inspections of the lashed containers;
2. Inspections of the lashing material used;
3. Inspections of the quality and maintenance of the lashing material;
4. Determining whether the containers were fastened properly by means of photos or when entering harbour.

5 Results

The answers by the captains or 1st officers about following the procedures from the CSM contradict the actual inspections onboard. The captains or 1st officers of most of the ships inspected (87%) answered that the procedures from the CSM are followed while the inspections show that "everything is in order" for only 47% of the ships.
68% of the short sea ships are in breach of the law and 40% of deep sea ships.

Table 3. Results of themed action on lashings

nr			short sea	deep sea
2	Number of inspections (N)	57	27	30
6	Ships with CSM onboard	100%	100%	100%
11	Lashings conforming to CSM, *according to captain /1st mate*	87%	85%	90%
34	Lashings conforming to CSM, *according to observations of the inspector*	47%	32%	60%

Source: Transport and Water Management Inspectorate and the Port of Rotterdam themed action on lashings

These answers show that the crews from a considerable number of the short sea ships (n=12) loosen the lashings and twistlocks before the ship moors alongside the wharf. The last kilometres of the journey are used for this. This means that the containers are not secured on the last part of the journey (on river, canal or harbour). The argument for this, when asked by the Inspectorate, is gaining time. The cranes can start unloading immediately after mooring.

5.1 Container weights

It emerges from the questionnaire that not everything is in order with the weight and stowage of the containers. In practice not all the parties know whether the weight of the container stated by the shipper corresponds with the actual weight. Nobody makes a fuss. The general problem with the container weight is that the shipper/owner of the goods stipulates the weight. According to SOLAS this is an obligation. This weight will be on the documents transferred to the next parties in the transport chain without the containers actually being weighed again. All the parties therefore conform to the document formulated by the shipper. These are then the "paper" weights, which will also be used in the computer calculations onboard.

The container crane does not always weigh the container when it is hanging on the crane. 90% of the captains answered that the weights are not recalculated. Determining a weight that is as low as possible could be of interest to the shipper. After all, the cost of transport depends on weight. Therefore the paper weight is often less than the physical weight.

Most mistakes are made when piling containers up in a "stack". The heaviest containers were not always at the bottom with the lighter and empty ones on top; mis-

takes had been made in stacking the containers on about half of the ships (46%). On three ships it emerged that the total weight of the stacked containers was more than the maximum weight stated in the CSM. The number of layers of containers proved in most cases (90 %) to correspond with the maximum number of stacked containers shown in the CSM.

The container lashing computer used onboard only gives a warning when the maximum weight is exceeded per row not per layer of stacked containers. These computer programmes which are also used for the stability calculations do not come up to the mark nowadays. They are in need of upgrading. The computer programmes calculate using the (often less than actual) weights from the documents and make use of the parameters needed for the force calculations and have been engrafted with the normal average values of wave height, wind strength, wind direction, swell etc. While on the other hand it appears from the incident investigations that (extreme) exceptional situations, of which the programmes take no account, are the basis of the incidents (source: MAIB, Maritime Accident Investigation Branch in Great Britain and the ATSB, Australian Transport Safety Bureau in Australia).

In 63% of the ships there proved to be a difference between the weight used in the computer calculations and the weight given on the manifest.
The Inspectorate also determined that captains did not check the weights on sea-going vessels not using a computer programme.
On the other hand it is remarkable that almost 90% of the ships have the computer calculation and the manifest available on board. Moreover 80% of the captains and 1st officers questioned indicated that both were compared but nothing more. Nothing is done about the difference (is not relevant). It emerges from discussions with them that generally they know that the given document weights are not (very) reliable. Also the gross and net weights can become confused in daily practice and the wrong one used. The correct stability of the sea-going vessel is more important. The Inspectorate is at this moment carrying out an investigation into the stability.

5.2 Inspection onboard

The Inspectorate has checked several bays per ship. The inspection involved the whole ship only in an exceptional case. The everyday course of events onboard these container ships differs from the procedures described in the CSM. The Inspectorate saw that there was a considerable difference between the answers received (from the captain and the 1st officer) and the results of the inspections.

The availability of the CSM was no guarantee that the procedures were also good. The CSM has been formulated and issued within the responsibility of the Classification Society. A conflicting answer was received after a long wait when the contents of a CSM were inquired about at two Classification Societies. When continuing to ask questions about this subject at one Classification Society it emerged that their one expert was working abroad.
During these inspections inspectors noticed that 6 ships had used defect lashings or other material to secure the containers. On one ship for example inspectors determined that the "lash-eyes" secured to the deck were defect and could no longer be used.

According to the CSM the defective lashing material should be kept in a separate and isolated place on the ship. It emerges from the inspections that this is not always the case. About 20% of the ships, short sea ships in particularly, do not comply with this rule from the CSM.
Many ships, all deep sea ships in particularly, make use of a small number of specialised companies to secure the containers, the so-called "shore gangs". The captain then fails to check whether the lashing material also conforms to the (technical) requirements of the CSM. Furthermore it emerges that various ships cannot show certificates for the lashing material. The captain will assume that the certificates "are at headquarters" just like the other documents of the entire fleet will be present. The crew lashes the containers down themselves on short sea ships.
Inspectors observed that the lashing material is often not described properly, that the wrong lashing material is used, that single lashings are being used instead of double and that maintenance is not being carried out thoroughly.

6 Conclusions

1. The CSM is always onboard and approved by the Classification Society.
2. The regulations in the CSM are not being observed on a large number of the inspected ships.
3. It is noticeable here that, prior to this inspection, the crew onboard usually stated that these regulations were being observed.
4. Many ships proved to have shortcomings in the use of the lashing material with which containers are secured. Captains take unnecessary risks with this. Captains probably do not realise that containers falling overboard is a regular occurrence.
5. During the loading process too little account is taken of the forces exercised during transport on the ship and the cargo. Correct securing of the containers, which must also be properly stacked with account taken of the weight, can reduce the risk of lost containers.
6. The captain is not always aware of what actually happens. He is (often) completely dependent on the data supplied by those involved on dry land and he does not check whether the data is correct of complete. This is not possible in many cases simply because he does not see the documents or load units earlier. With deep sea transport the captain relies on the quality and effort of the cargo lashers who lash the containers. It is not clear which unwanted situations this causes. Inspectors noticed defective or uncertified lashing materials on board. For instance inspectors saw worn, poorly maintained or broken lashing material on 6 ships.
7. The computer programmes used for loading too often calculate using lower and average parameters regarding the forces applying onboard. Incident investigation reveals that containers falling overboard can be attributed to the extreme forces to which the ship and cargo are exposed. If the computer programmes were to take these extreme values more into account the force calculations would be more accurate.
8. The lashing computers are not certified by Classification Societies.
9. The Classification Societies have to work carefully when approving the quality and completeness of the CSM. The captain or 1st officer will have to ensure that the procedures are actually followed in practice so that the CSM is not just paper reality. The regulations about loosening containers must be better observed. Lashings on the containers are still too frequently loosened during the last kilometres of the voyage so that unloading can begin immediately after mooring at the terminal. Working with only the "paper" document weights of containers brings the usual risks although it is easy to use the actual weights onboard. Stacking the wrong containers and "heavy containers high and empty containers low" brings with it great risk. The stability is not guaranteed when using only the "document weights".
10. Incidents with containers that fall overboard are registered by the Coastguard and the Department of Waterways and Public Works. It is noticeable that the incident reports include (too) little about the nature and quantity of the cargo. The registration could be extended to include this. Not all the incidents are investigated or the causes analysed.

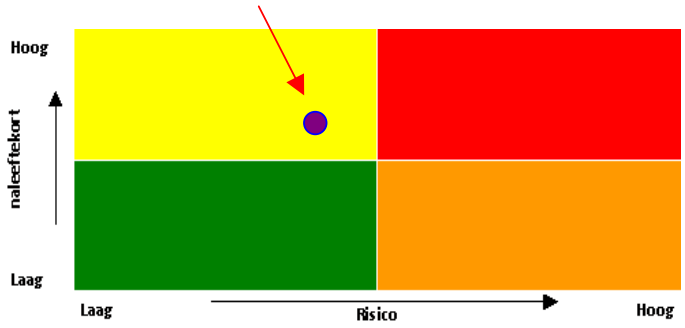
In this themed action the Inspectorate has not been able to determine that it is by definition more unsafe because the procedures are not being observed properly.

The essence of the conclusion is that the rules are not being observed properly: it is true that all the ships have a CSM on board, but in more than half the cases the lashings are not executed in accordance with the CSM. Furthermore the conclusion is that the underlying calculations used for lashing are cause for concern. In other words: even if the CSM was observed, it remains to be seen if the lashings could resist all the forces that could confront containers at sea.

The number of incidents of containers falling abroad is relatively small in respect to the number of container ships and transported containers. That does not alter the fact that every year (in an absolute sense) a substantial number of containers are lost. It must also be mentioned that only the officially registered incidents and lost containers have been counted in this investigation. No large accidents resulting from containers falling or being washed overboard have been reported up until now. The risk is that containers could collide with ships and platforms. In addition the possibility of water pollution exists. There is a chance that dangerous substances which could come into contact with civilians and environment will be released when containers wash up onto land.

On this basis the inspection has come to the conclusion that the lack of observance is high, the risks are estimated as average (to low): Containers seldom fall overboard, however, if they do and it goes wrong the consequences would be considerable.

So the Inspectorate has placed 'lashings' in the observation- risk matrix*.



*

One of the starting points when using the inspection capacity is the risk-based supervision. This means that: the Inspectorate determines its interventions and chooses its inspection capacity based on a combination of two quantities, the observation level of the core stipulations from legislation and the risks of the transport. The Inspectorate has developed the Observation risk matrix for this purpose. A certain form and intensity of supervision is chosen in the matrix depending on the position of the market segment or subject.

7 Recommendations

On the basis of these conclusions the inspection recommends the following.

- The Inspectorate will submit the results to the Classification Societies and the ship-owners (association) for discussion. The objective of this is to draw the attention of these parties to the safety risks and to gain insight into the measures these parties take to improve the observance of the rules.
  For the discussion with the Classification Societies:
  The Classification Societies should have sufficient knowledge available to formulate and issue the CSM;
  The Classification Societies should substantiate their responsibility for the quality of the CSM and the fulfilment of the legal requirements;
  The Classification Societies should ensure that the compulsory force calculations in the CSM are sufficiently able to meet the actual forces occurring during sea transport.
  For the discussions with the ship-owners:
  To have the procedures in the CSM for lashing the containers also implemented in practice;
  The computer programmes should use both the actual weights of the containers and the realistic values of parameters for force calculations.
- The results will be brought to the attention of the Directorate-General for Civil Aviation and Maritime Affairs policy department of the Ministry of Transport and Water Management.
- The Inspectorate proposes that research is done into the forces occurring at sea and the impact of those forces on the stability calculations on board the ships;
- The Inspectorate will exchange the results with other international supervisory bodies (The Australian AMSA will hold a similar themed action in the spring of 2010).
- In view of the lack of observance the Inspectorate wishes pay attention to the continued inspection of the lashings of containers in the future. The actual inspection effort as will be included in the Long-Range Plan 2011-2015 will also depend on the risks and the observance in the other fields of Shipping and the available capacity.

Appendix 1 Lashings inspection form

Transport and Water Management Inspectorate
Shipping
Inland Shipping and Dangerous Materials
Lashings inspection form
559 Date…../…../….. Point of time…..….. Inspector's code
……..

Number	Question	Yes	No	Remark/text
	GENERAL QUESTIONS			
1	Ship's name			
2	IMO number			
3	Flag			
4	Last Port of call/Next Port of call			/
5	Deep sea/Short sea			deep sea short sea
	CSM - CLP QUESTIONS			
6	CSM available			
7	Name of classification society or competent authority issuing CSM			GL-LR-DNV-ABS other
8	Number of CSM			
9	Moment of inspection			arrival - departure - during load-ing/discharging
10	Inspection of bay(s) or whole ship			bay whole ship
11	Lashings applied conform CSM (question to chief off if fol-lowing CSM)			
12	if no mention reason in remark area			
Number	**Question**	**Yes**	**No**	**Remark/text**
13	Lashing materials listed in CSM (minimum information Type,			
	Quantity, and MSL (Maximum Securing Load))			
14	All portable securing devices visually examined and greased as			
	necessary at intervals mentioned in CSM ch. Inspection and maintenance			
15	Records of these inspections kept on board (check make copy)			copy enclosed / copy not made/ not available
16	Before use (whether fixed or portable) equipment visually inspected that there are no defects, all moving parts operat-ing properly			
17	Securing operations completed before the ship leaves berth			
18	Securing operations planned conform CSM			
19	Lashings applied check before leaving berth by ships staff			
20	Are lashings released before the ship is safely secured at the berth			
21	if no mention reason in remark area			
22	Number of portable securing devices enough to ensure			copy enclosed / copy not made/ not available

	containers are lashed conform the CSM (see copy inventory list)			
Number	**Question**	**Yes**	**No**	**Remark/text**
	STACK WEIGHT			
23	Mass less than maximum stack masses mentioned (inspected bay)			
24	Sequence of masses in stacks followed (inspected bay)			
25	Stack height equal or less than maximum stack height (inspected bay)			
26	Choose one or more containers on the ship			
	Is there a difference between the weight recorded on paper manifest or transport document and the weight used in ship's cargo computer			
27	Difference in weight between paper and computer			Note difference
28	Copy of paper weight manifest/transport document and ships cargo computer made and enclosed			
Number	**Question**	**Yes**	**No**	**Remark/text**
29	Container weight details in ships cargo computer are weights conform			transport document
	Ask chief off and cross one possibility			manifest electronic data from agent/shipping company others mention
30	Chief officer is comparing paper and electronic/computer weight			
31	Weight of container(s) checked by crane or weighbridge on shore			
32	Difference in crane/weighbridge weight and transport document			enclose documents
	INSPECTION ON DECK			
33	Number Bay inspected			Bay nr
34	Lashings conform CSM ? If no give reason			
35	if no mention reason in remark area			
36	During inspection damaged portable/fixed lashing devices found ?			
37	if yes mention deficiency remark area			
38	Defective portable lashing equipment put aside into a suitable separate location			
39	on deck check one number of portable lashing equipment if it is equal to identification number mentioned in CSM			
40	Lashings applied by crew or shore gang			crew shore gang

Appendix 2: Outline of results

nr.		total of all ships	short sea	deep sea
	Number of inspections	57	27	30
6	CSM onboard	100%	100%	100%
11	Lashings conform to CSM, according to captain 1st officer	87%	85%	90%
34	Lashings conform to CSM, according to the Inspector	47%	32%	60%
20	Lashings, loosened during sailing	21%	44%	0%
24	The containers are stacked in the correct (on the basis of weight)	45%	37%	53%
26	Difference between container weight in documents and computer programme onboard (selection of one container)	63%	56%	70%
31	The container is not weighed by the crane or weighbridge	89%	85%	93%
36	Inspectors found defective or damages lashings during inspections.	10%	10%	10%

Appendix 3 GUIDELINES FOR THE PREPARATION OF THE CARGO SECURING MANUAL

PREAMBLE

In accordance with the International Convention for the Safety of Life at Sea, 1974 (SOLAS) chapters VI, VII and the Code of Safe Practice for Cargo Stowage and Securing, cargo units, including containers shall be stowed and secured throughout the voyage in accordance with a Cargo Securing Manual, approved by the Administration.

The Cargo Securing Manual is required on all types of ships engaged in the carriage of all cargoes other than solid and liquid bulk cargoes.

The purpose of these guidelines is to ensure that Cargo Securing Manuals cover all relevant aspects of cargo stowage and securing and to provide a uniform approach to the preparation of Cargo Securing Manuals, their layout and content. Administrations may continue accepting Cargo Securing Manuals drafted in accordance with MSC/Circ.385 provided that they satisfy the requirements of these guidelines. If necessary, those manuals should be revised explicitly when the ship is intended to carry containers in a standardized system.

It is important that securing devices meet acceptable functional and strength criteria applicable to the ship and its cargo. It is also important that the officers on board are aware of the magnitude and direction of the forces involved and the correct application and limitations of the cargo securing devices. The crew and other persons employed for the securing of cargoes should be instructed in the correct application and use of the cargo securing devices on board the ship.

Appendix 4: Sources and literature

- Verantwoord varen en een vitale vloot (Responsible shipping and a vital fleet): Shipping Policy Statement 2008
  Ministry of Transport and Water Management
- The Netherlands Coastguard Annual Report 2008
- Lost and found containers in North Sea 2005-2009
  Coastguard provisional overview of 2009
- Network evaluation of North Sea 2008, MARIN report Nr. 23715.620/2
  Customer RWS-Dienst Noordzee
- Review Current Practice
  Container Shipping MARIN July 2007. Revised draft (Project: Lashing@sea)
  Report nr. 197817-1-TM
- Guidelines for the preparation of the Cargo Securing Manual
  (SOLAS CH VI)
  MSC/Circ.745 13 June 1996
- Lower House questions:
  - Parliamentary questions about containers with arsenic pentoxide on the sea
    DGG/V-04/000435/VV
    5 February 2004
  - Parliamentary questions from MP Samson to the Minister of Transport and Water Management about potential lost cargoes of arsenic pentoxide north of Texel
    HKW/TFW2004/570
    20 January 2004
  - Parliamentary questions from MP Poppe about transport by ship of containers with dangerous materials
    VenW/DGTL-2008/498
    7 February 2008
  - Parliamentary questions about ensuring the safety on the water around the Wadden Islands
    RWS/SDFG/NW2008/776/67100
    2 September 2008
  - Letter from the State Secretary for Transport and Water Management to the Mayor of the Municipality of Ameland about containers in sea
    DGTL-2008/380
    29 January 2008
- Various articles from the national and regional newspapers Friesch Dagblad; Nieuwsblad Transport; Persbureau Ameland; De Telegraaf ; IJmuider Courant; NRC Handelsblad
- Response to the *Pacific Adventurer* Incident. Report of the Incident Analysis Team, Strategic Issues Report, Australian Government. Australian Maritime Safety Authority