



Mekong Vessel Inspection Scheme

Prepared for Chiang Saen Commercial Port Area



River Commission

Navigation Programme

Cambodia • Lao PDR • Thailand • Viet Nam
For sustainable development





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MRC Staff

Mr. Satit Phiromchai, Director, Operations Division, MRCS
Ms. Thi Thanh Yen Ton Nu, Navigation Programme Coordinator, MRCS
Mr. Lieven Geerinck, Chief Technical Advisor, Navigation Programme, MRCS
Mr. Rory Hunter, Maritime Risk Management Specialist, Navigation Programme, MRCS
Mr. Bounphet Phommachanh, Programme Officer, Navigation Programme, MRCS
Mr. Tia Vannareth, Programme Officer, Navigation Programme, MRCS
Mrs. Lun Tharath, Programme Assistant, Navigation Programme, MRCS

Chiang Saen Port Staff

Mr. Songglodd Dounghaklang, Director of Marine Office 1, Chiang Rai Branch
Mr. Suranat Sirichote, Harbour Master, Marine Office 1, Chiang Rai Branch

Consulting Team

Mr. Bart Fonteyne, International Expert for Ports and Terminals
Mr. Peter Thys, International Expert for Vessels

National Working Groups

Mr. Itsranunt Chuaychoo, National Manager
Mr. Thanatip Jantarapakde, National Expert for Vessel
Mr. Pitak Wattanapongpisal, National Expert for Port
Mr. Pongnarin Petchu, National Expert for Dangerous Goods Training
Mr. Nuntasak Prasertchai, National Expert for Dangerous Goods Training
Mr. Suranart Sirichote, Liaison Officer, Marine Office 1, Chiang Rai Branch
Mr. Ongoert Malee, Liaison Officer, Thailand Marine

Thai National Navigation Coordinators

Mr. Suchart Sirijungsakul, National Navigation Coordinator
Ms. Nuanlaor Wongpinitwaradom National Navigation Coordinator

Design, Layout and Editing

Mr. Chheana R. Lotus, Design and Layout Expert
Mr. Peter Starr, Editor
Mr. Marty Sharples, Editor

Contents

1 INTRODUCTION	1
2 REFERENCES.....	3
2.1 Agreement on Commercial Navigation on the Lancang-Mekong River and Memorandum ...	3
2.2 Act on Navigation in Thai Waters B.E. 2456	4
2.3 MD Safety Measures for Transportation of Petroleum Products on the Mekong River (Thailand)	4
2.4 Regulation on Ship Survey (No. 19) B.E. 2534.....	4
2.5 European Barge Inspection Scheme (EBIS)	5
2.6 Ship Inspection Report (SIRE) – Sea-going ship/vessel	5
2.7 ADN – Inland Waterway Vessels	5
2.8 ISGINTT.....	6
2.9 Port Regulations.....	6
3 GUIDELINES – HOW TO FILL IN	7
3.1 The Inspection.....	7
3.2 The Inspection Report.....	7
3.3 The Inspection Procedure	7
4 MVIS – CONTENT.....	9
4.1 Summary	9
4.2 Inspection List	10
4.2.1 Vessel certificates and documents	11
4.2.2 Vessel manning certificates held, training and knowledge	13
4.2.3 Health and safety	14
4.2.4 Drug and alcohol policy.....	21
4.2.5 Firefighting and lifesaving equipment.....	21
4.2.6 Environment protection	27
4.2.7 Cargo transfer operation (Tanker vessels)	30
4.2.8 Wheelhouse and navigation.....	32
4.2.9 Mooring/Anchoring.....	35
4.2.10 Engine room	36
4.2.11 Operational Safety.....	38
4.2.12 Vessel appearance.....	39
4.2.13 Cargo Measurement.....	40
Annex 1: MSDS Pyrotechnics	42
Annex 2: Fireworks Loading/Discharging checklist	43
Annex 3: Hot Work Permit	45
Annex 4: Ship/Shore Safety Checklist	48
Annex 5: Bunker Safety Check-list	51
Annex 6: PPE matrix	52
Annex 7: MVIS	55



Acronyms and Abbreviations

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
API	American Petroleum Institute
AIS	Automatic Identification System
BAC	Blood Alcohol content
CCNR	Central Commission for the Navigation of the Rhine
CDI	Chemical Distribution Institute
DG	Dangerous Goods
DNC	Digital Navigation Chart
EBIS	European Barge Inspection Scheme
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System
EMS	Emergency Stop
ENC	Electronic Navigation Chart
ER	Engine Room
ESD	Emergency Shut Down
ETA	Estimated Time of Arrival
GPS	Global Positioning System
IMDG Code	International Maritime Dangerous Goods Code
IMO	International Maritime Organisation
INE WANDA	Inland Navigation Europe, Waste management for inland navigation on the Danube
ISF	International Shipping Federation
ISGINTT	International Safety Guide for Inland Navigation Tank-barges and Terminals
LPG	Liquefied Petroleum Gas
MAWP	Maximum Allowable Working Pressure
MD	Marine Department
MOU	Memorandum of Understanding
MPMS	Manual of Petroleum Measurement Standards

MSDS	Material Safety Data Sheet
MVIS	Mekong Vessel Inspection Scheme
MWP	Maximum Working Pressure
NA	Not Applicable
NM	Nautical mile (1,852 metres)
OCIMF	Oil Companies International Marine Forum
OPPC	Oil Pollution Prevention Certificate
OWS	Oil-water separator
PPE	Personnel Protective Equipment
SIRE	Ship Inspection Report
UN	United Nations
UNECE	United Nations Economic Commission for Europe



1 INTRODUCTION

The Mekong Vessel Inspection Scheme (MVIS) provides a checklist that can be used to inspect vessels that are intended for the transport of general cargo and containers, including the carriage of packaged dangerous goods and solid dangerous goods in bulk, as well as tanker vessels.

The objective of the MVIS is to provide a detailed overview of the current condition of the vessels and compare this with the existing regulations, or as a base to develop and implement new standards in order to improve safety, environmental protection and emergency response.

The number of vessels, the main characteristics of the vessels, the different cargoes handled and cargo statistics at Chiang Saen Port Area are shown in Table 1 and Table 2 below. Table 3 illustrates the main distances from Chiang Saen Port to other inland ports on the Upper Mekong.

Table 1: Statistics on dangerous goods at Chiang Saen Port Area

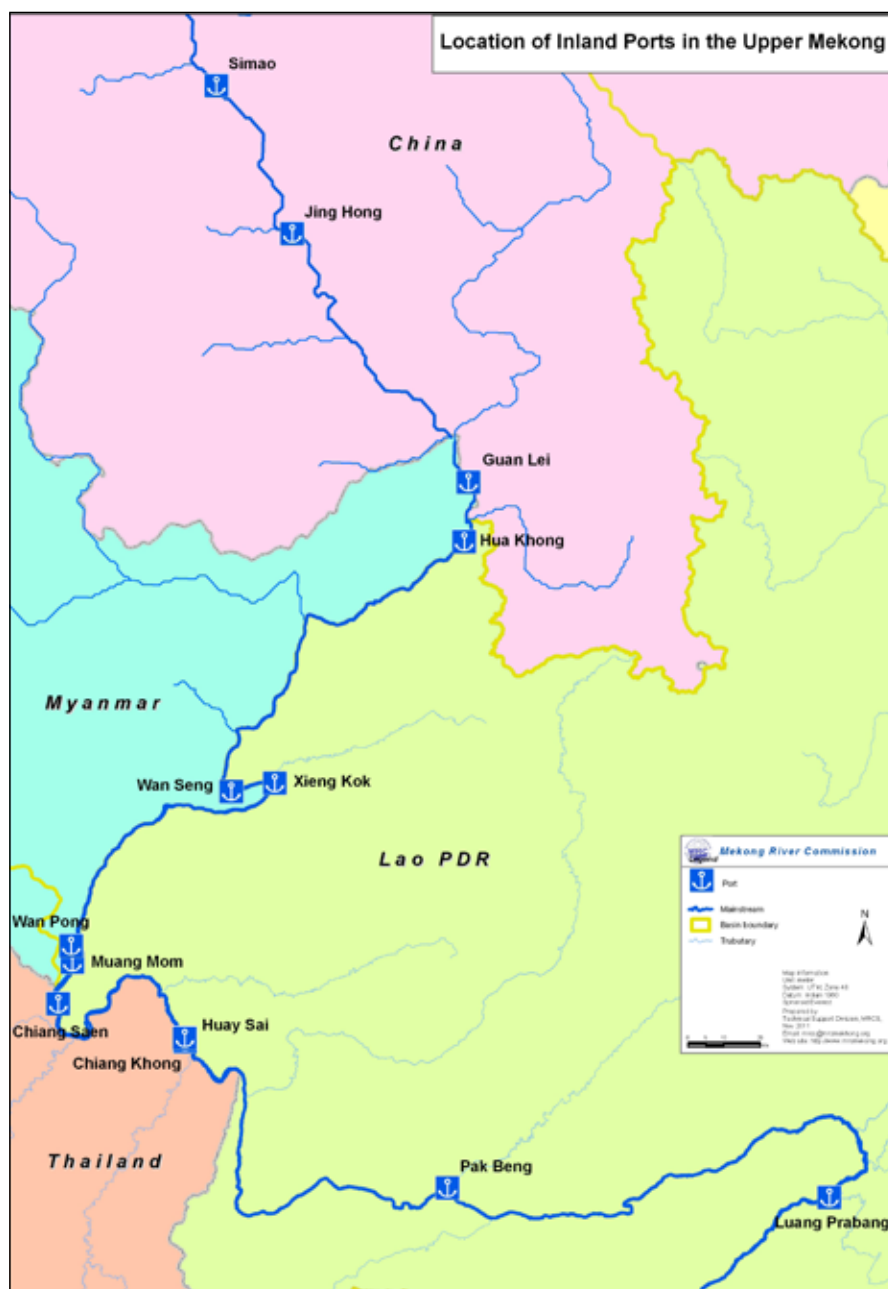
DG	Quantities				Original port	Destination port
	2007	2008	2009	2010		
Diesel & Benzene	Million Litres				Chiang Saen (Thailand)	Soi Lei & Ban Pong (Myanmar)
	5,189	7,907	11,184	12,449		
	Tonne					
Fireworks (tonnes)	-	-	1.039	3.160	Soi Lei (Myanmar)	Chiang Saen (Thailand)

Table 2: Vessel and Cargo Information at Chiang Saen Port, January – December 2011

Vessel and Cargo Information at Chiang Saen Port																
January - December 2011																
Month	Inbound vessels (Number of Vessels)				Amount of Cargo			Outbound vessels (Number of Vessels)				Amount of Cargo				
	China	Laos	Thai	Myanmar	(Tonnes)	Animal (No.)	Passenger (No.)	China	Laos	Thai	Myanmar	(Tonnes)	Passenger (No.)	Cars		Petroleum Product
													(No.)	(No.)	(No.)	(Litres)
2011																
January	129	204	-	-	5,107	-	467	134	197	-	-	13,993,71	119	160	120	1,764,000
February	121	193	-	-	1,250	-	675	111	185	-	-	11,695,70	316	135	-	1,371,000
March	148	280	-	-	3,057	-	444	150	274	-	-	18,218,24	364	218	50	1,920,000
April	86	230	64	38	3,373	-	239	87	225	64	39	19,489,67	178	146	-	1,991,000
May	109	161	78	28	3,027	-	271	102	155	78	23	21,180,38	237	146	-	1,700,000
June	82	283	29	22	2,906	-	133	83	269	29	25	18,726,46	207	279	52	1,711,000
July	75	232	14	23	4,081	-	902	80	243	14	22	14,911,92	807	146	108	998,000
August	111	208	12	22	5,467	50	415	97	206	13	21	19,286,48	301	189	-	1,387,000
September	98	138	14	9	13,993	-	238	104	144	15	10	15,288,60	323	145	-	1,069,000
October	21	414	10	29	3,288	-	123	38	420	10	29	16,092,70	147	148	6,170	536,000
November	5	608	9	64	773	-	20	5	603	9	63	12,862,16	144	118	19,884	756,000
December	59	479	8	46	7,212	-	145	57	488	7	49	18,892,27	145	236	10,754	1,739,000
Total	1,044	3,430	238	281	53,534	50	4,072	1,048	3,409	239	281	200,638,29	3,288	2,066	37,138	16,942,000

Table 3: Distance Table from Chiang Saen Port

From Chiang Saen Port to		Distance		Sailing Time in hours	
Port	Country	Km	NM	Upstream	Downstream
Simao	China	427	230.6	40	20
Jinghong	China	342	184.7	30	15
Guanlei	China	261.8	141.4	25	12
Soplei	Myanmar	182.1	98.3	18	8 - 10
Xiengkong	Laos	108.1	58.4	11	5
Moungmom	Laos	20	10.8	1.5 - 2	1
Wangpong	Myanmar	20	10.8	1.5 - 2	1
Golden Triangle	Thailand	10	5.4	0,8	0.5
Chiang Kong	Thailand	58	31.3	4	2.5 - 3
Luang Prabang	Laos	374	201.9	20	12

Figure 1:
Location of Inland Ports
in the Upper Mekong

2 REFERENCES

The MVIS is mainly based on standards and regulations that refer to:

- The Agreement on Commercial Navigation on the Lancang – Mekong River and the Memorandum of Understanding (MOU);
- Act on Navigation in Thai Waters B.E. 2456;
- MD Safety Measures for Transportation of Petroleum Products on the Mekong River (Thailand);
- Regulation on Ship Survey (No. 19) B.E. 2534;
- EBIS, European Barge Inspection Scheme;
- The Ship Inspection Report (SIRE) of CDI (Chemical Distribution Institute);
- ADN regulation, European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways;
- Oil Companies International Marine Forum & Central Commission for Navigation on the Rhine, International Safety Guide for Inland Navigation Tank-Barges and Terminals (ISGINTT), First Edition 2010; and
- Port Regulation of the Port of Antwerp and Rotterdam.

2.1 Agreement on Commercial Navigation on the Lancang-Mekong River and Memorandum

The agreement on Commercial Navigation on the Lancang-Mekong River is between the Governments of the People's Republic of China (PR China), the Lao People's Democratic Republic (Lao PDR), the Union of Myanmar and the Kingdom of Thailand. The Memorandum of Understanding MOU **has been agreed upon by the Ministry of Communications, PR China; the Ministry of Communication, Transport, Post and Construction, Lao PDR; the Ministry of Transport, Myanmar, and the Ministry of Transport and Communications, Thailand, concerning the Implementation of the Quadripartite Agreement on Commercial Navigation on the Lancang-Mekong River.**

The Agreement: The aim of the agreement is to develop international passenger and cargo transportation among the Contracting Parties on the Lancang-Mekong River, and to promote and facilitate trade and tourism, and strengthen cooperation in commercial navigation on the basis of respect for sovereignty, equality, and mutual-benefit.

Vessels of any Contracting Party are entitled to sail freely between Simao in the People's Republic of China and Luang Prabang in Lao People's Democratic Republic in conformity with the provisions of this Agreement and the relevant rules and regulations jointly adopted by the Contracting Parties.

Vessels and their crew members and passengers of one Contracting Party, during their stay and passage through the territory of another Contracting Party, shall respect the common navigation rules and the laws and regulations of the country of that Contracting Party, in particular, customs and immigration, environment protection and ecology balance and other laws and regulations concerning public order and national security. (Lancang-Mekong Agreement Art. 8).

The Memorandum: In accordance with Article 2 of the Agreement, the Parties adopt 6 Rules, Regulations and Guidelines attached as annexes to this MOU. The 6 Rules, Regulations and Guidelines which form integral part of the MOU are as follows:

- Annex I** : Regulations on Safe Navigation of Vessels on the Lancang-Mekong River;
- Annex II** : Rules on Water Transport Administration on the Lancang-Mekong River;
- Annex III** : Guidelines on the Maintenance and Improvement of the Navigability of the Lancang-Mekong River;
- Annex IV** : Regulations on the Investigation and Handling of waterborne Traffic Accidents on the Lancang-Mekong River;
- Annex V** : Regulations on Management of Search & Rescue, Salvage and Wreck Removal on the Lancang-Mekong River; and
- Annex VI** : Technical Regulations on Surveys of Commercial Ships on the Lancang-Mekong River.

2.2 Act on Navigation in Thai Waters B.E. 2456

This act consists of three parts (Part 1: General Provisions, Part 2: Regulations on Issuing of Licenses and Part 3: Special Regulations) and provides among others, miscellaneous regulations for all kind of vessels on:

- Duties of Masters of Vessels (Part 1, Chapter 2);
- Anchoring locations (Part 1, Chapter 3);
- Mooring, navigation (Part 1, Chapter 6);
- General Regulations to obtain a license (Part 2, Chapter 1);
- Survey of Vessels (Part 2, Chapter 2); and
- Vessels carrying Hazardous Objects (Part 3: Chapter 1).

For the MVIS, especially the sections dealing with pollution (Section 119 bis and 204), the use of signal flags (B flag) and red lights (Section 192), Packaged Dangerous Goods (Section 193), Safety Requirements (Section 200), and Crew Qualification Requirements (Section 277, 278) are important.

2.3 MD Safety Measures for Transportation of Petroleum Products on the Mekong River (Thailand)

The safety measures for transportation of petroleum products and Liquefied Petroleum Gas (LPG) on the Mekong River have been developed to serve as a guideline to ensure safe transportation, respond to oil spills, and claim for compensation of operational expenses and damages caused by marine pollution due to an oil spill. The prescribed safety measures for tankers and LPG carriers are important for the MVIS.

2.4 Regulation on Ship Survey (No. 19) B.E. 2534

This regulation is designed for passenger vessels and ferries, and provides regulations on construction,

crew requirements, provisions for passengers, requirements when carrying dangerous cargo and fire and lifesaving equipment requirements.

2.5 European Barge Inspection Scheme (EBIS)

This checklist is used to carry out inspections of vessels designed for inland waterways that carry oil, chemicals or gases. It is produced by representatives of different oil companies:

http://www.ebis.nl/psp/ebis.wp_home?p_session_id=&p_language=en.

The oil companies use the checklist to assure themselves that the vessel they hire is fit for purpose, meets the legislative requirements, and is operated in a safe manner to ensure protection of the environment and safety of crew and public. The goal of European Barge Inspection Scheme (EBIS) is to maintain the use of a common questionnaire for inspection reports, and for those reports to be placed in an inspection report exchange system.

2.6 Ship Inspection Report (SIRE) – Sea-going ship/vessel

Sea-going ship/vessel vetting is the process by which a charterer determines whether a vessel is suitable to be chartered, based on the information available to it. A lot of information comes from the Ship Inspection Report (SIRE). Ports, terminals, insurers and other maritime industry operators also vet ships to identify and manage risks, and many ship owners and ship managers use ship vetting services to monitor information about their own vessels.

Unlike certification or classification, vetting is a private, voluntary system that operators may opt to use to help them choose a particular vessel from among all of the certified vessels available, and to manage their risks.

Oil tanker vetting: The results of inspections carried out by oil companies, who are members of the Oil Companies International Marine Forum (OCIMF), are shared via the joint SIRE database. Oil companies perform inspections according to a standard report format developed by the OCIMF. These reports are available to all OCIMF members via the SIRE database, which provides each company's vetting department with the information it needs to apply its own internal criteria without having to inspect each vessel itself. Tanker vetting inspections are usually carried out during commercial unloading operations, with the prior agreement of the ship owner and Management Company, the only organisations authorised to allow third parties onboard.

Dry vetting: Dry bulk and container ships can also be vetted. Systems for dry vetting were developed after SIRE had proved valuable for oil industry standards, and in recognition that substandard ships remained a major risk for the shipping industry. Vetting for dry vessels is less regulated than in the oil industry, remains less structured, and is not universally used, although acceptance has grown significantly.

2.7 ADN – Inland Waterway Vessels

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) was done at Geneva on 26 May 2000 on the occasion of a Diplomatic Conference held under the joint auspices of the United Nations Economic Commission for Europe (UNECE) and the Central Commission for the Navigation of the Rhine (CCNR). It entered into force on 29 February 2008.

ADN consists of a main legal text (the Agreement itself) and annexed Regulations and aims at:

- i) ensuring a high level of safety of international carriage of dangerous goods by inland waterways;
- ii) contributing effectively to the protection of the environment, by preventing any pollution resulting from accidents or incidents during such carriage; and
- iii) facilitating transport operations and promoting international trade in dangerous goods.

The Regulations annexed to the ADN contain provisions concerning dangerous substances and articles, provisions concerning their carriage in packages and in bulk on board inland navigation vessels or tank vessels, as well as provisions concerning the construction and operation of such vessels. They also address requirements and procedures for inspections, the issue of certificates of approval, recognition of classification societies, monitoring, and training and examination of experts.

2.8 ISGINTT

International Safety Guide for Inland Navigation Tank-barges and Terminals

The ISGINTT provides technical guidance on inland tanker vessels and terminal operations: www.isgintt.org. This guide provides best known safety practices on the operation of tank-barges and terminals and also embraces a risk-based control philosophy. By enhancing risk awareness, ISGINTT seeks to foster an environment where the uncertainties associated with some shipboard operations are reduced not solely by prescription, but also by encouraging vessel and terminal crew, as well as their employers, to identify the risks in everything they are doing and to then implement fit-for-purpose risk reduction measures.

The guide is divided into five sections: “General Information”, “Tanker Information”, “Terminal Information”, the “Management of the Tanker and Terminal Interface” and “Additional Information for the Handling of Liquefied Gases”.

This guide makes recommendations for tanker and terminal personnel on the safe carriage and handling of such products that are normally carried in petroleum, chemicals or liquefied gas tankers and terminals handling those vessels. The purpose of the guide is also to provide operational advice to assist personnel directly involved in tanker and terminal operations. It does not provide a definitive description of how tanker and terminal operations are conducted. It does, however, provide guidance on, and examples of, certain aspects of tanker and terminal operations and how they may be managed.

2.9 Port Regulations

Port regulations (port bylaws) are usually issued by a public port authority and have a legal basis either in a specific law such as a Maritime Code (as in Azerbaijan), a port law (as in Singapore), or a municipal law (as in Rotterdam). Port bylaws are generally well considered and provide very detailed regulations relating to the conduct of vessels, safety, order in the port area, protection of the environment, the use of pilots, documentation of disembarking passengers, loading and discharging of goods and crisis management. Because port regulations are dependent on specific local circumstances, development of generally applicable port regulations is not feasible.

Generally, port regulations may require a license for handling specific cargoes. With respect to vessels loading and discharging dangerous cargoes, port regulations usually include detailed provisions. The port authority may prohibit loading, handling, and discharging of dangerous cargoes in harbours where such activities would be especially dangerous to the public. Often, handling liquid cargoes such as oil, oil products, gasoline, or dangerous chemicals may only take place in designated harbour areas or zones that do not pose a threat to nearby populations. The entry and presence of dangerous goods and other harmful cargoes in port areas and their attendant handling should be fully controlled to ensure general safety.

3 GUIDELINES – HOW TO FILL IN

The inspection report, MVIS, is made to assist the responsible person(s) or representative to determine the present condition of the vessel and determine whether a vessel complies with the relevant international, national and local regulations concerning the operation of the vessel, safe operational practices, environmental protection and emergency response.

3.1 The Inspection

All items in the inspection report should be answered, unless not applicable (some items are applicable only for tanker vessels). Ship documents, procedures and other relevant guidelines should be shown during the inspection.

The inspection should only be carried out with the approval of the captain, preferably during daylight and prior to or during cargo operations. The representative (Harbour Master) should prove his authority to complete the MVIS with master and crew onboard. It is recommended that the representative is accompanied by a crew member nominated by the captain. After the inspection, the report and the findings should be discussed with the master and a copy handed over to him.

3.2 The Inspection Report

All questions need to be answered. Depending on the answer Yes, No or Not Applicable (NA), the last column will automatically colour green, red or yellow once entered into the electronic MVIS form. Questions with a negative answer require a remark, clarifying the actual condition or state, and should be included in a separate remark column of the MVIS.

3.3 The Inspection Procedure

The representative should wear the appropriate Personnel Protective Equipment (PPE), including safety hat, safety shoes, life jacket and eventually safety gloves and glasses whilst onboard the vessel and in port areas.

The demonstration of a particular piece of equipment should be encouraged (firefighting pump, general or emergency alarm, fire hoses, bilge alarm, etc.) in order to get a good idea of the functionality of the equipment on board and stating the knowledge of the crew by demonstrating the working of equipment on board. Refusal to demonstrate equipment should be mentioned in the report, together with the reason.



4 MVIS – CONTENT

4.1 Summary

Contains:

- General information:
 - Vessel identification; and
 - Owner, operator, charterer and class society details.
- Technical information:
 - Vessel's particulars; and
 - Tanker Vessel details.

Inspection carried out by:			
SUMMARY			
GENERAL INFORMATION			
Name		Flag	
Year Build		Type of vessel	TANKER—GENERAL CARGO—CONTAINER
Port of Registry		Built at	
Length over all		Beam over all	
	m		m
Owner		Operator	
Name		Name	
Address		Address	
Postal Code		Postal Code	
City		City	
Country		Country	
Tel.		Tel.	
Fax		Fax	
E-mail		E-mail	
Charterer		Class Society	
Name		Name	
Address		Address	
Postal Code		Postal Code	
City		City	
Country		Country	
Tel.		Tel.	
Fax		Fax	
E-mail		E-mail	

Language		Port of inspection	
Operation	LOADING - DISCHARGING	UN no. Cargo	
TECHNICAL INFORMATION			
Gross Tonnage		MT	Net Tonnage
Maximum cargo capacity		MT	
Maximum draft loaded		m	Maximum draft unloaded
Air draft unloaded			Number of main engines
Total power		BHP/ Kw	Number of propellers
Bunker capacity		MT	Consumption (diesel)/ engine/hour
FOLLOWING ITEMS ARE ONLY APPLICABLE FOR TANKER VESSELS			
Number of cargo tanks		100% cargo tank volume	m ³
Number of cargo pumps		Maximum Pumping capacity	m ³
Maximum loading rate		m ³	Tank level system
Drip tray available	YES — NO	Capacity drip tray	m ³
Number of sloptanks		Sloptank capacity	m ³

4.2 Inspection List

Contains the following chapters:

1. Vessel certificates and documents;
2. Vessel manning certificates held, training and knowledge;
3. Health and safety;
4. Drug and alcohol policy;
5. Firefighting and lifesaving equipment;
6. Environment protection;
7. Cargo transfer operation;
8. Wheelhouse and navigation;
9. Mooring/anchoring;
10. Engine room;
11. Operational safety;
12. Vessel appearance; and
13. Cargo measurement.

For each chapter, items/questions that need further explanation are covered in the following part of the manual.

Important note: All items in the list where the respective number are marked in grey are only applicable for tanker vessels.

4.2.1 Vessel certificates and documents

In this chapter the different certificates on board must be stated, together with the validity date.

1	VESSEL CERTIFICATES AND DOCUMENTS	
1.01	Valid Certificate of Registration (Lancang-Mekong Agreement, Art. 15 and Thai Vessels Act, B.E. 2481)	
	Valid till	
	Registry Number	
1.02	Valid Load Line Certificate (MOU, Annex VI, Art. 4)	
	Valid till	
1.03	Valid Class Certificate	
	Valid till	
1.04	Valid Tonnage Certificate (Lancang-Mekong Agreement Art. 15)	
	Valid till	
1.05	Valid Tanker Safety Certificate (MOU, Annex II, Art. 3.c)	
	Valid till	
1.06	Valid Ship Survey Certificate (MOU Annex II Art. 3.c and Annex VI Art. 4 and Thai Vessels Act, B.E. 2481)	
	Valid till	
1.07	Valid Oil Pollution Prevention Certificate (MOU, Annex VI, Art. 4)	
	Valid till	
1.08	The vessel has a valid Vessel's License (MOU Annex II Art. 7)	
1.09	Vessel has a valid Water Transport License (MOU Annex II Art. 7)	
1.09	All cargo handling hoses have a valid certificate	
	Valid till	
1.10	A document is on board concerning the electrical installation (earthing) in the cargo area, with cargo area drawing including limits	
1.11	Valid Certificates for portable and movable firefighting equipment:	
1.1101	Valid Certificate for fire extinguishers	
	Fire extinguishers have a mark of testing (valid inspection tag), or meter shows ok	
	Number of dry powder (ABC) fire extinguishers required according to the certificate:	
	Number of CO ₂ fire extinguishers required according to the certificate:	
1.1102	Valid certificate for fire hoses	
	Valid till	
	Number of fire hoses required according to the certificate:	
1.12	Number of lifebuoys required according to the certificate:	
1.13	Number of lifejackets required according to the certificate:	
1.14	There is a Safe Manning Certificate	
	Number of crewmembers required:	

1.15	The vessel is marked with the vessel's name, port of registry in native and English languages and registration number (MOU Annex 1 Art. 3)
1.16	Other certificates on board:

In case certificates are on board other than these mentioned in the MVIS list, the certificates actually on board must be mentioned.

1.01 – 1.07	<i>Valid Certificate of Registration, Load Line Certificate, Class Certificate, Tonnage Certificate, Tanker Safety Certificate, Ship Survey Certificate, Oil Pollution Certificate</i>
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The Lancang–Mekong Agreement states, art. 15:

“Each Contracting Party shall recognise the nationality of vessels of the other Contracting Parties on the ground of the certificate of registry duly issued by the competent authorities of the other Contracting Parties.” And,

“Each Contracting Party shall accept the vessels' tonnage certificate duly issued or recognised by the other Contracting Parties without the necessity of remeasuring the vessels concerned.”

So apart from other necessary certificates, a valid Certificate of Registry and a valid Certificate of Tonnage should be on board.

Under the MOU, Annex VI, art. 4, requires the presence of the Oil Pollution Prevention Certificate and other relevant technical documents (Survey Certificate) and other vessel technical certificates to prove compliance with relevant technical requirements (MOU Annex II Art. 3.c).

Under the MOU, Annex VI, the “Technical Regulations on Surveys of Commercial Ships on the Lancang-Mekong River” are stipulated.

These Technical Regulations are formulated with a view to safeguarding the safety of commercial ships, people's life and properties on the Lancang-Mekong River and preventing the water from being polluted. (Art. 1)

Certificates in foreign language should be discussed with the captain in order to understand the content.

The Thai Vessels Act, B.E. 2481, Section 49, stipulates furthermore that a registered Thai vessel should have, among others, the following documents on board; Certificate of Registration, Survey Certificate, Crew Contracts, and a logbook.

1.10 – 1.12	<i>Valid certificate for portable and movable firefighting equipment</i>
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It is important to note the number of fire extinguishers, fire hoses, lifebuoys and lifejackets mentioned on the appropriate certificates and required by the authority under which the vessel sails.

The number and condition of the life and firefighting equipment should be checked later on the spot and noted in the list. (5.01 – 5.03).

1.14	<i>There is a Safe Manning Certificate</i>
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The Safe Manning Certificate should be consulted and the required number of crewmembers filled in on the MVIS list.

1.15	<i>The vessel is marked with the vessel's name</i>
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According to the MOU, Annex I, art. 3

4.2.2 Vessel manning certificates held, training and knowledge

In this chapter, the intention is to find out the compliance with manning requirements, personnel qualifications and training, specific professional experience of personnel.

2	VESSEL MANNING CERTIFICATES HELD, TRAINING AND KNOWLEDGE
2.01	Compliance with manning requirements
	Number of crewmembers on board:
2.02	Crewmembers have valid identity documents (Lancang-Mekong Agreement Art. 11)
2.03	Number of crew on board holding a valid certificate of navigation (MOU Annex II Art. 3.d)
2.04	At least one crewmember holds a dangerous goods certificate
2.05	Crew are informed about the risks associated with the products carried
2.06	Written instructions concerning the dangerous goods on board, are available -MSDS (MOU Annex II Art. 17-18)
2.07	The crew have been trained using special safety equipment: PPE
2.08	The crew have knowledge of the safety instructions
2.09	Firefighting exercises are regularly carried out and recorded including test of emergency stops of fans, closure of fire flaps, EMS (Emergency Stop) devices
2.10	Safety exercises are regularly carried out. Training on the use of safety equipment, PPE, handling of DG (fireworks)
2.11	Operational training regarding loading/discharging/cleaning is performed
2.12	Fireworks or other packaged dangerous goods are (occasionally) carried on board: (MOU, Annex II, Art. 16-18)
2.1201	Written instructions (MSDS) are provided for crew handling fireworks or other packaged dangerous goods (class 1.4) (MOU Annex II Art. 17-18)
2.1202	A briefing is held prior to loading and discharging fireworks, written evidence is available
2.1203	Notification is given for the discharging port concerning the transport and quantity of fireworks or other packaged dangerous goods
2.1204	There is a checklist for loading/discharging fireworks or other packaged dangerous goods
2.1205	"No smoking" signs are clearly posted
2.1206	The crew are aware of the dangers associated with the handling and transport of fireworks and other packaged dangerous goods, and the no smoking requirements
2.1207	The package of the dangerous goods on board is not ruptured and does not leak
2.1208	The package of the dangerous goods meets the requirements stipulated in the IMDG Code
2.1208	The proper shipping name, UN number, and all labels and marks according the IMDG Code, shall be displayed on the package of dangerous goods
2.1209	The documents used for the transport of dangerous goods meet the requirements stipulated in IMDG Code.

2.02 *Crewmembers have valid identity documents*

According to the Lancang-Mekong Agreement, art. 11, crewmembers should have valid identity documents issued by the competent authorities of the other Contracting Parties. These identity documents shall be:

VESSELS FLAG	IDENTIFY DOCUMENT
PR China	Seafarer's Passport of the PR China
Lao PDR	Seaman's Book of the Lao PDR
Thailand	Seaman's Book of the Kingdom of Thailand
Myanmar	Seaman's Book of the Union of Myanmar

2.03 *Number of crew on board holding a valid certificate of navigation*

A number of crew should have a valid certificate of navigation. All crewmembers should have a minimum level of education and training. (MOU Annex II, Art. 3.d and Art. 5.d)

2.04 *At least one crewmember holds a dangerous goods certificate*

At least one crewmember on vessels handling dangerous goods should have had specific training to ensure safe operations. Training should include a description of the types and classes of dangerous cargoes, marking, labelling and placarding, packing, segregation and compatibility requirements, a description of the purpose and content of the transport documents, and a description of available emergency response documents. (MOU Annex II, Art. 3.d and Art. 5.d and MD Safety Measures for Transportation of Petroleum Products on Mekong River [Thailand])

2.06 *Written instructions concerning the dangerous goods on board are available – MSDS*

Under MOU Annex 2 Art. 17 & 18, the documents used for the transport of DG should meet the requirements stipulated in the IMDG code. The Material Safety Data Sheet (MSDS) should be available and posted. The MSDS is a form with data regarding the properties of a particular substance and provides personnel with procedures for handling or working with that substance in a safe manner.

See [Annex 1](#): MSDS Pyrotechnics/Fireworks IMO Class 1.4G UN 0336

2.07 *The crew have been trained using special safety equipment: PPE*

Crew have been trained using special safety equipment such as Personal Protective Equipment.

2.08 – 2.10 *The crew have knowledge of the safety instructions*

There is evidence that the crew have knowledge of using the safety equipment on board.

2.12 *Fireworks or other packaged dangerous goods are (occasionally) carried on board*

When fireworks or other packaged dangerous goods are carried/handled, the following items should be carefully inspected:

- MSDS (see attached document) and other relevant documents according the IMDG code are on board;
- The package of the dangerous goods is intact and properly labelled with the necessary marks, UN number, and proper shipping name;
- Crew are aware of the dangers of the carriage and handling of fireworks;
- “No smoking” signs are clearly posted; and
- Checklist for loading/discharging is onboard and filled in (MOU, Annex II, Art. 16-20).

See [Annex 2](#): Checklist for loading/discharging Fireworks.

4.2.3 Health and safety

Health and safety deals with general precautions and necessary equipment to protect the health and life of the crew as well as the necessary working procedures to carry out the work on board in the safest possible way.

3	HEALTH AND SAFETY
3.01	Emergency first aid kit is available
3.02	Each crewmember has the following PPE: gloves, helmet, shoes/boots, clothing, goggles, hearing protection, life jacket, reflective jacket
3.03	Safety procedures are implemented for critical operations:
3.0301	Working in dangerous areas: all works that require a work permit
3.0302	Entering enclosed spaces such as forepeak, afterpeak, ballast tank
3.0303	Entering cargo tanks
3.0304	Loading/discharging
3.0305	Cargo tank cleaning
3.0306	Hot work
3.05	Emergency eye bath spray is available
3.06	Visible deficiencies on deck and in the ER regarding safety:
3.0601	Deck and working areas have anti-slip areas
3.0602	"No smoking" signs are posted
3.0603	Lifesaving equipment is ready for use
3.0604	Signs on deck and in ER are clearly posted
3.0605	Text messages and warnings on deck and in ER are in crew's language and fully understood
3.0606	Doors and portholes are closed during cargo handling
3.0607	Door-, escape windows-, and hatch rubbers are in good condition
3.0608	Flame arrestors are available
3.0609	The lighting on deck and in ER is sufficient and good working
3.0610	All manholes are fully bolted
3.07	The following safety equipment is available:
3.0701	Flammable gas detector/explosion meter
	Valid till
3.0702	Oxygen analyser
	Valid till
3.0703	Crew are trained in use of the equipment and understand the readings
3.0704	Instructions are in a language understood by the crew
3.08	All torches/portable lamps are of an approved type for use in hazardous areas
3.09	Special medical equipment is available according to MSDS
3.10	The crew are aware of the required medical treatment when hazardous products are involved
3.11	There are written procedures available for:
3.1101	Cargo transfer: loading/discharging/internal transfer (min. crew members, checks during loading/discharging: tank level, temperatures, pressure, alarms, communication)
3.1102	Ship to ship transfer
3.1103	The use of a lifejacket during mooring/unmooring operations and working aloft
3.12	On walk and working decks, provisions are made to prevent slips and falls
3.13	Cooking gas is safely stowed, including signs prohibiting open fire and smoking
3.14	No open fire cooking is in progress during cargo operations that include dangerous goods and warning signs are posted
3.15	Common symbols are in use for communication between port and vessel and between crewmembers

3.01 *Emergency first aid kit is available*

The first aid kit shall be kept in an accommodation room or in the wheelhouse and be stored in such a way that it is easily and safely accessible if necessary.

3.02 *Each crewmember has PPE*

PPE comprises a range of clothing and equipment, which is worn by crewmembers to protect or shield their bodies from workplace hazards. Ship owners should ensure that the crew are supplied with suitable PPE. Using the correct PPE when working onboard vessels could minimise 95% of all head, eye and foot injuries. (Source ISF-International Shipping Federation). A useful tool for using the correct PPE is the PPE matrix (see Annex 6).

Eye protection:

Figure 2:
Symbol - Safety goggles

***Hearing protection:***

Figure 3:
Symbol – Ear muffs

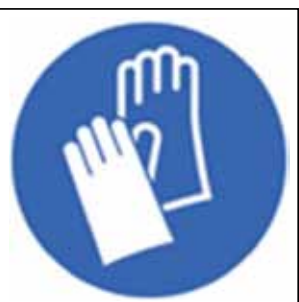
***Hand protection:***

Figure 4:
Symbol – Gloves



Foot protection:

Figure 5:
Symbol – Safety shoes

**Fall protection:**

Figure 6:
Symbol – Safety harness

**Head protection:**

Figure 7:
Symbol – Helmet

**Lifejacket:**

Figure 8:
Symbol – Lifejacket



Safety instructions and PPE requirements:



Figure 9:
Terminal entrance – Personal Protective
Equipment and safety instructions

3.03 Safety procedures are implemented for critical operations

A safety procedure for critical operations is often achieved by using a permit to work. This ensures that a series of action steps that need to be taken to ensure the safety of those engaged in a specific, critical operation are undertaken.

3.0301 Working in dangerous areas, works that require a work permit

- Hot work;
- Enclosed space entry;
- Tank inspections;
- Work aloft;
- Loading/discharging; and
- Bunkering.

If safe working procedures are not in place, not used or not followed, the following may occur: use of wrong PPE, wrong sequencing of activities, underestimation of the severity of an event, wrong or no emergency procedures and response, and an increased risk of personal injuries, property damage, pollution and fire or explosion depending on the kind of activity or operation that has to be carried out.

See [Annex 3: Hot Work Permit - Tankers](#)

3.06 Visible deficiencies on deck and in engine room regarding safety

3.0601 Deck and working areas have anti-slip areas

45% of serious injuries from slips, trips and falls on vessels are caused by wet areas, leaking pipes, oily engine room plates, poor lightning slips, untidy decks and unsuitable footwear.¹

3.0602- 3.0604 “No smoking” signs are posted

Signs and symbols are a very effective method for warning against hazards and for presenting information without knowledge of the language. A tanker vessel should display notices on deck, visible on two sides:

Figure 10:
Warning signals

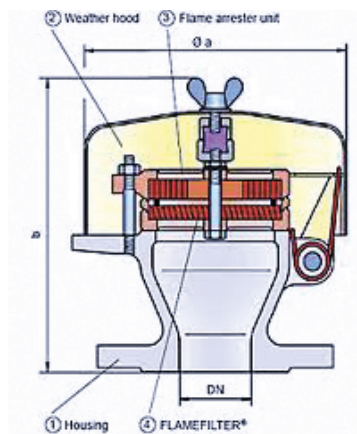


Smoking should be permitted in authorised areas only. Notices of the approved smoking areas should be displayed throughout the accommodation.

3.0608 Flame arrestors are available

A flame arrestor is a permeable matrix of metal, ceramic or other heat resisting material, which can cool an intense flame, and any combustion products, below the temperature required for the ignition of the flammable gas on the other side. The condition of the flame arrestor must be regularly checked to ensure that it is not blocked.

Figure 11:
Flame arrestor



¹ 45% of serious injuries – source ISF (International Shipping Federation)

3.07	<i>Safety equipment is available</i>
3.0701	<i>Flammable gas detector/Explosion meter</i>
3.0702	<i>Oxygen Analyser</i>

The safe management of operations onboard tankers is often dependent upon the crew's ability to determine the composition of the ambient atmosphere. Tanker crew need to measure the oxygen, flammable and toxic gas concentrations in an atmosphere. This will enable them to detect the presence of explosive mixtures, toxic vapours or oxygen deficiencies that may present a risk of explosion or hazard to personnel. Crew should be trained and the manual should be in a language understood by the crew.



Figure 12: Flammable gas detector/Explosion meter

3.08	<i>All torches/portable lamps are of an approved type for use in hazardous areas</i>
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On vessels carrying dangerous goods, within a certain area, especially during loading or discharging, any of the following equipment which is not intrinsically safe or explosion proof has the potential to cause a spark, including:

- naked lights;
- open light;
- walkie-talkie;
- portable VHF;
- mobile phone; and
- torch.

The inappropriate use of this equipment during loading and discharging operations can lead to potential for fire and explosion if a spark is created. Naked lights refer to open flames or fires, lit cigarettes, cigars, pipes or similar smoking materials, any other unconfined sources of ignition, electrical and other equipment liable to cause sparks while in use, unprotected light bulbs or any surface with a temperature that is equal to or higher than the auto-ignition temperature of the products handled in the operation. When handling dangerous cargo, the main hazard is the use of naked lights or naked flames within a distance of 25 metres of the hazardous area of the vessel where flammable gas may be present. The same hazards can exist with vessel to vessel telephones, VHF radios, mobile phones, torches, portable radios and electronic calculators.

3.11 Written procedures are available for cargo transfer and ship to ship transfer

The procedure may be a general guideline with additional specific working instructions.

4.2.4 Drug and alcohol policy

The misuse of legitimate medicine and drugs and the use, possession, distribution or sale of controlled drugs should be forbidden. The drug and alcohol regulations and policies should be prominently posted and indicate the maximum Blood Alcohol Content (BAC) for masters and crew onboard.

Drug and alcohol abuse by crewmembers can, apart from hampering their own ability to perform duties in a safe and responsible manner, also jeopardize the safety and efficiency of the other crewmembers and of the vessel itself. Drugs and alcohol in even small quantities have the effect of distorting perception, slowing down personal reactions, and increasing the risk of incidents.

4	DRUG AND ALCOHOL POLICY	
4.01	Vessel operator possesses a drug and alcohol policy	
4.02	Maximum content of alcohol in blood allowed:	
4.03	The drug and alcohol policy is clearly displayed on board	
4.04	The drug and alcohol policy is well known by the crew members	

4.2.5 Firefighting and lifesaving equipment

MOU, Annex VI, Art. 27: *“Fire extinguishing system and appliances shall ensure that any part of the ship can be under control effectively in case of fire. The fire extinguishing system and appliances shall be kept in good order and available for immediate use at any time.”*

All vessels should be provided with a fixed water fire-fighting system, and depending on their use and location on board, appropriate and sufficient portable fire extinguishers.

The range of portable fire extinguishers should meet the requirements of the respective legislation and should be in good order and available for immediate use. This requires a regular check for the proper location, the charging pressure and the general condition.

The fixed water firefighting system (cooling) should consist of pumps with a permanent underwater connection, a fire-main with hydrant points, fire hoses complete with couplings, and jet/spray nozzles. A sufficient number of hydrants should be provided and located so that two jets of water can reach any part of the (tanker) vessel.

When a tanker is alongside a berth, fire-fighting equipment is to be ready for immediate use. On board the tanker this is normally achieved by having fire hoses with spray/jet nozzles ready for use. Having portable dry chemical powder extinguishers available in the cargo area provides additional protection against small flash fires. A fire control plan, showing the kind and location of all fire-fighting equipment, must be displayed on board.

5	FIREFIGHTING AND LIFESAVING EQUIPMENT	
5.01	Number of fire hoses, nozzles and hydrants according to the certificate	
	Number of fire hoses in bad state:	
5.02	Number of portable fire extinguishers accords with the certificate and ready for use (MOU Annex VI Art. 26-27)	
5.03	Portable fire extinguishers are sealed and have valid pressure	
	Valid till	
	Number of fire extinguishers expired or in a bad state:	
5.04	Fire pump is regularly tested and test is carried out on demand	
5.05	Fire axe is available	
5.06	The general alarm system is in good working order, and tested on demand	
5.07	The fire alarm plan (fire duty plan-muster list) is available and clearly posted	
5.08	The safety plan is available and clearly posted	
5.09	There is a lifejacket on board for every crewmember (MOU Annex VI Art. 29 and 30)	
5.10	Lifejackets are in satisfactory condition	
5.11	Lifebuoys are available (MOU Annex VI Art. 29)	
	Number of lifebuoys available:	
5.12	A muster list is displayed	

5.01 *Number of fire hoses, nozzles, hydrants accord with the certificate*

Fire hoses should be regularly checked. Their condition should be checked by a routine pressure water test. The fire box should also be kept clean and free of obstacles. The number and location of fire hoses should accord with the safety plan and the appropriate certificate.



Figure 13: Fire box with fire hose and nozzle



Figure 14: Fire hydrant

5.02 *Number of portable fire extinguishers is according to the certificate and ready for use*

The number of fire extinguishers should be according with the certificate (see 1.10), and located according to the safety plan. (MOU Annex VI Art. 26-27). In order to check the functioning of the extinguisher, the pressure and any other testing mark should be carefully inspected.



Figure 15: Fire extinguishers in poor condition

5.04 Fire pump is regularly tested and tests are carried out on demand

The fire pump should be regularly tested, and a test should be carried out while the inspector is on board.



Figure 16: Fire pump in engine room

5.06 The general alarm system is in good working condition and tested on demand

This should be tested daily, and while on board the vessel.

5.07 The fire alarm plan is available and clearly posted

The fire alarm plan should outline the duties and responsibilities for all crewmembers, described per crew position. The plan must be posted in a location where it is visible to everyone on board.

5.08 The safety plan is available and clearly posted

The safety plan must outline:

- Location of the firefighting equipment;
- Location of the lifesaving equipment;
- Location of emergency exits;
- Location of alarms, and emergency shutdown systems;
- Any other safety devices such as fire axes, safety helmets, lifejackets; and
- The legend of the symbols used.

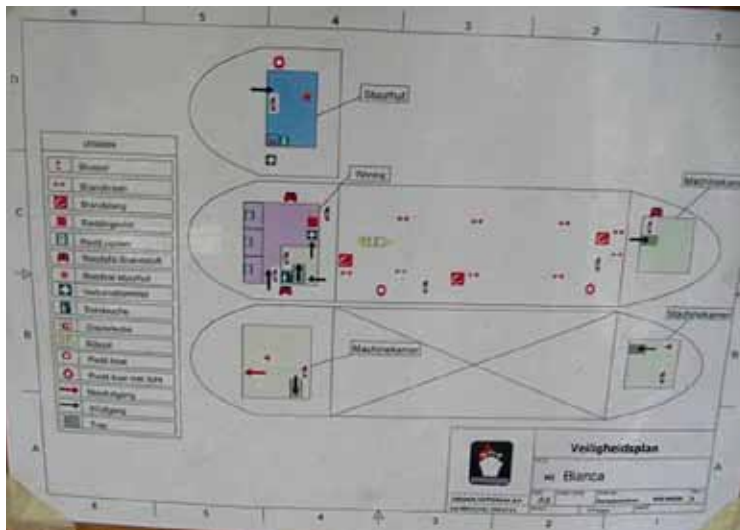


Figure 17: Safety plan

The plan must be displayed in prominent positions, available for everyone on board.

5.09 – 5.10 There is a lifejacket on board for every crewmember and lifejackets are in a satisfactory state

An excess of lifejackets shall be provided for crew and passengers. The number provided will amount to no less than 110% of the number of people on board.

In addition, 5% of the lifejackets onboard shall be provided for children, (MOU Annex VI Art. 29 and 30) their location and condition should be verified.



Figure 18: Lifejackets

5.09 – 5.10 *Lifebuoys are available*

Lifebuoys should be readily available on fixed appropriate locations on deck and may not be permanently attached to the holder. The number of lifebuoys must be according to the certificate. One lifebuoy should be placed close to the wheelhouse. According to the MOU Annex VI Art. 29 on board cargo ships, at least 3 lifebuoys for each deck should be in place for cargo vessels between 30 m and 60 m (passenger vessels need 6 lifebuoys for each deck).



Figure 19: Lifebuoys



Figure 20:
Lifebuoy with line

5.12 *A muster list is displayed*

A muster list is basically a list which is displayed in prominent areas of the vessel so that every crew member onboard can read it. Some of the important areas where the muster list is posted are - the bridge, engine room, accommodation alleyways etc., areas where ship's crew spend the maximum of their time.

Muster lists are intended to provide both an effective plan for assigning personnel stations and duties in the event of any foreseeable emergency, as well as a quick visual reference that a crewmember can look at to find out where to go, what to bring, and what duties to perform in the event of an emergency and must be posted at all times. Since no two classes of vessels are identical, muster lists must be tailored for individual vessels.

The ship's crew must be prepared all the time to tackle and fight against any kind of emergencies which arise due to rough weather, machinery malfunction, pirate attack, human error etc. Such emergencies can lead to fire, collision, flooding, grounding, environmental pollution, loss of life or damage to property. To stress the importance of training for different emergency procedures and duties of personnel, the muster list is provided onboard the ship. In the muster list the main emergencies, such as fire, man overboard, abandon ship, oil spill etc., are listed along with dedicated visual and audible alarms. Also a brief instruction is given in case the alarm for a particular emergency is sounded, which includes action to be taken by the crew onboard.

The muster list is posted to keep the crew aware of the different emergency situations and duties to be performed if such situations occur in reality. For this, regular training and drills must be conducted by the master of the ship to ensure that all crew members are familiar with lifesaving and firefighting appliances.

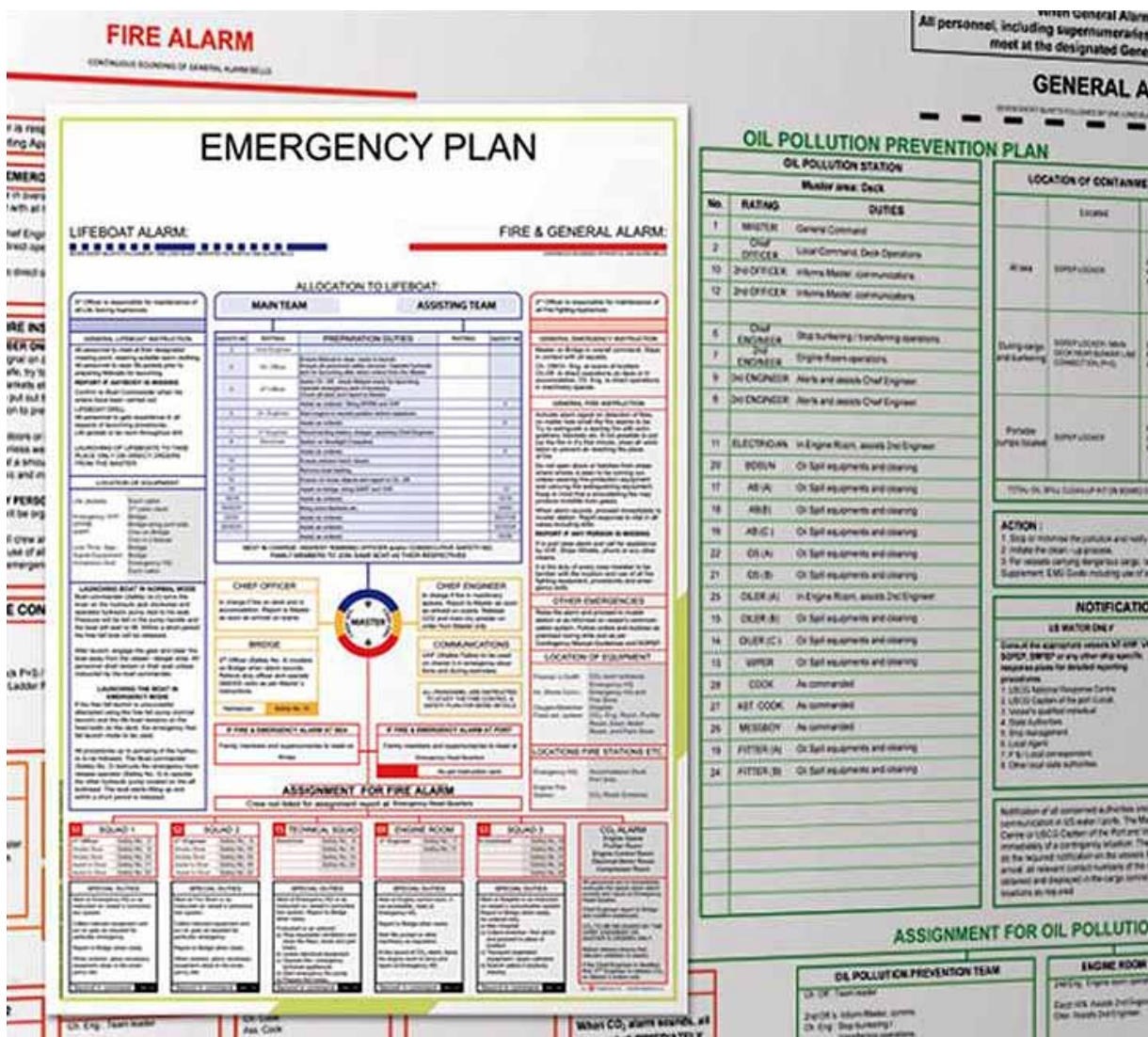


Figure 21: Muster list

4.2.6 Environment protection

The MOU, Annex II, Chapter VII, Art. 36 – 39 partly covers pollution prevention from vessels.

6	ENVIRONMENT PROTECTION
6.01	Disposal receipts are available on board for: (MOU Annex VI Art. 39)
6.0101	Slops, cargo residues: Sloptank is available
6.0102	Bilge water: oil-water mixture from bilges in engine room
6.0103	Oily rags: metal container with lid is available for collecting oily rags
6.0104	Other barge generated waste, such as: plastics, food, paper should be separated collected
6.02	Oil-water separator is on board (MOU Annex VI Art. 37)
	There is evidence that the oil-water separator is used
	There is evidence that bilge water is pumped overboard (hose hanging in the bilges and connected with the overboard discharge)
6.03	Instructions for pollution prevention are available on board
6.04	The crew are aware of pollution prevention measures
6.05	Oil absorbent material is on board (absorbent capacity about 200 litres)
	Which absorbent material:
6.06	Suitable drip trays are available and ready for use (empty)
6.07	Procedures how to respond in the event of a spill are available
6.08	The bunker checklist is available
6.09	The bunker checklist is fully completed prior to bunkering fuels for own consumption
6.10	Oil record book, stating disposal of bilges, is on board
6.11	Is the vessel free from any visible leakage (pipelines, hoses, valves, connections) liable to cause pollution?
6.12	The vessel has a Waste Management Plan

6.01 *Disposal receipts are available on board*

Ship-generated waste means bilge water, domestic and operational waste and cargo-associated waste.

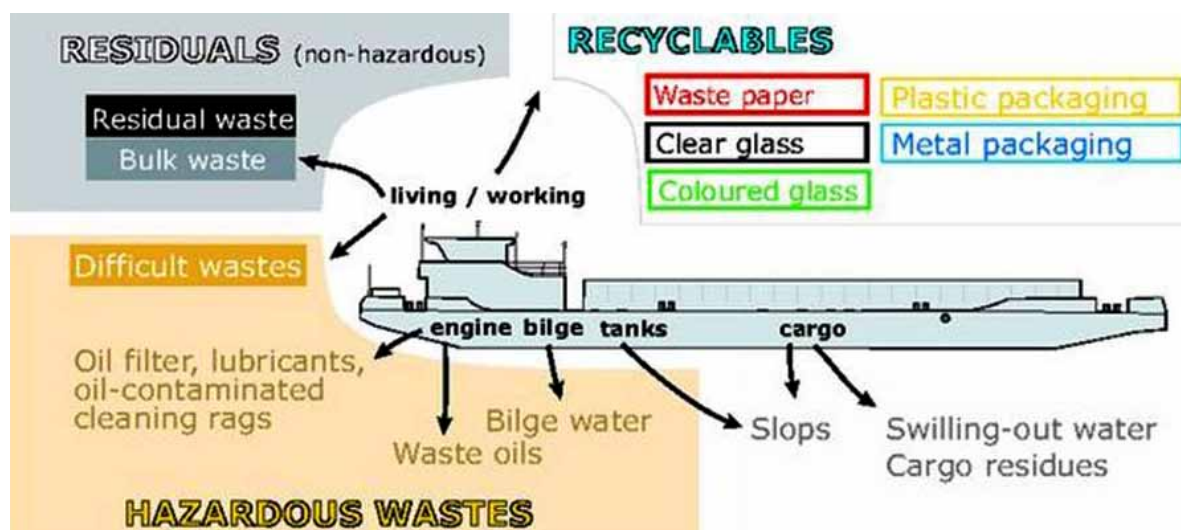


Figure 22: Waste generated on board Cargo Vessel (source: INE WANDA)

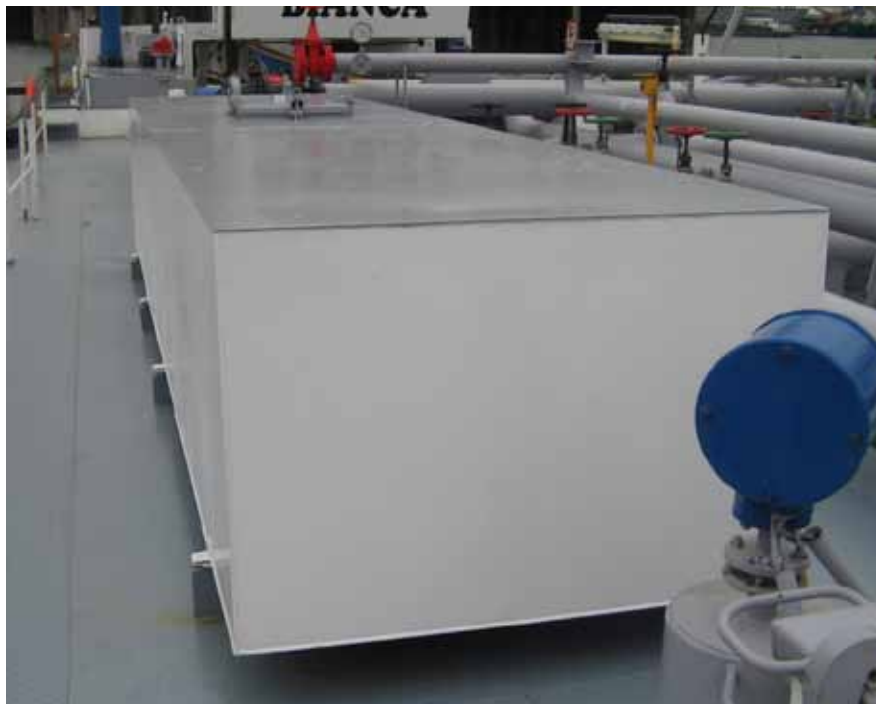
6.0101 Slops, cargo residues: sloptank is available

Figure 23:
Sloptank on tanker vessel

6.0103 Oily rags

A metal container with lid for collecting oily rags is provided. A lid should be available to close the container to prevent self ignition of oil contaminated waste or rags. The risk of spontaneous combustion is smaller with petroleum oil than with vegetable oils, but it can occur, especially if the oil soaked cotton waste, rags, sawdust or canvas is kept warm, in areas such as close to a hot pipe.

6.0104 Other vessel generated waste

Separation of garbage.



Figure 24:
Containers for garbage

6.02 *Oil-water separator is on board*

An oil-water separator (OWS) is a piece of shipboard equipment that allows a vessel's crew to separate oil from bilge water before the bilge water is discharged overboard.

Bilge water is an unavoidable product in ship operations. Bilge water that is generated in proximity to shipboard equipment (such as in the engine room) often contains oil and its direct discharge would result in undesirable transfer of waste oil to the marine environment. By international agreement under the MARPOL convention, most sea-going commercial vessels need to be fitted with an oil-water separator to remove oil contaminants before bilge water is pumped overboard. By using the separator the amount of oil in the bilge water should be 15 ppm or less.

Oil-water separator equipment has been a shipboard requirement for sea-going vessels since the 1970s, but recently it has become evident that oil-water separators have not been as effective as had been assumed, and there has been alleged improper operation of this equipment by crewmembers.

There may also be evidence that bilge water is pumped overboard. Often a pipe or hose may be improvised to discharge large volumes of bilge water or other liquid waste directly from the bilges into the river (and so by pass the oil-water separator).



Figure 25: Oil-water separator



Figure 26:

Hose in ER for illegal bilge water discharge in the river

6.05 *Oil absorbant material is on board*

Oil spill response equipment: saw dust in bag, absorbent pads, chemical deck cleaning products, plastic drum for spill waste (200 litres), non-spark broom, non-spark shovel, waste bags, ...usually can be found in an Oil Spill Response Kit.



Figure 27:
Oil Spill Response Kit

6.06 Suitable driptrays are available and ready for use (empty)

A driptray is constructed to collect the small amounts of liquid bulk that are regularly spilled when connecting the loading and discharging hose or pipe at the manifold. The main hazard is the absence of fixed or portable containment, with the consequence that spilled cargo is disposed in the river, causing significant pollution. Fixed driptrays are the best solution. If no permanent means are fitted, portable driptrays should be placed under each connection in use to retain any leakage.



Figure 28: Drip tray

6.07 Procedures how to respond in the event of a spill are available**6.08 The bunker checklist is available**

See **Annex 5: Bunker Safety Check-list**

4.2.7 Cargo transfer operation (Tanker vessels)

Cargo transfer includes vessel to shore, vessel to truck and vessel to vessel discharging or loading operations of liquid dangerous goods in bulk.

7	CARGO TRANSFER OPERATION
7.01	Information is available to the crew giving the necessary data for the safe carriage and handling of the cargo (MSDS)
7.02	The safety checklist has been completed prior to cargo operations and can be shown
7.03	An ESD (Emergency Shut Down) is available for stopping the discharge pump
7.04	Cargo hoses are in satisfactory condition, are not ruptured, and show no signs of deterioration or leaks (visual inspection)
7.05	A written loading and discharging plan is available
7.06	Pressure relief valves are in good working order
7.07	Gaskets, pumps, filters, tank lid seals, valves are free of visible damage
7.08	Every connection not being used is fully blanked
7.09	Cargo pipelines are clearly indicated
7.10	A pipeline scheme showing the cargo system is available

7.01 Information to the crew are available giving the necessary data for the safe carriage and handling of the cargo (MSDS)

See **2.06: MSDS** (Example in **Annex 1**)

7.02 The safety checklist has been completed prior to cargo operations and can be shown

It should be verified that the safety checklist has been filled out by the two parties and all data is correct, prior any loading or discharging operation.

See **Annex 4: ISGINTT Ship/Shore Safety Checklist**

7.03 *An ESD (Emergency Shut Down) is available for stopping the discharge pump*

The emergency shutdown push buttons are placed in various locations on the deck. These should be easy to install and effective in use, enabling the crew to shut down the cargo pumps from different locations in case of an emergency.



Figure 29:
Emergency Shut Down button

7.04 *Cargo hoses are in satisfactory state, are not ruptured, and show no signs of deterioration or leaks (visual inspection)*

Cargo hoses should be clearly marked to allow identification of the products for which they are intended, maximum working pressure specified, test pressure and last date of (annual) testing, and maximum and minimum service temperature.



Figure 30:
Ruptured cargo hose

7.06 *Pressure relief valves are in good working order*

Pressure relief valves that provide for the flow of small volumes of vapour or air mixtures caused by increased temperature in the cargo tank and increased pressure.



Figure 31:
Pressure relief valve

7.07 Gaskets, pumps, filters, tank lid seals, valves are free of visible damage

The tank cover gasket, seal or packing, prevents the escape of gas and fluid. If the packing is not fitted or purposely removed, there is a high risk of sparks during opening or closing the tank cover. There is also a high risk of release of flammable or toxic vapours via the tank cover during loading or discharging.

Figure 32:
Tank cover without gasket

**7.08 Every connection not being used is fully blanked**

Flange connections of unused lines that are absent or not fitted correctly can cause leaks.

Figure 33:
Connection fully blanked

**4.2.8 Wheelhouse and navigation**

This chapter focuses on the presence and working condition of important tools and equipment for careful navigation.

MOU, Annex VI, Chapter VI, “*Equipment for Navigation, Signal and Radio Communication*” describes the equipment that should be on board as well as the technical requirements of the equipment. According to MOU, Annex VI, Art. 31, the navigation equipment onboard shall be provided respectively depending on the areas (sections: A, B, C and J) of navigation, number of passengers, gross tonnage and total horsepower of the vessel.

8	WHEELHOUSE AND NAVIGATION
8.01	VHF is available and operational (MOU Annex I Art. 32 and Annex VI Chapter 6)
8.02	Automatic Identification System (AIS-B) is available and operational
8.03	Global Positioning System (GPS) is available and operational
8.04	Electronic chart is available
8.05	Rudder indicator is available and operational
8.06	Navigation charts are available
8.07	Navigation and signal lights work properly (MOU Annex I Art. 20-27 and Annex VI Chapter 6)
8.08	Audible signal equipment such as (fog) horn and bell, and other alarms work properly (MOU Annex I Art. 28 and Annex VI Chapter VI)
8.09	The general alarm is available and works properly
8.10	Engine room alarm is available on the bridge
8.11	Means for communication with the engine room are available on the bridge
8.12	Bridge logbook is available and properly filled in (Thai Vessels Act, B.E. 2481)
8.13	The vessel carrying dangerous goods has an all-round red light and the B-flag (MOU Annex I Art. 25)
8.14	The vessel is equipped with good working search lights (MOU Annex VI, Art. 31)

8.01 VHF is available and operational

Radio communication facilities shall be provided for ships of 50 gross tonnage (GRT) and above, and fast ships (service speed ≥ 35 km/h) carrying 12 passengers or more. Also, portable VHF apparatus should be available. (MOU, Annex VI, Art. 34-35)

8.02 Automatic Identification System (AIS-B) is available and operational

AIS is an Automatic Identification System that was introduced by the UN's International Maritime Organisation (IMO) in order to increase the safety of ships and the environment, and to improve traffic monitoring and maritime traffic services.

AIS provides a means for ships to electronically send data including vessel identification, position, speed, and course with Vessel Traffic Services (VTS) stations as well as with other ships. AIS uses Global Positioning Systems (GPS) in conjunction with shipboard sensors and digital VHF radio communication equipment to automatically exchange navigation information electronically. Vessel identifiers such as the vessel name and VHF call sign are programmed in during initial equipment installation and are included in the transmittal along with location information originating from the ship's Global Navigation Satellite System (GNSS) receiver and with optional connections to other instruments like a gyrocompass. AIS uses digital VHF signals to transmit its information. The range of the system is similar to VHF radios. These VHF radio signals can be picked up around corners, over inland and through heavy rain, giving better coverage than radar in some conditions or enhancing a radar picture when used together.

There are three different classes of AIS systems:

Class A: Required on IMO/SOLAS commercial vessels, this equipment includes a 12.5 watt VHF transmitter (typical 20 to 40 miles range, mostly depending on the antenna height). It can transmit and receive the full complement of AIS information.

Class B: Does not meet the SOLAS standard but has been designed to provide less expensive AIS functionality for smaller commercial vessels and pleasure vessels. This equipment includes a VHF transmitter; however transmission power is restricted to 2 watt (typical range of about 5 to 10 miles). In addition, only a subset of the possible AIS information (for instance, Estimated Time of Arrival (ETA), draft and navigational status) is transmitted at a reporting rate less than a Class A (e.g. every 30 seconds when the speed is less than 14 knots, as opposed to every 10 seconds for class A).

Receive only: Inexpensive, low power systems that only receive information from other vessels and do not transmit any information about the vessel they are installed on.



Figure 34:
AIS Class A equipment



Figure 35:
AIS Class B equipment with chart plotter

8.03 GPS is available and operational

Allows vessels to check their exact location on the river and, in combination with correct navigation charts or when displayed on an electronic chart (ECDIS), makes navigation safer (avoiding shoals, submerged rocks).



Figure 36:
GPS equipment

8.04 Electronic chart is available (ECDIS)

An Electronic Chart Display and Information System (ECDIS) is a computer-based navigation information system that complies with International Maritime Organisation (IMO) regulations and can be used as an alternative to paper nautical charts. IMO refers to similar systems not meeting the regulations as Electronic Chart Systems (ECS). An ECDIS system displays the information from Electronic Navigational Charts (ENC) or Digital Nautical Charts (DNC) and integrates position information from the Global Positioning System (GPS) and other navigational sensors, such as radar and Automatic Identification Systems (AIS).



Figure 37:
ECDIS equipment

8.05 Rudder indicator is available and operational

Figure 38:
Steering equipment
with rudder indicator

8.11 Means for communication with the engine room are available on the bridge

MOU, Annex VI, Art. 11:

“Appropriate means of communication shall be provided to any positions from which engine may be controlled. Emergency communication devices should also be fitted for the ships in accordance with the relevant regulations of the Contracting Parties.”

4.2.9 Mooring/Anchoring

Mooring and unmooring operations are dangerous operations. Everybody concerned should be fully aware of the hazards and take appropriate precautions to prevent accidents.

9	MOORING/ANCHORING
9.01	Ropes and wires are in a satisfactory condition
9.02	The vessel is properly moored
9.03	Spare wires and ropes are on board
9.04	The vessel is equipped with mooring winches
9.05	The vessel is equipped with anchors
	Length of the anchor chain:
9.06	The vessel is equipped with anchor winches

9.01 Ropes and wires are in satisfactory condition

Mooring lines should preferably all be of the same material and construction. For tanker vessels, ropes with low elastic elongation properties are recommended, to limit the movement at the berth. Standard synthetic fibre ropes will deteriorate more rapidly than steel wires.



Figure 39: Mooring ropes in bad condition on tanker vessel

9.02 *The vessel is properly moored*

Any excessive movement or the breaking adrift of a tanker vessel from the berth owing to inadequate moorings could cause injury to personnel, breaking of the cargo hose or loading arm, damage to the jetty installation and to the vessel, and risk for pollution, fire or explosion.

9.04 *The vessel is equipped with mooring winches*

Figure 40:
Mooring winch on cargo vessel

9.05 *The vessel is equipped with anchors*

Figure 41:
Cargo vessel with anchors

4.2.10 Engine room

The hazards in relation to main engines, steering gear and the emergency generator can arise from irregular or poor maintenance and limited inspections of machinery essential for the safe operation of the vessel. There are risks of oil and fuel leaks, malfunctioning, overheating or breakdown of main engines. If the main engines break down, a major incident could occur including grounding, collision, fire, or pollution to the river.

The items mentioned should give a good idea about the general state of the engine room and its equipment and the level of maintenance.

10	ENGINE ROOM
10.01	There is a main fuel emergency stop
10.02	The 24 V batteries are in good working order
10.03	There is a bilge alarm available and in good working order
10.04	The engine room alarm is available and in good working order
10.05	Engine room instrumentation is available and in good working order
10.06	Entrances to the engine room are free of obstacles
10.07	Emergency exits are clearly marked
10.08	Engine room logbook is available and filled in
10.09	Engine room: waste oil on plates, stairs or handrails
10.10	Engine room: oil savers not cleaned out
10.11	Engine room: bilge full or containing large amounts of oil or sludge

10.01 *There is a main fuel emergency stop*

In order to cut off the diesel fuel supply to the main engine, the main fuel emergency stop should be activated. This device is very important in case of fire in the engine room.

10.02 *The 24 V batteries are in good working order*



Figure 42: 24V batteries

10.03 *There is a bilge alarm available and in good working order*

The bilge alarm provides an audible and visual means of warning that the bilge water level is too high and the mixture of oil and water should be pumped out using the oil-water separator or to a disposal receipt such as a drum or Sloptank.

10.04 – 10.05 *Engine room alarm and engine room instrumentation is available and in good working condition*



Figure 43:
Engine room control panel

10.09 – 10.11 *General state of the engine room*

The general state of the engine room is important to ensure the safety of crew working in the engine room (slippery areas), the working condition of the equipment, the maintenance carried out and awareness of the crew for pollution prevention (oily rags, bilges full).

4.2.11 Operational Safety

Operational safety covers aspects of the existing environment and procedures that can have impact on operational safety.

11	OPERATIONAL SAFETY
11.01	The vessel has procedures to deal with the following incidents:
11.0101	Broken mooring lines, vessel doesn't stay alongside the jetty while cargo operations are in progress (cargo hose can break)
11.0102	Cargo hose burst/pipe fracture
11.0103	Overfilling of the tank and tank overflow
11.0104	Cargo leakage
11.0105	Collision
11.0106	Grounding
11.0107	Pollution
11.0108	Man overboard
11.02	Earth wire connections are free of paint and rust, electrical equipment (lighting, pumps) and cargo pipes are earthed
11.03	The Maximum Allowable Working Pressure (MAWP) is displayed on the manifold
11.04	Void spaces, enclosed spaces and cofferdams are regularly tested to ensure that they are free from gases and liquids
11.05	A (removable) bulwark or fence is in place
11.06	There are designated places for smoking
11.07	Smoking requirements are posted and well known by crew
11.08	Open fire and open light requirements are posted and well known

11.01 *The vessel has procedures to deal with the following incidents*

There should be an Emergency Plan on board giving simple and detailed instructions to the vessel's crew as to what actions to take in the event of the following incidents: burst cargo hose, tank overflow, cargo leakage, collision, grounding, pollution, man overboard.

11.02 *Earth wire connections are free of paint and rust, electrical equipment and cargo pipes are earthed*

All equipment such as deck lights and cargo pumps should be earthed. Onboard vessels, the connection is made to the main metallic structure of the vessel, which is earthed because of the conductivity of the river. During loading and discharging operations, equipment not earthed can create a spark and in combination with flammable gases on deck lead to fire and explosion.

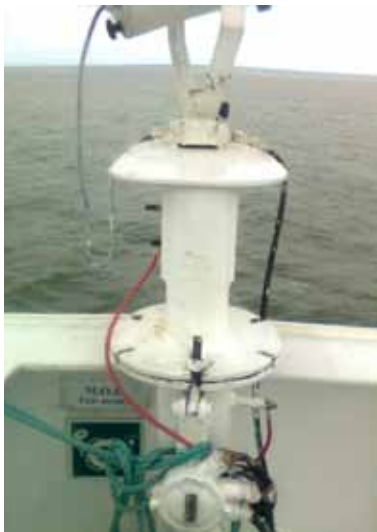


Figure 44:
Earthed, Spark Proof Deck Lighting

11.03 *The MAWP is displayed on the manifold*

Cargo pipes and valves must be constructed following prescribed technical standards (steel thickness, welding, and pipe support) and regularly checked for corrosion or rust spots. They should be regularly pressure tested (MAWP).

11.05 *A (removable) bulwark or fence is in place*

The main hazard on many barges is the absence of adequate fencing or railing to prevent crewmembers from falling overboard, one of the most common accidents that often results in drowning.

4.2.12 Vessel appearance

This chapter deals with the general impression and housekeeping of the vessel, to check whether the overall state of the vessel is satisfactory or not.

Age of the vessel should be taken in consideration.



Figure 45: Fence

12	VESSEL APPEARANCE AND CONDITION OF HULL AND SUPERSTRUCTURE
12.01	Stairs, handrails or walkways damaged
12.02	General rubbish for disposal not safely stored
12.03	Large areas of contact damage on hull
12.04	Severe rusting on deck or hull
12.05	Overall appearance of maintenance is poor
12.06	Hull markings such as draught marks are not clear
12.07	Slippery surfaces

4.2.13 Cargo Measurement

The accurate determination of cargo quantities on board a vessel is extremely important for safety, commercial and legal reasons. Calculating ship/shore and shore/shore cargo differences is also very important.

13	CARGO MEASUREMENT
13.01	Calibration tables are available
13.02	Tank level system is available and operational
13.03	Tank capacity alarm is available and operational
13.04	Measuring tape or stick is available
13.05	Cargo pumps are in good working order
13.06	Cargo pumps are leaking
13.07	Pipe lines are clearly identified

13.01	<i>Calibration tables are available</i>
13.02	<i>Tank level system is available and operational</i>

Calibration Tables (Gauge or Tank Tables, Innage/Ullage Tables): Tables developed by recognized industry methods that represent volumes in each tank according to the liquid (innage) or empty space (ullage) measured in the tank. The tables are entered with linear measurements (for example, feet, inches, meters, centimetres) to obtain calibrated volumes (for example barrels, cubic meters or cubic feet). (Measurement definitions, API Manual of Petroleum Measurement Standards [MPMS])

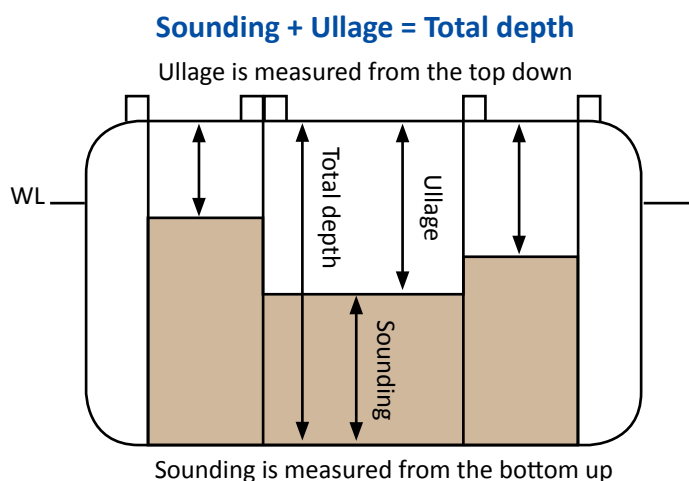


Figure 46: Sounding and Ullage

Tank quantities are measured by noting the level of the fluid in the tank and then referring to the tank calibration tables and noting down the quantity specified against that level.

Thus we take the sounding of a tank – water and fuel on all types of ships and then follow the above practice. Note that prior to referring to the tables the tank level has to be corrected for error due to trim and list. These corrections are generally given in the tank calibration tables.

The above method is turned upside down on a tanker. A tanker loads oil and it is not feasible to take a sounding every now and then – besides it is very messy. On tankers therefore instead of sounding the reverse is measured – that is the vacant level to reach the top of the tank – or the ullage. Thus ullage tables are nothing but the sounding table reversed.

Tank-measurement devices (Figure 47) should be installed for each cargo tank, tested or checked each time before cargo operations start and marked in the safety checklist.



Figure 47:
Tank-measurement device

13.03 *Tank-capacity alarm is available and operational*

The tank-capacity alarm (Figure 48) should provide audible and visual indication and be set at a level that will enable operations to be shut down prior to the tank being overfilled (90-95%). Under normal operations, the cargo tank should not be filled higher than the level at which the overfill alarm is set. Individual overfill alarms should be tested prior to loading.



Figure 48:
Tank capacity alarm panel

13.05 *Cargo pumps are in good working order*

Figure 49:
Cargo pump on deck



Annex 1: MSDS Pyrotechnics

Material Safety data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form) Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List) Consumer Fireworks, 1.4G		Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked or indicate that.		
Section I				
Manufacturer's Name (Fill in)		Emergency Telephone Number (Fill in)		
Address (Number Street, City, State, ZIP) (Fill in)		Telephone Number for Information (Fill in)		
		Date Prepared 11/4/2004		
		Signature of Preparer (Optional)		
Section II - Hazardous Ingredients/Identity Information				
Hazardous Component (Specific Chemical Identify: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Contains pyrotechnic composition - a solid mixture of oxidiser and fuel that will burn if ignited. These items are classified as 1.4G explosive by DOT.				
No chemical composition is exposed during normal handling and storage.				
Section III - Physical/Chemical Characteristics				
Boiling Point	n/a	Specific Gravity (H ₂ O = 1)	n/a	
Vapour Pressure (mm Hg)	n/a	Melting Point	n/a	
Vapour Density (AIR = 1)	n/a	Evaporation Rate (Butyl Acetate = 1)	n/a	
Solubility in Water Slight				
Appearance and Odour-All pyrotechnic composition is contained in a cardboard casing.				
Section IV - Fire and Explosion Hazard Data				
Flash Point (Method Used) n/a	Flammable Limits n/a	LEL n/a	UEL n/a	
Extinguishing media flood with water if a small amount of fireworks is involved.				
Special Firefighting procedures-Do not use suffocation methods - devices contain their own oxygen. If a large amount of fireworks are involved.				
Allow them to burn and prevent spread of fire.				
Unusual Fire and Explosion Hazards Fireworks will burn rapidly in the event of fire.				
Section V - Reactivity Data				
Stability	Unstable	<input type="checkbox"/>	Conditions to Avoid Open flames, smoking.	
	Stable	<input checked="" type="checkbox"/>		
Incompatibility (Materials to Avoid) Exposure to water may cause items to deteriorate.				
Hazardous Decomposition or By products Smoke, nitrogen oxides, and sulphur oxides may be produced in fire.				
Hazardous Polymerisation	May occur	<input type="checkbox"/>	Conditions to Avoid	
	Will not occur	<input checked="" type="checkbox"/>		
Section VI - Health Hazard Data				
Route(s) of Entry:	Inhalation?	Skin?	Ingestion?	

Health Hazards (Acute and Chronic). Exposure to finished items does not pose any health hazard.			
Carcinogenicity: No	NTP? No	IARC Monographs? No	OSHA Regulated? No
Signs and Symptoms of Exposure	n/a		
Medical Conditions Generally Aggravated by Exposure	n/a		
Emergency and First Aid Procedures	n/a		
Section VII - Precautions for Safe Handling and Use			
Steps to be taken in case material is released or spilled no smoking or open flames in vicinity of spilled material. Carefully pick up and place spilled items in cardboard cartons. Sweep up any exposed chemical composition with a natural fibre brush.			
Waste Disposal Method in accordance with local, state, and federal regulations.			
Precautions to be taken in handling and storing-avoid open flames, smoking, and high temperatures (above 120°F). Keep shipping cartons cool and dry.			
Other Precautions-None.			
Section VIII - Control Measures			
Respiratory protection (safety type) none required when handling finished items.			
Ventilation	Local Exhaust n/a		Special n/a
	Mechanical (General) n/a		Other n/a
Protective Gloves-None Required		Eye Protection n/a	
Other Protective Clothing or Equipment n/a			
Work/Hygienic Practices-No smoking in vicinity of fireworks.			

Annex 2: Fireworks Loading/Discharging checklist

Purpose:

This checklist is to be used for fireworks and explosives loading/discharging operations. This checklist is not all-inclusive and should be used as a guide only. The checklist should be included as part of the fireworks loading/discharging procedure.

Pre-loading/discharging check:

Prior to approving the permit to handle hazardous materials, the following items are to be completed:

1. permit to handle hazardous materials has been completely filled out;
2. proper shipping names, UN numbers, hazard classes and net explosive weights are listed on the permit;
3. a hazardous area has been calculated;
4. stowage and segregation of fireworks, explosives on the vessel is correct; and

5. an explosive radius of... m, has been established and no unnecessary personnel or vessels may enter into this area without permission of the Harbour Master or his/her designated representative.

Prior to approving the permit to handle hazardous materials, the following items have to be verified:

1. MSDS and other relevant documents according to the IMDG code are on board; and
2. The package of the dangerous goods is intact and properly labelled with the necessary marks, UN number, and proper shipping name.

Failure to comply with any local, state, or federal regulations or failure to comply with any orders given by the Harbour Master may result in suspension of operations.

Once completed, the permit should be submitted to the Harbour Master or his representative for signature. Once signed, a copy of the permit should be returned to the person/agency requesting the permit and a copy kept for the case file.

On the day of the loading/discharging operations the following items should be checked for compliance with the applicable regulations and/or policies in effect. Any deficiencies noted must be corrected prior to the commencement of cargo operations.

Facility Inspection:

1. guarding is adequate;
2. no smoking is allowed, except in designated areas;
3. "No smoking" signs are clearly posted;
4. no welding or hot work during loading/discharging operations;
5. no unauthorised parking;
6. no excessive rubbish or waste materials present;
7. electrical equipment is in a safe condition;
8. no open fires or flames;
9. fire extinguishing equipment available in adequate quantities;
10. fire appliance locations marked;
11. sufficient lighting if night operation;
12. warning alarm or siren for cargo of particular hazard; and
13. annual inspection records for cranes, cargo handling equipment is provided.

Vessel Inspection:

1. obtain vessel dangerous cargo manifest and check for compliance;
2. verify segregation and stowage of explosives and other hazmat;
3. conduct document check on vessel;
4. a fire hose of sufficient length to reach every part of the loading area with an effective stream of water must be connected and ready for use;

5. the “bravo” flag must be flown, or red light shown during night time;
6. mooring lines adequate, the vessel is safely moored. Towing wires of adequate size and strength are rigged fore and aft and are passed outboard to the water level;
7. no smoking on the vessel, except in designated areas;
8. “No smoking” signs are clearly posted;
9. all electrical equipment is in a safe condition;
10. a responsible person for the loading/discharging operations must be designated and in constant attendance during the entire operation;
11. fuelling/bunkering operations are not being conducted; and
12. the fire pump is operational.

Annex 3: Hot Work Permit

HOT WORK PERMIT-TANKERS

Hot work is work involving sources of ignition or temperatures sufficiently high to cause the ignition of a flammable gas mixture. It includes any work requiring the use of welding, burning or soldering equipment, and blow torches. It also includes the use of some types of power driven tools, portable electrical equipment which is not intrinsically safe or contained within an explosion proof housing, including electronic cameras and mobile telephones when used in an area which might contain a flammable atmosphere, and internal combustion engines.

Vessel: Date:

This permit is valid from: **To:**

The maximum validity of a Hot Work Permit is 8 hours. If hot work exceeding 8 hours is required, then a new permit must be completed.

Location of the hot work:

Full description of the work:

Personnel carrying out the work:

Section 1: General requirements

Section 1 must be completed on every occasion hot work is to be carried out outside a Designated Area. In addition, either Section 2, or both Sections 2 and 3, as applicable, must be completed.

Hot work within a Designated Area does not require a Hot Work Permit.

The master is aware of, and has approved, the activity. Yes No

Name: Signature:

Personnel carrying out the work are qualified and trained to do so. Yes No

Personnel carrying out the work are wearing the correct safety equipment.	Yes	No	
The hot work is not being performed simultaneously with operations which release flammable gases such as the transfer of low flash point fuel or the loading of petroleum or dangerous cargoes.	Yes	No	
The equipment and tools to be used have been checked and found to be in good condition.	Yes	No	
The welding machine, if in use, is properly earthed and welding cables are in good condition, the supply wiring is adequate to carry the electrical current demand without overloading or heating, the cable route is safe, the earthing connection is adjacent to the work site and the earth return cable leads directly back to the welding machine - the ship's structure should not be used as an earthing connection.	Yes	No	N/A
The area is identified and suitable notices and instructions are posted.	Yes	No	
The area is free of combustible materials and is continuously ventilated.	Yes	No	
Fire-fighting equipment is immediately available and ready to be used.	Yes	No	

Section 2: Hot work OUTSIDE a Designated Area and OUTSIDE a dangerous or hazardous area

On tankers the entire cargo deck forward of a line 3 metres aft of the accommodation front, the forecastle and forecastle space, pump rooms, spaces which lead directly off the cargo deck, and the atmospheric space around and above them, should be considered a dangerous or hazardous area.

All the questions in Section 1 have been answered 'Yes'.	Yes	No	
Is the hot work absolutely necessary?	Yes	No	
Is there no other way, other than by using hot work, that this repair can be effectively carried out?	Yes	No	
Is there no way that the equipment can be removed to a Designated Area and the work carried out there?	Yes	No	
Written company approval has been obtained.	Yes	No	
The hot work has been fully assessed, all the risks identified and a risk assessment completed and submitted to the company.	Yes	No	
A written plan for undertaking the work have been completed, a meeting chaired by the master has been held and the plan has been discussed and agreed with all those who have responsibilities in connection with the work.	Yes	No	
A responsible officer has been designated to ensure that the plan is followed.	Yes	No	
Name:	Rank:		
The location of the work is at least 500 mm from a fuel tank bulkhead or deck.	Yes	No	
Fire safety precautions have been reviewed and fire watch procedures have been established for the area of the hot work and for adjacent space where risk of transfer of heat exists.	Yes	No	

The hot work is not being carried out within 30 metres of the nearest part of any cargo compartment which has contained volatile or flammable products and which has not been cleaned and gas freed or purged, and the hydrocarbon vapour content reduced to not more than 2% by volume and inerted, or completely filled with water. Yes No

All vessels fitted with inert gas to ensure that all cargo tanks have been inerted, other than the compartment being worked in. Yes No

No cargo, ballasting, tank cleaning, purging or inerting operations are taking place. Yes No

All cargo tank and vent openings have been closed and all vent lines insulated. Yes No N/A

Any slops have been transferred to as far away from the work sited as possible, but in any case not less than 30 metres. Yes No N/A

Section 3: Hot work OUTSIDE a Designated area and WITHIN a dangerous or hazardous area

Hot work in a dangerous or hazardous area is only permitted in exceptional circumstances and only when the vessel is not carrying flammable cargo. Hot work in a dangerous or hazardous area when the vessel is carrying flammable cargo must only be considered as an emergency procedure.

On tankers the entire cargo deck forward of a line 3 metres aft of the accommodation front, the fore-castle and fore-castle space, pump rooms, spaces which lead directly off the cargo deck, and the atmospheric space around and above them, should be considered a dangerous or hazardous area.

All the questions in Section 2 have been answered 'Yes'. Yes No

Where hot work is contemplated within a cargo compartment, the compartment has been cleaned and gas freed to 0% Lower Explosive Limit (LEL)?

LEL: Yes No N/A

Tests for combustible gas should be carried out immediately before the start of the hot work and thereafter at hourly intervals as long as the work is in progress. The results of the tests must be recorded on the Atmosphere Check Record - Hot Work Form.

Where hot work is contemplated within a cargo compartment, particular attention has been paid to the removal of sludge and deposits. Yes No N/A

Adjacent compartments including diagonally positioned compartments have either been cleaned and gas freed, with hydrocarbon vapour content reduced to no more than 1% LEL and maintained at that level, or emptied, purged, and the hydrocarbon vapour content reduced to not more than 2% by volume and inerted, or completely filled with water.

LEL/Compartment: Yes No N/A

Any further risk reduction requirements identified from the risk assessment have been addressed. Yes No N/A

Signature of Master:

Signature and rank of officer in charge:

1st copy for display at work area

2nd copy for filling onboard

Annex 4: Ship/Shore Safety Checklist

Ship Name : _____ Port/Berth: _____

Date of Arrival : _____ Time of Arrival: _____

The safety of operations requires that all questions be answered affirmatively in the appropriate box. If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between the ship and the terminal. Where any question is considered to be not applicable, a note to that effect should be inserted in the remark column.

เพื่อความปลอดภัยในการทำงานกำหนดให้มีการตอบยืนยันในแบบสอบถามทุกคำถาม ในกรณีที่ไม่สามารถตอบได้ ต้องระบุเหตุผลและข้อตกลงถึงการป้องกันที่เหมาะสมระหว่างเรือและท่าเรือ คำถามใดที่พิจารณาแล้วว่าไม่สามารถปรับไปใช้ได้ ให้ระบุผลกระทบในช่องข้อสังเกต

- A box in the column “Ship” and “Shore” indicates that checks should be carried out by the party concerned.

ช่องที่ระบุ “Ship” and “Shore” ให้ตอบโดยหน่วยงานที่รับผิดชอบ

The present of the letters **A**, **P** or **R** in the column “Code” indicates the following:

- A** : all procedures and agreements should be in writing in the remarks column of this Check List or other mutually acceptable form. In either case, the signature of both parties should be required.

ขั้นตอนและข้อตกลงควรเขียนในช่องข้อสังเกตในแบบฟอร์มนี้หรือแบบฟอร์มที่สัมพันธ์กันอย่างใดอย่างหนึ่ง และลงลายมือชื่อทั้งสองฝ่าย

- P** : in the case of negative answer the operation shall not be carried out without the permission of the Port Authority.

ในกรณีที่ตอบปฏิเสธ การปฏิบัติงานควรหยุดดำเนินการหากปราศจากการอนุญาตจากเจ้าหน้าที่ทางท่าเรือ

- R** : indicates items to be re-checked at intervals not exceeding that agreed in the declaration.

รายการที่กำหนดให้มีการตรวจซ้ำระหว่างการทำงาน เวลาต้องไม่เกินที่กำหนดไว้ในแถลงการณ์

No	General	Ship	Shore	Code	Remarks
1	There is safety access between the ship and shore. มีทางขึ้น-ลงระหว่างเรือ และท่า ที่ปลอดภัย				
2	The ship is securely moored. เรือได้เทียบท่าและผูกอย่างมั่นคงเรียบร้อยแล้ว			R	
3	The agreed ship/shore communication system is operative. ระบบการติดต่อสื่อสารระหว่างเรือกับท่าได้ถูกกำหนดเรียบร้อยแล้ว			A R	System: Backup System:
4	Emergency towing-off pennants are correctly rigged and positioned. ธงแสดงตำแหน่งจุดลากจูงฉุกเฉินถูกแสดง ณ ตำแหน่งที่ถูกต้อง			R	

5	The ship's fire hoses and firefighting equipment are positioned and ready for immediate use. สายดับเพลิงและอุปกรณ์ดับเพลิงบนเรืออยู่ในตำแหน่งที่พร้อมใช้งานได้			R	
6	The terminal's fire-fighting equipment is positioned and ready for immediate use. สายดับเพลิงและอุปกรณ์ดับเพลิงบนท่าเรืออยู่ในตำแหน่งที่พร้อมใช้งานได้			R	
7	The ship's cargo and bunker hoses, pipelines and manifold are in good condition, properly rigged and appropriate for the service intended. ท่อน้ำมันและท่อน้ำมันเชื้อเพลิงและท่อรับส่งของเรืออยู่ในสภาพดี ถูกต่อติดไว้อย่างถูกต้องและเหมาะสมที่จะใช้กับงาน				
8	The terminal's cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended. ท่อน้ำมันและท่อน้ำมันเชื้อเพลิงและท่อรับส่งของท่าเรืออยู่ในสภาพดี ถูกต่อติดไว้อย่างถูกต้องและเหมาะสมที่จะใช้กับงาน				
9	The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection. ระบบขนถ่ายสินค้า มีทางแยกและทางปล่อยทิ้ง ที่ได้ทำการปิดหน้าแปลนก่อนที่จะทำการต่อ				
10	Scuppers and save-alls on board are effectively plugged and drip trays are in position and empty. ช่องระบายน้ำและรูเดรนต่างๆ มีการอุดปลั๊กที่แน่นหนา, ถาดรองอยู่ในตำแหน่งและว่างเปล่า			R	
11	Temporarily removed scupper plugs will be constantly monitored. ปลั๊กอุดรูระบายน้ำเมื่อมีการถอดออกจะต้องใส่กลับเข้าไปให้แน่นหนา			R	
12	Shore spill containment and sumps are correctly managed. การควบคุมการหกส้นและที่รวบรวมของท่าได้มีการจัดการอย่างถูกต้อง			R	
13	The ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted. หน้าแปลนของเรือที่ไม่ได้ต่อท่อรับสินค้าและน้ำมันมีการปิดแน่นเรียบร้อยและใส่น็อตหน้าแปลนครบทุกตัว				
14	The terminal's unused cargo and bunker connections are properly secured with blank flanges fully bolted. หน้าแปลนของทางท่าเรือที่ไม่ได้ต่อรับสินค้าและน้ำมันมีการปิดแน่นเรียบร้อยและใส่น็อตหน้าแปลนครบทุกตัว				
15	All cargo, ballast and bunker tank lids are closed. ฝาปิดถังสินค้า, ถังว่างเรือ, ถังน้ำมัน ทุกถังได้รับการปิดเรียบร้อย				

16	Sea and overboard discharge valves, when not in use, are closed and visibly secured. วาล์วน้ำทะเลและวาล์วส่งออกนอกเรือ เมื่อไม่ใช้งานได้ถูกปิด และตรวจสอบว่าปลอดภัย				
17	All external door, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open. ประตู, ช่องระบายอากาศและหน้าต่างของส่วนที่พักอาศัย, ห้องเก็บของและพื้นที่ห้องเครื่องได้ทำการปิดระบบระบายอากาศในห้องเครื่องอาจจะเปิดไว้ก็ได้			R	
18	The ship's emergency fire control plans are located externally. แผนผังอุปกรณ์ดับเพลิงฉุกเฉินจัดเตรียมไว้ภายนอก				Location:
19	The ship is ready to move under its own power. เรือพร้อมที่จะเคลื่อนย้ายออกจากท่าได้โดยตัวเอง			P R	
20	There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal. มีพนักงานเข้ายามปกระวางและพนักงานควบคุมดูแลการทำงานอย่างเพียงพอ ทั้งบนเรือ และทางท่า			R	
21	There are sufficient personnel on board and ashore to deal with an emergency. มีเจ้าหน้าที่บนเรือและทางท่าเพียงพอ ในการติดต่อเมื่อมีเหตุฉุกเฉิน			R	
22	The procedures for cargo, bunker and ballast handling have been agreed. การขั้นตอนการปฏิบัติงานสินค้า, การรับน้ำมัน, การสูบล้างน้ำถ่วงเรือ ได้มีการตกลง			A R	
23	The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood. สัญญาณฉุกเฉินและขั้นตอนการหยุด ที่ใช้โดยเรือและทางท่า ได้มีการอธิบายและทำความเข้าใจแล้ว			A	
24	Material safety data sheets (MSDS) for the cargo transfer have been exchanged where requested. ข้อมูลความปลอดภัยจำเพาะสำหรับขนถ่ายสินค้ามีการแลกเปลี่ยนตามที่ต้องการ			P R	
25	The hazards associated with toxic substances in the cargo being handled have been identified and understood. ได้มีการบ่งชี้และทำความเข้าใจถึงอันตรายของสารพิษที่ประกอบอยู่ในสินค้าที่บรรทุก				H ₂ S Content: Benzene Content:
26	An international shore fire connection has been provided. มีการจัดเตรียมข้อต่อสายดับเพลิงสากลแล้ว				
27	The agreed tank venting system will be used. มีการตกลงเกี่ยวกับการระบายอากาศในถังสินค้า			A R	

28	The requirements for closed operations have been agreed. ข้อบังคับสำหรับการปฏิบัติงานสินค้าแบบปิดได้มีการตกลง			R	
29	The operation of P/V system has been verified. ได้มีการตรวจสอบระบบการทำงานของ P/V วาล์ว				

Annex 5: Bunker Safety Check-list

Bunkering Safety Check-list for Bunker Delivery to Inland Ships

Port/Navigation at (*)		Date	
Time connected		Time start pumping	
Time disconnected		Time stop pumping	

Number bunker tank	1	2	3	4	5
Grade					
Tank capacity (@ 97%)	L	L	L	L	L
Content of tank before bunkering	- L	- L	- L	- L	- L
Capacity available for bunkering	L	L	L	L	L
Agreed bunker quantity	L	L	L	L	L
Start pumping rate in: L/min m ³ /h tonnes/h (*)					
Max pumping rate in: L/min m ³ /h tonnes/h (*)					
Name of responsible during receiving operations					
Name of responsible during delivering operations					
Bunker tank contents are checked during operations at intervals of:	Every minutes				

				< aft ship	fore ship >				

		Yes	No
1 (*)	Is the receiving ship securely moored and sufficient fendering in place?		
2 (*)	Is the delivering ship securely moored and sufficient fendering in place?		
3 (*)	If bunkering during navigation, has a safe sailing speed been agreed?		
4	Are all of the bunker hoses in good condition and appropriate for the service intended?		
5	Have effective communications been established between both parties?		
6	Is there an effective watch on both ships?		
7	Is enough lighting in place to monitor the delivery?		
8	Are the smoking and open fire restrictions being observed?		
9	Has an emergency stop procedure been agreed?		
10 (**)	Will a bunker overfill protection system be used?		
11 (*)	Has the filler pipe been connected properly and checked for tightness?		
12 (*)	If using a nozzle that cannot be fully connected, is the nozzle inserted far enough into the filling pipe opening and is the hose securely fastened to the receiving ship?		
13	Are the bunker hoses rigged within their limits of torsion and pulling, and is the radius of bending of the hoses above their minimum?		

14 (*)	Are spill containment arrangements in place? (Drip tray, scupper plugs, spillrail, ...)		
15	Is clean-up equipment available?		

Ticking or initialling the appropriate boxes and signing this Bunkering Safety Check-List for Bunker Delivery to Inland Ships confirms the acceptance of obligations.

Receiving ship		Delivering bunker jetty/ station/ship/truck (*)	
Master's name		Representative name	
Signature		Signature	

(*) = delete where not applicable (**) = mandatory when available L = litres

In general: bunkering may only take place if the questions 4 to 9, 13 and 15 are answered with 'yes'

Annex 6: PPE matrix

	Boiler Suit	Safety Shoes	Safety Helmet	Gloves	Leather Gloves	Chemical Gloves	Goggles	Eye protection/Visor	Ear defenders	Dust Mask	Welding Mask	Safety Harness with Line	Buoyancy Aid	Chemical Suit	Apron	Warning Signs	Isolate/Check	Drain/Vent	Personal Gas Detectors
Deck Work - Normal conditions																			
Deck Work - Bad weather																			
Machinery Space																			
Mooring Operations																			
Anchoring Operations																			
Cargo Operations																			
Use of lifting equipment																			
Crane Operations																			
Bunkering																			
Wire Handling																			
Working on a lifeboat																			
Working Overside																			
Working in aloft > 2 metre																			
Painting																			
Working on Batteries																			
Catering Work																			
Cleaning Equipment																			
Handling Chemicals																			
Welding or Burning																			
Operating Hand Tools																			
Operating Power Tools																			
Electrical Circuits																			
Hydraulic Systems																			
Pressure Systems																			

To be used in accordance with the relevant permits & checklists


MINIMUM PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

REQUIRED	CONSIDER	UNLIKELY
Essential Equipment for this duty	Equipment may be needed depending on circumstances	Unlikely this Equipment will be needed

	Boiler Suit	
	Safety Shoes	
	Safety helmet	
	Safety gloves	
	Goggles	
	Visor	
	Ear Defenders	

	Dusk Mask	
	Welding Mask	
	Safety Harness with Line	
	Bouyancy Aid	
	Full Protection Suit	
	Apron	

Annex 7: MVIS


	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)	Date

Inspection carried out by:	


SUMMARY

GENERAL INFORMATION			
Name		Flag	
Year Build		Type of vessel	TANKER - GENERAL CARGO - CONTAINER
Port of Registry		Built at	
Length over All	m	Beam over all	m
Owner		Operator	
Name		Name	
Address		Address	
Postal Code		Postal Code	
City		City	
Country		Country	
Tel.		Tel.	
Fax		Fax	
E-mail		E-mail	
Charterer		Class Society	
Name		Name	
Address		Address	
Postal Code		Postal Code	
City		City	
Country		Country	
Tel.		Tel.	
Fax		Fax	
E-mail		E-mail	
Language Operation	LOADING - DISCHARGING	Port of inspection UN no. Cargo	

TECHNICAL INFORMATION			
Gross Tonnage	MT	Net tonnage	MT
Maximum cargo capacity	MT		
Maximum draft loaded	m	Maximum draft unloaded	m
Air draft unloaded	m	Air draft loaded	m
Main Engine Type		Number of main engines	
Total power	BHP/Kw	Number of propellers	
Bunker capacity	MT	Consumption (diesel)/ engine/hour	L/hour
FOLLOWING ITEMS ARE ONLY APPLICABLE FOR TANKER VESSELS			
Number of cargo tanks		100% cargo tank volume	m ³
Number of cargo pumps		Maximum pumping capacity	m ³
Maximum loading rate	m ³	Tank level system	
Drip tray available	YES-NO	Capacity drip tray	m ³
Number of sloptanks		Sloptank capacity	m ³

		Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)		Date		
NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS						
No	C	Question	Yes	No	N/A	R
1		VESSEL CERTIFICATES AND DOCUMENTS				
1.01		Valid Certificate of Registration (Lancang - Mekong Agreement, Art. 14 and Thai Vessels Act, B.E. 2481)				
		Valid till				
		Registry Number				
1.02		Valid Load Line Certificate (MOU, Annex VI, Art. 4)				
		Valid till				
1.03		Valid Class Certificate				
		Valid till				
1.04		Valid Tonnage Certificate (Lancang-Mekong Agreement Art. 15)				
		Valid till				
1.05		Valid Tanker Safety Certificate (MOU, Annex III, Art. 3.c)				
		Valid till				
1.06		Valid Ship Survey Certificate (MOU Annex III Art. 3.c and Annex VI Art. 4 and Ship Survey Certificate Act, B.E. 2481)				
		Valid till				
1.07		Valid Oil Pollution Prevention Certificate (MOU, Annex VI, Art. 4)				
		Valid till				
1.08		Vessel has a valid Vessel's License (MOU Annex III Art. 7)				
1.09		Vessel has a valid Water Transport License (MOU Annex III Art. 7)				
1.09		All cargo handling hoses have a valid certificate				
		Valid till				
1.10		A document is on board concerning the electrical installation (earthing) in the cargo area, including limits within the cargo area				
1.11		Valid certificates for portable and movable firefighting equipment:				
1.1101		Valid certificate for fire extinguishers				
		Fire extinguishers have a mark of testing (valid inspection tag), or metre shows that they are in good working order				
		Number of dry powder (ABC) fire extinguishers required according to the certificate:				
		Number of CO ₂ fire extinguishers required according to the certificate:				
1.1102		Valid certificate for fire hoses				
		Valid till				
		Number of fire hoses required according to the certificate:				
1.12		Number of lifebuoys required according to the certificate:				
1.13		Number of lifejackets required according to the certificate:				


1.14		There is a Safe Manning Certificate				
1.15		Number of crewmembers required:				
1.16		The vessel is marked with the vessel's name, port of registry in native and English languages and registration number (MOU Annex 1 Art. 3)				
1.17		Other certificates on board:				
2		VESSEL MANNING CERTIFICATES HELD, TRAINING AND KNOWLEDGE				
2.01		Compliance with manning requirements				
2.011		Number of crewmembers on board:				
2.02		Crewmembers have valid identify documents (Lancang-Mekong Agreement Art. 11)				
2.03		Number of crew on board holding a valid certificate of navigation (MOU Annex II Art. 3.d)				

	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)	Date


NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS

No	C	Question	YES	NO	N/A	R
2.04		At least one crewmember holds a dangerous goods certificate				
2.05		Crew are informed about the risks associated with the products carried				
2.06		Written instructions concerning the dangerous goods on board, are available -MSDS (MOU Annex II Art. 17-18)				
2.07		The crew have been trained using special safety equipment: PPE				
2.08		The crew have knowledge of the safety instructions				
2.09		Firefighting exercises are regularly carried out and recorded including tests of emergency stoppage of fans, closure of fire flaps, EMS (Emergency Stop) devices				
2.10		Safety exercises are regularly carried out. Training on the use of safety equipment, PPE, handling of DG (firework)				
2.11		Operational training regarding loading/discharging/cleaning is performed				
2.12		Fireworks or other packaged dangerous goods are (occasionally) carried on board: (MOU, Annex III, Art. 16.18)				
2.1201		Written Instructions (MSDS) are provided for crew handling fireworks or other packaged dangerous goods (class 1.4) (MOU Annex III Art. 17-18)				
2.1202		A briefing is held prior to loading and discharging fireworks and written evidence is available				
2.1203		Notification is given to the discharging port concerning the transport and quantity of fireworks or other packaged dangerous goods				
2.1204		There is a checklist for loading/discharging fireworks or other packaged dangerous goods				
2.1205		"No smoking" signs are clearly posted				
2.1206		The crew are aware of the dangers associated with the handling and transport of fireworks and other packaged dangerous goods, and the no smoking requirements				
2.1207		The package of the dangerous goods on board is not ruptured and does not leak				
2.1208		The package of the dangerous goods meets the requirements stipulated in the IMDG Code				
2.1208		The proper shipping name, UN Number, and all labels and marks according the IMDG Code, shall be displayed on the package of dangerous goods				
2.1209		The documents used for the transport of dangerous goods meet the requirements stipulated in the IMDG Code.				

3		HEALTH AND SAFETY				
3.01		Emergency first aid kit is available				
3.02		Each crewmember has PPE: gloves, helmet, shoes/boots, clothing, goggles, hearing protection, life jacket, reflective jacket				
3.03		Safety procedures are implemented for critical operations:				
3.0301		Working in dangerous areas: all works require a work permit				
3.0302		Entering enclosed spaces such as forepeak, after peak, ballast tank				
3.0303		Entering cargo tanks				
3.0304		Loading/discharging				
3.0305		Cargo tank cleaning				
3.0306		Hot work				
3.05		Emergency eye bath spray is available				
3.06		Visible deficiencies on deck and in the ER regarding safety:				
3.0601		Deck and working areas have anti-slip areas				
3.0602		"No smoking" signs are posted				
3.0603		Life saving equipment ready for use				

	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)		Date			
NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS						
No	C	Question	Yes	No	N/A	R
3.0604		Signs on deck and in ER are clearly posted				
3.0605		Text messages and warnings on deck and in ER are in crew's language and fully understood				
3.0606		Doors and portholes are closed during cargo handling				
3.0607		Door-, escape windows-, and hatch rubbers are in good condition				
3.0608		Flame arrestors are available				
3.0609		The lighting on deck and in ER is sufficient and in good working order				
3.0610		All manholes are fully bolted				
3.07		The following safety equipment is available:				
3.0701		Flammable gas detector/explosion meter				
		Valid till				
3.0702		Oxygen analyser				
		Valid till				
3.0703		Crew are trained in use of the equipment and understands the readings				
3.0704		Instructions are in a language understood by the crew				
3.08		All torches/portable lamps are of an approved type for use in hazardous area				
3.09		Special medical equipment is available according to the MSDS				
3.10		The crew are aware of the required medical treatment when hazardous products are involved				
3.11		There are written procedures available for:				
3.1101		Cargo transfer: loading/discharging/internal transfer (min. crew members, checks during loading/discharging: tank level temperatures, pressure, alarms, communication)				
3.1102		Ship to ship transfer				
3.1103		The use of a lifejacket during mooring/unmooring operations and working aloft				
3.12		On walk and working decks, provisions are made to prevent slips and falls				
3.13		Cooking gas is safely stowed, including signs prohibiting open fire and smoking				
3.14		No open fire cooking is in progress during cargo operations that include dangerous goods, warning signs are posted				
3.15		Common symbols are in use for communication between port and vessel and between crewmembers				


4		DRUG AND ALCOHOL POLICY				
4.01		Vessel operator possesses a drug and alcohol policy				
4.02		Maximum content of alcohol in blood allowed:				
4.03		The drug and alcohol policy is clearly displayed on board				
4.04		The drug and alcohol policy is well known by the crew members				
5		FIREFIGHTING AND LIFESAVING EQUIPMENT				
5.01		Number of fire hoses, nozzles and hydrants are according the certificate				
		Number of fire hoses in bad state:				
5.02		Number of portable fire extinguishers is according to the certificate and ready for use (MOU Annex VI Art. 26-27)				
5.03		Portable fire extinguishers are sealed and have valid pressure				
		Valid till				
		Number of fire extinguishers expired or in poor condition:				
5.04		Fire pump is regularly tested and test is carried out on demand				
5.05		Fire axe is available				
5.06		The general alarm system in good working condition, and tested on demand				

	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)	Date


NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS

No	C	Question	YES	NO	N/A	R
5.07		The fire alarm plan (fire duty plan-muster list) is available and clearly posted				
5.08		The safety plan is available and clearly posted				
5.09		There is a lifejacket on board for every crewmember (MOU Annex VI Art. 29 and 30)				
5.10		Lifejackets are in a satisfactory state				
5.11		Lifebuoys are available (MOU Annex VI Art. 29)				
		Number of lifebuoys available:				
5.12		A muster list is displayed				
6		ENVIRONMENT PROTECTION				
6.01		Disposal receipts are available on board for: (MOU Annex VI Art. 39)				
6.0101		Slops, cargo residues: sloptank is available				
6.0102		Bilge water: oil-water mixture from bilges in engine room				
6.0103		Oily rags: metal container with lid is available for collecting oily rags				
6.0104		Other barge generated waste such as plastics, food, paper should be separately collected				
6.020		Oil-water separator is on board (MOU Annex VI Art. 37)				
6.021		There is evidence that the oil-water separator is used				
6.022		There is evidence that bilge water is pumped overboard (hose hanging in the bilge and connected with the overboard discharge)				
6.03		Instructions for pollution prevention are available on board				
6.04		The crew are aware of pollution prevention measures				
6.05		Oil absorbent material is on board (absorbent capacity about 200 litres)				
		Which absorbent material:				
6.06		Suitable drip trays are available and ready for use				
6.07		Procedures for how to respond in the event of a spill are available				
6.08		The bunker checklist is available				
6.09		The bunker checklist is fully completed prior to bunkering fuels for own consumption				
6.10		Oil record book, stating disposal of bilges, is on board				
6.11		Is the vessel free from any visible leakage (Pipelines, hoses, valves, connections) liable to cause pollution?				
6.12		The vessel has a Waste Management Plan				

7		CARGO TRANSFER OPERATION				
7.01		Information is available for the crew giving the necessary data for the safe carriage and handling of the cargo (MSDS)				
7.02		The safety checklist has been completed prior to cargo operations and can be shown				
7.03		An ESD (Emergency Shut Down) is available for stopping the discharge pump				
7.04		Cargo hoses are in a satisfactory state, are not ruptured, and show no signs of deterioration or leakage (visual inspection)				
7.05		A written loading and discharging plan is available				
7.06		Pressure relief valves are in good working order				
7.07		Gaskets, pumps, filters, tank lid seals, valves are free of visible damage				
7.08		Every connection not being used is fully blanked				
7.09		Cargo pipelines are clearly indicated				
7.10		A pipeline scheme showing the cargo system, is available				

	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)		Date			
NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS						
No	C	Question	YES	NO	N/A	R
8		WHEELHOUSE AND NAVIGATION				
8.01		VHF is available and operational (MOU Annex I Art. 32 and Annex VI Chapter 6)				
8.02		Automatic Identification System (AIS-B) is available and operational				
8.03		Global Positioning System (GPS) is available and operational				
8.04		Electronic chart is available				
8.05		Rudder indicator is available and operational				
8.06		Navigation charts are available				
8.07		Navigation and signal lights work properly (MOU Annex I Art. 20-27 and Annex VI Chapter 6)				
8.08		Audible signal equipment such as (fog) horn and bell, and other alarms work properly (MOU Annex I Art. 28 and Annex VI Chapter VI)				
8.09		The general alarm is available and works properly				
8.10		Engine room alarm is available on the bridge				
8.11		Means for communication with the engine room are available on the bridge				
8.12		Bridge logbook is available and properly filled in (Thai Vessels Act, B.E. 2481)				
8.13		The vessel carrying dangerous goods has all-round red lights and a B-flag. (MOU Annex I Art. 25)				
8.14		The vessel is equipped with good working search lights (MOU Annex VI, Art. 31)				
9		MOORING/ANCHORING				
9.01		Ropes and wires are in a satisfactory condition				
9.02		The vessel is properly moored				
9.03		Spare wires and ropes are on board				
9.04		The vessel is equipped with mooring winches				
9.05		The vessel is equipped with anchors				
9.051		Length of the anchor chain:				
9.06		The vessel is equipped with anchor winches				

10		ENGINE ROOM				
10.01		There is a main fuel emergency stop				
10.02		The 24 V batteries are in good working order				
10.03		There is a bilge alarm available and in good working order				
10.04		The engine room alarm is available and in good working order				
10.05		Engine room instrumentation is available and in good working order				
10.06		Entrances to the engine room are free of obstacles				
10.07		Emergency exits are clearly marked				
10.08		Engine room logbook is available and filled in				
10.09		Engine room: waste oil on plates, stairs or handrails				
10.10		Engine room: oil savers not cleaned out				
10.11		Engine room: bilge full or containing large amounts of oil or sludge				
11		OPERATIONAL SAFETY				
11.01		The vessel has procedures to deal with the following incidents:				
11.0101		Breakage of mooring lines, vessel not staying alongside the jetty while cargo operations are in progress (cargo hose can break)				
11.0102		Cargo hose burst/pipe fracture				
11.0103		Overfilling of the tank and tank overflow				
11.0104		Cargo leakage				

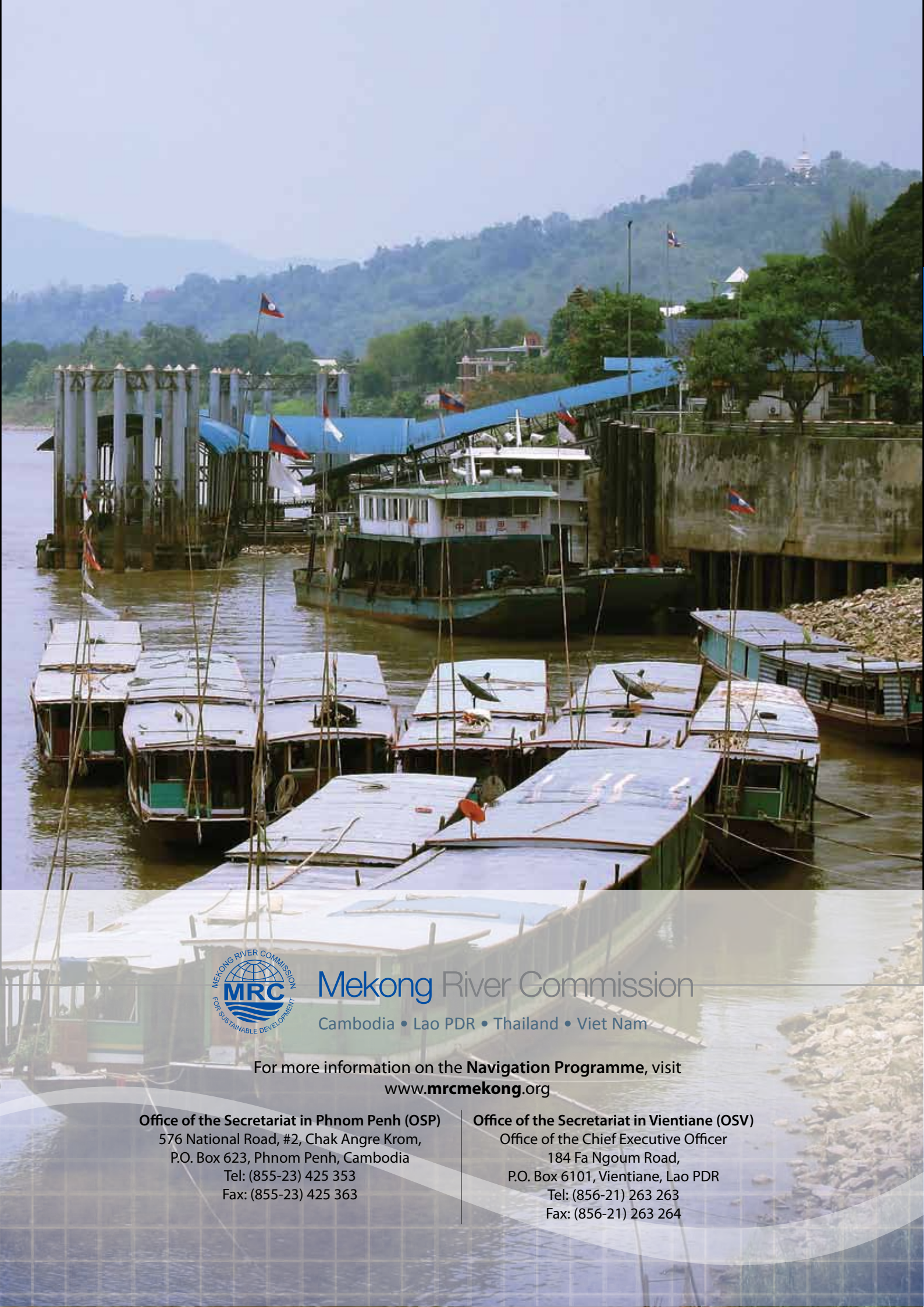
	Sustainable Management of Dangerous Goods Mekong Vessel Inspection Scheme (MVIS)				Date	
NUMBERS MARKED IN GREY ARE ONLY APPLICABLE FOR TANKER VESSELS						
No	C	Question	YES	NO	N/A	R
11.0105		Collision				
11.0106		Grounding				
11.0107		Pollution				
11.0108		Man overboard				
11.02		Earth wire connections are free of paint and rust, electrical equipment (lighting, pumps) and cargo pipes are earthed				
11.03		The Maximum Allowable Working Pressure (MAWP) is displayed on the manifold				
11.04		Void spaces, enclosed spaces and cofferdams are regularly tested to ensure that they are free from gases and liquids				
11.05		A (removable) bullwark or fence is in place				
11.06		There are designated areas for smoking				
11.07		Smoking rules are posted and well known by crew				
11.08		Open fire and open light requirements are posted and well known				
12		Vessel appearance and condition of hull and superstructure				
12.01		Stairs, handrails or walkways damaged				
12.02		General rubbish for disposal not safely stored				
12.03		Large areas of contact damage on hull				
12.04		Severe rusting on deck or hull				
12.05		Overall appearance of maintenance is poor				
12.06		Hull markings such as draught marks are not clear				
12.07		Slippery surfaces				
13		Cargo Measurement				
13.01		Calibration tables are available				
13.02		Tank level system is available and operational				
13.03		Tank capacity alarm is available and operational				
13.04		Measuring tape or stick is available				
13.05		Cargo pumps are in good working order				
13.06		Cargo pumps are leaking				
13.07		Pipe lines are clearly identified				

[illegible]

	Sustainable Management of Dangerous Goods	Date
	Mekong Vessel Inspection Scheme (MVIS)	

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Mekong River Commission

Cambodia • Lao PDR • Thailand • Viet Nam

For more information on the **Navigation Programme**, visit
www.mrcmekong.org

Office of the Secretariat in Phnom Penh (OSP)

576 National Road, #2, Chak Angre Krom,
P.O. Box 623, Phnom Penh, Cambodia
Tel: (855-23) 425 353
Fax: (855-23) 425 363

Office of the Secretariat in Vientiane (OSV)

Office of the Chief Executive Officer
184 Fa Ngoum Road,
P.O. Box 6101, Vientiane, Lao PDR
Tel: (856-21) 263 263
Fax: (856-21) 263 264