標題

MARPOL 条約附属書 I (油による汚染の防止のための規則)の改正に伴い要求される船舶間貨物油積替作業手引書(STS Operations Plan)について（日本籍船舶用）

ClassNK
テクニカル
インフォメーション

No. TEC-0840
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各位

2011 年 1 月 1 日に発効した MARPOL 条約附属書 I (油による汚染の防止のための規則)の改正に伴い要求される船舶間貨物油積替作業手引書(STS Operations Plan)の要件及び承認方法について既に ClassNK テクニカル・インフォメーション No. TEC-0834 においてお知らせしておりますが、日本籍船舶用の船舶間貨物油積替作業手引書(STS Operations Plan)に関して本テクニカル・インフォメーションにて追加情報をお知らせ致します。

他のタンカーとの間におけるばら積みの貨物油の積替えを行う総トン数 150 トン以上のタンカーにおいては、2011 年 1 月 1 日以降最初の定期的検査又は臨時検査までに、主管庁により承認された“船舶間貨物油積替作業手引書(STS Operations Plan)”を本船上に備える必要があります。

これに伴い日本籍弊会船級船におきましては、弊会にて上記手引書の承認を行いますので対象となる船舶の船舶間貨物油積替作業手引書(STS Operations Plan)を作成の上、添付 1.の「船舶間貨物油積替作業手引書承認申込書」と共に、弊会船体部へご提出下さい。ご参考までに、外航船用としてSTS Operations Planのサンプルを添付いたしますのでご活用下さい(添付 2)。また内航船につきましては、社団法人日本海難防止協会のホームページ（下記アドレス参照）にて公開されている「船舶間貨物油積替作業手引書 - 内航船用 - 」をご参照下さい。
日本海難防止協会ホームページアドレス: http://www.nikkaibo.or.jp/index.htm

尚、承認された船舶間貨物油積替作業手引書(STS Operations Plan)が船上に備えられていることの確認検査につきましては、2011 年 1 月 1 日以降最初の定期的検査又は臨時検査の際に実施致します。

なお、本件に関してご不明な点は、以下の部署にお問い合わせください。

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添付:
1. 船舶間貨物油積替作業手引書承認申込書
2. STS Operations Plan サンプル(外航船用)

添付 1. 船舶間貨物油積替作業手引書承認申込書

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船舶間貨物油積替作業手引書(STS Operations Plan)承認申込書

MARPOL Annex I 一部改正に伴い、下記船舶の手引書の承認申請致します。

対象船舶一覧

	船　名	船級番号	IMO番号	船籍国
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

申込者

会社名 :_____

住所 : _____

Tel/Fax/E-mail :_____/_____/_____

名前/署名 : _____
(　　)

手数料請求先は *同上/ *下記宛て先にお願い致します。

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*: 適宜削除

Name of Ship _____

Distinctive Number or Letters _____

Port of Registry _____

Shipowner _____

IMO-Number _____

Ship to Ship Operations Plan
(STS Operations Plan)

This Ship to Ship Operations Plan is examined under the Provision of Annex I of the MARPOL 73/78 Convention.

Place: _____

Date: _____

COUNTERSIGNED:

_____

Record of Revision

Date of revision	Revised provision	Administration / Classification Societies

Introduction

The Ship to Ship Operations Plan (STS Operations Plan) prescribing how to conduct STS operations has been developed in accordance with the standards describe in MARPOL Annex I, as amended by Resolution MEPC.186(59) for addition of “Chapter 8 - Prevention of Pollution during Transfer of Oil Cargo between Oil Tankers at Sea”.

The purpose of the STS Operations Plan is to provide practical guidance, describing procedure for Ship to Ship Transfer Operations for Masters and the crews directly involved in Ship to Ship Transfer Operations.

The STS Operations Plan has been developed taking into account the information contained in the best practice guidelines for STS Operations identified by the International Maritime Organization[1].

The STS Operations Plan may be incorporated into an existing Safety Management System required by Chapter IX of the International Convention for the Safety of Life at Sea, 1974, as amended, if that requirement is applicable to the oil tanker in question.

The STS Operations Plan includes general provisions which may be supplemented by special instruction from the ship-owners on how to implement procedures based on the peculiarities of design, oil tanker equipment and operational conditions.

Any oil tanker subject to new chapter 8 and engaged in STS Operations shall comply with its STS Operations Plan.

The person in overall advisory control of STS Operations shall be qualified to perform all relevant duties, taking into account the qualifications contained in the best practice guidelines for STS Operations identified by the Organization[2].

Records of STS Operations shall be retained on board for three years and be readily available for inspection by a party to the MARPOL Convention.

[1] IMO’s” Manual on Oil Pollution, Section I, Prevention” as amended, and ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005.

[2] IMO’s” Manual on Oil Pollution, Section I, Prevention” as amended and ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005.

CONTENTS

Chapter 1 Objectives

1.1 Each oil tanker involved in the cargo transfer operation should have on board a plan prescribing how to conduct STS transfer operations.

1.2 The STS Operations Plan shall be written in working language of the ship.

1.3 A copy of the STS Operations Plan should be available at the following locations on each oil tanker:

.1 the bridge;

.2 the cargo transfer control station; and

.3 the engine-room.

1.4 The Master of each oil tanker should ensure that the STS Operations Plan on board is current and should require all personnel on board to follow the procedure in the plan.

1.5 The STS Operations Plan should contain the following information:

.1 a step-by-step description of the entire STS Operation;

.2 a description of the mooring and unmooring procedures and arrangements, including diagrams where necessary, and procedures for tending the oil tankers' moorings during the transfer of cargo;

.3 a description of the cargo and ballast transfer procedures, including those used while underway or anchored and procedures for connecting cargo hoses, topping off cargo tanks and disconnecting cargo hoses;

.4 the titles, locations and duties of all persons involved in the STS Operation;

.5 procedures for operating the emergency shut-down and communication systems and for rapid breakaway;

.6 a description of the drip trays and procedures for emptying them;

.7 procedures for reporting spillages of oil into the water;

.8 an approved contingency plan;

.9 a cargo and ballast plan;

Chapter 2 Ship Particular

The vessel is engaged in the transfer of oil cargo between oil tankers at sea and her principal dimensions are as the Table 1 indicates. Refer to 8.1 "GENERAL ARRANGEMENT" for the tank arrangement.

Table: 1 Ship Particular

Ship's Name	
IMO Number	
Flag/Port of Registry	
Call Sign	
Gross Tonnage	GT
Length (O.A.)	M
Length (B.P.)	M
Breadth moulded	M
Depth moulded	M
Draft (summer ext.)	M
Deadweight	DWT

Chapter 3 General Requirements for vessels involved in Ship to Ship Transfer Operations

⁎ For further information, also refer to ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005 and ISGOTT "International Safety Guide for Oil Tankers and Terminals".

3.1 Person in Overall Advisory Control

3.1.1 A ship-to-ship transfer operation should be under the advisory control of the Person in Overall Advisory Control. The Person in Overall Advisory Control will be either one of the Masters concerned or an STS Superintendent such as Lightering or Mooring Master employed to advise the Masters. It is not intended that the Person in Overall Advisory Control in any way relieves the ships' Masters of any of their duties, requirements or responsibilities.

3.1.2 The Person in Overall Advisory Control of STS Operations shall be qualified to perform all relevant duties, taking into account the qualifications contained in the best practice guidelines for STS Operations identified by the Organization[1]. The Administration, cargo owners or oil tanker's operators should agree and designate the Person in Overall Advisory Control for each and every transfer who should have at least following qualifications:

.1 an appropriate management level deck licence or certificate meeting international certification standards, with all STCW and dangerous cargo endorsements up to date and appropriate for the ships engaged in the STS Operation;

.2 attendance at suitable ship-handling course;

.3 conduct of a suitable number of mooring/unmooring operations in similar circumstances and with similar vessels;

.4 experience in oil tanker cargo loading and unloading operations;

.5 a thorough knowledge of the geographic transfer area and surrounding areas;

.6 a knowledge of spill clean-up techniques, including familiarity with the equipment and resources available in the STS contingency plan; and

.7 thorough knowledge of the STS Operations Plan.

[1] IMO's" Manual on Oil Pollution, Section I, Prevention" as amended, and ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005.

3.1.3 The Person in Overall Advisory Control should:

.1 ensure that the cargo transfer, mooring and unmooring operations are conducted in accordance with the required STS Operations Plan, the contents of the Manual and take into account the recommendations contained in the industry publication “Ship to Ship Transfer Guide – Petroleum”;

.2 advise the Master(s) of the critical phases of the cargo transfer, mooring and unmooring operation;

.3 ensure the provisions of the contingency plan are carried out in the event of a spill;

.4 ensure that all required reports are made to the appropriate authorities;

.5 ensure that crewmembers involved in each aspect of the operation are properly briefed and understand their responsibilities;

.6 ensure that approach and mooring operations are not attempted until proper effective communication has been confirmed between the two oil tankers and appropriate checks have been completed;

.7 ensure that pre-transfer STS safety checks are undertaken in accordance with accepted industry guidance; and

.8 ensure that appropriate checks are undertaken prior to unmooring.

3.1.3 The Person in Overall Advisory Control should have the authority to advise:

.1 suspend or terminate the STS Operation; and

.2 review the STS Operations Plan for that particular operation.

3.1.4 Each oil tanker should have a person in charge of the cargo transfer operation on board, during each watch, throughout the operation. Each person in charge shall:

.1 inspect the cargo transfer system before transfer;

.2 supervise all aspects of the transfer operation on board the oil tanker;

.3 conduct the transfer operation in accordance with the STS Operations Plan; and

.4 ensure that all moorings, fenders and safety measures are checked.

3.2 Transfer Area

3.2.1 The STS transfer area should be specially selected for safe operations, in co-ordination with appropriate authorities. In selecting the area for STS transfer, the following should be taken into account, in particular in the absence of any applicable national legislation:

.1 the traffic density in the given area;

.2 The need for sufficient sea-room and water depth required for manoeuvring during mooring and unmooring;

.3 The availability of safe anchorage with good holding ground;

.4 present and forecast weather conditions;

.5 availability of weather reports for the areas;

.6 distance from shore logistical support;

.7 Proximity to environmentally sensitive areas;

.8 Security threat.

3.3 Weather Condition

3.3.1 The limit of weather conditions will depend on the effect of the sea and swell on the fenders or mooring lines and the rolling movements induced in the participating ships, taking into account their relative freeboard and displacement.

3.3.2 If cargo transfer is to take place at anchor the combined effect of current and weather conditions on the yawing movements of the anchored ship and the ultimate strain on the anchor cable should be considered.

3.3.3 Applicable weather forecasts for the area should be obtained before and during operations.

3.3.4 Throughout any berthing operation the visibility should be good enough for safe manoeuvring, taking into account safe navigation and collision avoidance requirements. Manoeuvres should only start when relevant personnel are satisfied that

conditions are suitable for mooring and cargo transfer.

3.3.5 When an electrical storm is present or imminent in the transfer area, the cargo transfer operation should be suspended and all vent risers, cargo systems and IGS systems secured until such time as it considered safe to resume operation.

3.4 Notification to Authorities

3.4.1 Each oil tanker subject to Regulation 42, of Chapter 8, MARPOL Annex I, as amended, that plans STS Operations within the territorial sea, or the exclusive economic zone of a Party to the Convention (See Appendix B) shall notify that Party not less than 48 hours in advance of the scheduled STS Operations.

The notification shall include at least the followings:

.1 Name, flag, call sign, IMO Number and estimated time of arrival of the oil tankers involved in the STS Operations;

.2 Date, time and geographical location at the commencement of the planned STS Operations;

.3 Whether STS Operations are to be conducted at anchor or underway;

.4 Oil type and quantity;

.5 Planned duration of the STS Operations;

.6 Identification of the STS Resource Provider and/or Person in Overall Advisory Control and their contact details information; and

.7 Confirmation that the oil tanker has on board an STS Operations Plan

3.4.2 If the estimated time of arrival of an oil tanker at the location or area for the STS Operations changed by more than six hours, the master, owner or agent of that oil tanker shall provide a revised estimated time of arrival to the applicable national maritime authority.

3.4.3 When STS transfers are to be conducted in an area in international waters, a vessel(s) should transmit by radio a navigational warning (security) to all ships stating:

.1 the name and nationality of the vessels involved in the operation;

.2 the geographical position of operations and general headings;

.3 nature of operations;

.4 the planned start time of the operations and expected duration; and

.5 request for wide berth and the need to exercise caution when navigating in the STS transfer area.

3.4.4 On completion of the STS Operation, the person having overall advisory control or his designee should cancel the navigational warning.

3.5 Communications

3.5.1 Good, reliable communications between the two oil tankers is an essential requirement for the safe and successful conduct of STS transfer operations. In order to prevent misunderstanding and possibly incorrect interpretations of commands and signals, communications between the oil tankers should be conducted in a common language mutually agreed upon and known to personnel directly involved in transfer operations.

3.5.2 The oil tankers should establish initial communications as early as practicable to plan operations and to confirm the transfer area. During this initial communication, the Person in Overall Advisory Control must be confirmed. Details of the operation, including approach, mooring, cargo transfer and unmooring plans should be discussed and agreed, together with the joint use of operational safety checklists. (See ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005 Appendix 1).

3.5.3 Essential personnel on board both oil tankers involved in the operation of oil transfer should be provided with a reliable means of communication (for instance, walkie-talkies) for the duration of the operation.

3.5.4 In the event a significant failure of communication occurs during an approach manoeuvre, the manoeuvre should be aborted, if appropriate and safe to do so, and the subsequent actions taken by each oil tanker should be indicated by the appropriate sound signals, as prescribed in the International Regulations for Preventing Collisions at Sea (COLREGS).

3.5.5 In the event of a breakdown of communications on either oil tanker during cargo operations, the vessel should sound an agreed emergency signal. At this signal, the oil transfer operations should be suspended and only resumed after the regular means of communication have been restored.

3.6 Equipment

3.6.1 Prior to starting the STS transfer operation, the Masters of the oil tankers should exchange information concerning the availability, readiness and compatibility of the equipment to be used in the operation.

Fender

3.6.2 The oil tanker(s) should be provided with fenders (primary and secondary). These fenders should be capable of withstanding the anticipated berthing energies and should be able to distribute the forces evenly over the appropriate area of the hulls of both oil tankers.

3.6.3 Except in cases where the STS transfer is conducted using a dedicated lightering ship, it is probable that fendering operations will be carried out with the assistance of an STS Resource Provider. Such companies usually have service craft available and these vessels will normally assist in positioning fenders on the relevant oil tanker.

3.6.4 Fenders may be secured on either oil tanker. However, landing on an unprotected hull section is less likely if the fenders are rigged on the manoeuvring ship and it is therefore preferable that fenders be secured to that ship.

3.6.5 The Person in Overall Advisory Control should advise the position and method of securing the fenders to the oil tankers in advance of the operation.

Hoses

3.6.6 The hoses used for the STS transfer of crude oils or petroleum products should be specially designed and constructed for the product being handled and the purpose for which they are being used. Hoses used should comply with EN1765 (or latest equivalent) with regard to specification for the assemblies and with BS1435 (or latest equivalent) and OCIMF guidelines with regard to their handling, inspection and testing. Hoses should bear the following durable indelible markings:

.1 the manufacturer's name or trademark;

.2 identification of the standard specification for manufacture;

.3 factory test pressure (Note: equal to rated working pressure, maximum working pressure, maximum allowable working pressure);

.4 month and year of manufacture and manufacturer's serial number;

.5 indication that the hose is electrically continuous or electrically discontinuous,

semi-continuous or anti-static; and

.6 the type of service for which it is intended, e.g., oil or chemical.

3.6.7 Test data with respect to each hose should be available and should be sighted prior to the hose being used for transfer.

3.6.8 Hoses should be withdrawn from service and retired against defined criteria which may include the following:

.1 the presence of defects detected during visual inspections. Defects prompting retirement could include irregularities in the outside diameter, such as kinking, damaged or exposed reinforcement or permanent deformation of the casing and damage, slippage or misalignment of end fittings;

.2 after a defined period in service, established in consultation with the manufacturer; and

.3 when the temporary elongation of the hose, measured during routine pressure tests, exceeds maximum allowable values.

3.6.9 A visual inspection of each of the hose assemblies should be carried out before they are connected to the manifolds to determine that they are free of damage. If damage to a hose or flange is present, the hose should be withdrawn from use for further inspection, repair or retirement.

3.6.10 STS transfer operations require hose connections to be well made. Flanges or, if used, quick release couplings should be in good condition and properly secured to ensure leak tight connections. Prior to transfer operations hose integrity should be confirmed at the manifold interfaces and any intermediate flanges.

Mooring equipment

3.6.11 To ensure the security of moorings, it is important that both oil tankers are fitted with good quality mooring lines, efficient winches and sufficiently strong closed fairleads, bitts and other associated mooring equipment that is fit for purpose. Effective leads between fairleads and mooring bitts and mooring winches should be available for the handling of all mooring lines.

3.6.12 All fairleads used should be of the enclosed type, except on an oil tanker that will always have a substantially greater freeboard than the other. This will ensure that the fairleads remain effective in controlling mooring line leads as the freeboard difference between the two oil tankers changes.

3.6.13 A prime consideration in mooring during STS Operations is to provide fairleads and bitts for all lines without the possibility of lines chaffing against each other, the oil tankers or the fenders.

3.6.14 Steel wire mooring lines and high modulus synthetic fiber ropes should be fitted with synthetic fibre to provide the additional elasticity required for STS mooring arrangements.

3.6.15 A minimum of four strong rope messengers should be available on both oil tankers, preferably made from a buoyant synthetic fibre material.

3.7 Safety

3.7.1 For all STS transfer operations each Master remains at all times responsible for the safety of his own ship, its crew, cargo and equipment and should not permit safety to be prejudiced by the actions of others.

Precautions against pollution

3.7.2 All oil transfer operations should cease should an unsafe or environmentally hazardous condition develop. Such conditions may include:

.1 failure of hoses or moorings;

.2 deterioration of weather and/or sea conditions;

.3 a dangerous concentration of gas on the deck of the oil tanker(s); and

.4 a significant spill of oil.

State of readiness for an emergency

3.7.3 The following arrangements should be made on both oil tankers:

.1 main engine and steering gear maintained ready for immediate use;

.2 cargo pump and all other equipment trips relevant to the transfer are tested prior to the operation;

.3 crew are readily available and systems are prepared ready to drain and disconnect hoses at short notice;

.4 oil spill containment equipment is prepared and ready for use;

.5 mooring equipment is maintained ready for immediate use with extra mooring lines available at mooring stations as replacements in case of line failure; and

.6 fire-fighting equipment is ready for immediate use.

Contingency planning and emergency procedures

3.7.4 The risk of accident and the potential scale of the consequences require that organizers develop contingency plans for dealing with emergencies. Before committing to an STS transfer operation, the parties involved should carry out a risk assessment covering operational hazards and the means by which they are managed. The output from the risk assessment should be used to develop risk mitigation measures and contingency plans covering all possible emergencies and providing for a comprehensive response, including the notification of relevant authorities. The contingency plan should have relevance to the location of the operation and take into account the resources available, both at the transfer location and with regard to nearby back-up support.

3.7.5 Each oil tanker must assign emergency duties to designated members of the crew in case of accidents that may arise during the transfer of oil, particularly in the case of spillages of oil.

3.7.6 During each STS Operation consideration should be given to having a tender or work vessel available to deploy response equipment and to conduct clean-up of any oil which may be spilled during the transfer operation.

3.7.7 The risk of oil pollution from STS operations is no greater than during in-port cargo transfers. However, as a transfer area may be out of range of port services, a contingency plan with the Shipboard Oil Pollution Emergency Plan (SOPEP) or Vessel Response Plan (VRP) should be available to cover such risk and should be activated in the event of an oil spill.

3.7.8 Any leak or spillage during the transfer should be reported immediately to the officers on cargo watch who should immediately stop the cargo transfer and notify the person in overall advisory control. The immediate measures set forth in the contingency plan should be implemented. The transfer should remain suspended until it is agreed between the relevant persons/authorities that it is safe to resume

Risk Assessment

3.7.9 STS Operations should be subjected to a risk assessment, the scope of which should include confirmation of the following:

.1 adequate training, preparation or qualification of oil tanker's personnel;

.2 suitable preparations of oil tankers for operations and sufficient control over the oil tankers during operations;

.3 proper understanding of signals or commands;

.4 adequate number of crew assigned to controlling and performing oil transfer operations;

.5 suitability of the agreed STS Operations Plan;

.6 adequate communications between oil tankers or responsible person(s);

.7 proper attention given to the differences in freeboard or the listing of the oil tankers when transferring cargo;

.8 the condition of transfer hoses;

.9 methods of securely connecting hose(s) to the oil tanker(s) manifold(s);

.10 recognition of the need to discontinue oil transfer when sea and weather conditions deteriorate; and

.11 adequacy of navigational processes.

Chapter 4 Preparation for Operations

** For further information, also refer to ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005 and ISGOTT "International Safety Guide for Oil Tankers and Terminals".*

4.1 Preparation before manoeuvring

4.1.1 Prior to the STS Operation, the Masters of both oil tankers and, if appointed, the Person in Overall Advisory Control, should make the required preparations before manoeuvres begin:

.1 carefully study the operational guidelines contained herein and in the industry publication "Ship to Ship Transfer Guide – Petroleum", as well as any additional guidelines provided by the shipowner and cargo owner;

.2 ensure that the crew is fully briefed on procedures and hazards, with particular reference to mooring and un-mooring;

.3 ensure that the oil tanker conforms to relevant guidelines, is upright and at a suitable trim;

.4 confirm that the steering gear and all navigation and communications equipment is in satisfactory working order;

.5 confirm that engine controls have been tested and the main propulsion plant has been tested ahead and astern;

.6 confirm that all essential cargo and safety equipment has been tested;

.7 confirm that mooring equipment is prepared in accordance with the mooring plan;

.8 fenders and transfer hoses are correctly positioned, connected and secured;

.9 cargo manifolds and hose handling equipment are prepared;

.10 obtain a weather forecast for the STS transfer area for the anticipated period of the operation

.11 agree the actions to be taken if the emergency signal on the oil tanker's whistle is sounded; and

.12 confirm completion of relevant pre-operational checklists

4.1.2 Communications with the master of the other oil tanker should be established in accordance with 3.4 at an early stage to co-ordinate the rendezvous and the method and system of approach, mooring and disengaging.

4.1.3 When the preparation of either oil tanker has been completed, the other vessel should be so informed. The operation may proceed only when both oil tankers have confirmed their readiness.

4.2 Manoeuvring and Mooring Operation

Refer to “Ship to Ship Transfer Guide – Petroleum” regarding the following contents.

4.2.1 Manoeuvring Alongside with Two Ships Under Power

4.2.2 Manoeuvres with One Ship as Anchor

4.2.3 Mooring Preparations

4.2.4 Mooring Considerations

4.3 Joint Plan

4.3.1 A joint plan of operation in alignment with the STS Operations Plan established for each ship should be developed on the basis of information exchanged between the two oil tankers, including the following:

.1 mooring arrangements;

,2 quantities and characteristics of the cargo(es) to be loaded (discharged) and identification of any toxic components;

,3 sequence of loading (discharging) of tanks;

.4 details of cargo transfer system, number of pumps and maximum permissible pressure;

.5 rate of oil transfer during operations (initial, maximum and topping-up);

.6 the time required by the discharging oil tanker for starting, stopping and changing rate of delivery during topping-off of tanks;

.7 normal stopping and emergency shutdown procedures;

.8 maximum draught and freeboard anticipated during operations;

.9 disposition and quantity of ballast and slops and disposal if applicable;

.10 details of proposed method of venting or inerting cargo tanks;

.11 details of crude oil washing, if applicable;

.12 emergency and oil spill containment procedures;

.13 sequence of actions in case of spillage of oil;

.14 identified critical stages of the operation;

.15 watch or shift arrangements;

.16 environmental and operational limits that would trigger suspension of the transfer operation and disconnection and unmooring of the tankers;

.17 local or government rules that apply to the transfer;

.18 co-ordination of plans for cargo hose connection, monitoring, draining and disconnection; and

.19 unmooring plan.

4.3.2 The cargo manifolds of the two oil tankers should be correctly aligned.

4.3.3 Hoses should be suspended in such a way that excessive strain on manifold fittings is prevented and the possibility of twisting and pinching between the oil tankers is minimized. Care should be taken to ensure that hoses are not bent to a radius less than that recommended by the manufacturer and that they do not rub against the ships' structure.

4.4 Precautions before commencing the cargo transfer operation

4.4.1 Before commencing the cargo transfer operation, the responsible person(s) on the oil tankers should ensure:

.1 proper mooring of the oil tanker;

.2 availability of reliable communication between the two oil tankers;

.3 emergency signals and shutdown signals are agreed;

.4 proper connections and securing of hoses to the oil tanker's manifolds;

.5 proper condition and position of hoses, hose saddles and supports;

.6 flanged joints, where used, are fully bolted and sealed and ensured oil tight;

.7 proper blanking of unused cargo and bunker connections;

.8 tools required for the rapid disconnection of hoses are located at the manifold;

.9 any valve through which oil could be discharged to the sea is closed and inspected

and, if not used in the operation, is sealed to ensure that it is not inadvertently opened;

.10 deck scuppers are properly plugged;

.11 availability of empty drip trays on both oil tankers under couplings of hoses, and means for drip tray drainage;

.12 availability of materials on the oil tankers for on-deck clean-up in case of spillage;

.13 fire axes or suitable cutting equipment is in position at fore and aft mooring stations;

.14 an engine-room watch will be maintained throughout the transfer and the main engine will be ready for immediate use;

.15 a bridge watch and/or an anchor watch will be established;

.16 officers in charge of the cargo transfer are identified and details are posted;

.17 a deck watch is established to pay particular attention to moorings, fenders, hoses and manifold integrity;

.18 correct understanding of commands and signals by the responsible person(s) on the oil tankers during operations; and

.19 confirm completion of relevant pre-transfer checklists (See ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005 Appendix I).

4.4.2 The transfer operation may be started only after the responsible person(s) on both oil tankers and the Person in Overall Advisory Control have agreed to do so, either verbally or in writing.

Chapter 5 Performance of Operations

** For further information, also refer to ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005 and ISGOTT "International Safety Guide for Oil Tankers and Terminals".*

5.1 Cargo Transfer Operations

5.1.1 The operation should be started at a slow rate in order to ensure that all connections and hoses are tight, that the oil is being directed into intended pipelines and tanks, that no excessive pressure is being built up in the hoses and pipelines and that there is no evidence of oil leakage in way of the tankers' hulls.

5.1.2 Only after being satisfied there is no leakage, that the oil is being transferred into the intended pipelines and tanks and that there is no excessive pressure, may the rate of transfer be increased up to the maximum indicated in the plan of operation.

5.1.3 The responsible persons on both oil tankers should periodically check the following and, if necessary, take appropriate remedial action:

.1 for any leakage from the equipment and system, or through the oil tanker's plating;

.2 that there is no leakage into pump-rooms, ballast or void spaces or cargo tanks not scheduled to be loaded;

.3 if there is any excessive pressure in piping and hoses;

.4 the mooring arrangements;

.5 the condition of hoses and their support arrangements; and

.6 tank ullages and quantities transferred.

5.1.4 Care must be taken to prevent surge pressures when changing over tanks on the oil tanker being loaded. The filling valves of the next tanks in sequence should be opened before the valves on the tank being filled are closed.

5.1.5 Information on quantities transferred should be routinely and regularly exchanged between the two oil tankers. Any significant discrepancies between the quantity discharged and the quantity received should be promptly investigated.

5.1.6 Cargo operations should be conducted under closed conditions with ullage, sounding and sampling ports securely closed. Due regard must be given to any local regulations that may require the adoption of vapour balancing procedures.

5.2 Ballast Operations

5.2.1 During cargo transfer, appropriate ballast operations should be performed in order to minimize the differences in freeboard between the two oil tankers and to avoid excessive trims by the stern. Listing of either ship should be avoided, except as may be required by the discharging oil tanker to facilitate tank draining.

5.2.2 Most ships engaged in STS Operations are fitted with segregated ballast tanks. However, cases may arise where ships are employed which may require the transfer of ballast to the discharging ship. During deballasting from cargo tanks the inert gas system, where fitted should be operated.

5.2.3 Regardless of the type of ship, any ballast discharged overboard should be clean. AII other ballast should be retained on board or, as in the circumstances mentioned above, may be transferred to the discharging ship. On completion of deballasting, lines and pumps should be drained, and all sea valves tightly shut, checked and sealed.

5.2.4 Any national or local regulations controlling discharge of ships' ballast water should be complied with.

5.2.5 Constant attention should be paid to mooring lines and fenders to avoid chafing and undue stress, particularly that caused by changes in relative freeboard. If at any time mooring lines need to be re-positioned or adjusted, this should only be done under strictly controlled conditions.

5.3 Operations after completion of Cargo Transfer

5.3.1 In accordance with previously agreed procedures, after completion of cargo transfer the following operations should be carried out:

.1 all hoses should be drained into one ship prior to disconnecting.

.2 hoses should be disconnected and securely blanked.

.3 cargo manifolds should be securely blanked.

.4 authorities should be informed of completion of cargo transfer and the anticipated time of unmooring.

Chapter 6 Completion of Operations

** For further information, also refer to ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005 and ISGOTT "International Safety Guide for Oil Tankers and Terminals".*

6.1 Completion of STS Operations

6.1.1 It should be ensured that adequate ullage space is left in each tank being filled. When it is required to stop cargo transfer operations, the responsible person should advise the pumping oil tanker in ample time.

6.1.2 Upon completion of the oil transfer, the oil tanker with the greatest freeboard should close the valve at the manifold and drain the oil contained in the hoses into the tank of the other oil tanker. Any remaining oil in the hoses should be drained, after which the hoses should be disconnected and securely blanked. The cargo manifolds should also be securely blanked.

6.1.3 Following completion of any relevant checklists, the Masters should co-ordinate the unmooring plan, taking into account weather and sea conditions prevailing in the sea.

6.1.4 As soon as practicable after the transfer operation has been completed, and before unmooring, the responsible person on each oil tanker should ensure that all valves in their system are closed and cargo tank openings are closed and secured for sea.

6.1.5 The oil transfer documents should be completed, communications checked and the readiness of both oil tankers established, whereupon the ships should unmoor in accordance with the plan.

6.2 Unmooring Procedure

6.2.1 Special care needs to be taken during such operations. There have been incidents and near misses when unmooring with one ship still at anchor, an operation complicated by the unpredictability of environmental conditions and the difficulty of accurately assessing such factors as tidal conditions. It is therefore recommended not to unmoor during a change of tide. It is also recommended that unmooring at anchor be carried out only by persons with considerable experience in STS Operations and use of tugs should be considered where available, e specially if yawing of the anchored ship is anticipated.

If, in the judgement of the person in overall advisory control, weather and current

conditions so require, the constant heading ship should weigh her anchor and unmooring should be carried out while making way.

6.2.2 Where STS transfer operations have taken place while underway, it is normal to unmoor with the wind and sea on the port side and then bring the combined two-ship system head to the wind to spread apart the ships, unless local conditions dictate otherwise.

6.2.3 Sufficient crew should be allocated to unmooring stations and consideration should be given to the following points:

.1 the cargo transfer side of the ship should be cleared of obstructions including derricks or cranes.

.2 the method of disengagement and of letting go mooring lines should be agreed.

.3 fenders, including their towing and securing lines, should be checked to be in good order.

.4 winches and windlasses should be ready for immediate use.

.5 rope messengers and rope stoppers should be ready at all mooring stations.

.6 fire axes or other suitable cutting equipment should be available at each mooring station.

.7 communications should be confirmed between ships.

.8 communications should be established with mooring personnel.

.9 mooring personnel should be instructed to let go mooring lines only when directed.

.10 shipping traffic in the vicinity should be checked.

.11 Check-List 5 of ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005 Appendix I should be completed.

6.3 Procedure for Unberthing

6.3.1 Special care needs to be taken when unmooring to avoid the two ships coming into contact. While there are other methods, a common method of unmooring is achieved

by singling up fore and aft, t hen letting go the remaining forward mooring and allowing the bow to swing away from the constant heading ship to a suitable angle, at which time the remaining stern mooring line is let go and the manoeuvring ship moves clear After disengaging, n either ship should attempt to steam ahead or fall astern of the other until both ships are well separated. The constant heading ship should not independently manoeuvre until advised that the manoeuvring ship is clear. It should be noted that local conditions or ship configurations may cause difficulties in separating the two ships and alternative plans should be considered.

6.3.2 Special care should be taken in regard to letting go the last lines in an expeditious and safe manner. This operation should be planned in advance, be undertaken by experienced crew and requires good communications and supervision. Different methodolgies can be applied by STS Superintendents and ships' crews to carry out this task safely and effectively. One such method involves the use of quick release hooks secured around the mooring bitt or a "toggle" pin that is used in conjunction with a messenger to take the load of the mooring line while it is removed from the mooring bitt.

Chapter 7 Suspension of Operations

** For further information, also refer to ICS and OCIMF "Ship to Ship Transfer Guide, Petroleum", fourth edition, 2005 and ISGOTT "International Safety Guide for Oil Tankers and Terminals".*

Both oil tankers should be prepared to immediately discontinue the STS transfer operation, and to unmoor and depart if necessary. The operation should be suspended when:

.1 movement of the oil tankers alongside reaches the maximum permissible and risks placing excessive strain on hoses;

.2 under adverse weather and/or sea conditions;

.3 either oil tanker experiences a power failure;

.4 there is a failure of the main communication system between the oil tankers and there are no proper standby communications;

.5 any escape of oil into the sea is discovered;

.6 there is an unexplained pressure drop in the cargo system;

.7 fire danger is discovered;

.8 any oil leakage is discovered from hoses, couplings, or the oil tanker's deck piping;

.9 overflow of oil onto the deck occurs caused by over-filling of a cargo tank;

.10 any faults or damage threatening the escape of oil are discovered; and

.11 there is a significant, unexplained difference between the quantities of cargo delivered and received.

Operations may be resumed only after the weather and seas have abated or appropriate remedial action has been taken.

Chapter 8 Record Keeping

Record Keeping is necessary in order to document compliance with the STS Operations Plan. In addition, the record is to be retained on board for three years and be readily available for inspection by a Party to the present Convention. So, after the completion of each STS Operation, the person involved in STS Operation is to document the record in Oil Record Book anytime.

Chapter 9 Attached drawings

The following drawings are included in this STS Operations Plan.

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9.1 General Arrangement

9.2 Diagram of Cargo Oil Line

9.3 Diagram of Ballast Water Line

9.4 Mooring Arrangement

Chapter 10 Reference Documents

The reference documents are as follows;

- ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005
- IMO’s” Manual on Oil Pollution, Section I, Prevention” as amended
- ISGOTT “International Safety Guide for Oil Tankers and Terminals”

Appendix A : Operational Safety Checklists

See ICS and OCIMF “Ship to Ship Transfer Guide, Petroleum”, fourth edition, 2005 Appendix I and ISGOTT SHIP/SHORE SAFETY CHECK-LIST

Appendix B : National Operational Contact Points List

See latest MSC-MEPC.6/Circ.

Appendix C : Arrangement Plan of all persons involved in STS Operation

Attach the arrangement plan with the list describing the titles and duties for each relevant person