

# Managerial Ship Procedures in Case of Oil Pollution in Maritime Transport

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## Abstract

*Sea oil spills produce unfortunate environmental damage with huge impact on sea life, human health and economic prejudices for interconnected communities and industries. As prevention is better than to cure, specific managerial procedures in case of oil pollution are prepared, implemented and communicated by shipping companies. Ship oil pollution emergency plan (SOPEP) is a prevention plan carried on board by almost all commercial ships, which technically synthesize the managerial procedures in case of oil pollution. This paper present an overview on pollution emergency plans (SOPEP), emphasizing useful guidelines for establishing an efficient SOPEP.*

**Key words:** SOPEP, IMO, safety, planning

**J.E.L. classification:** R41, M11, L91, J28

## 1. Introduction

Oil pollution incidents means an occurrence or series of occurrences having the same origin, which results or may result in a discharge of oil and which poses or may pose a threat to the marine environment, or to the coastline or related interests of one or more states, and which requires emergency action or other immediate response (UN,1995,p.80).

According to (UN, 1995, p.81) all ships of more than 400 gross tons (Oil tankers of more than 150 gross tons) have to carry on board Shipboard oil pollution emergency plan and while in port, the plan can be inspected by authorized officers of the national authority.

The background for managerial ship procedures in case of oil pollution in maritime transport is represented by the regulations of the International Maritime Organisation (IMO) and the United Nations (UN). Particularly, international instruments dealing with maritime safety and marine pollution prevention are the International Convention for the Safety of Life at Sea, 1974 and the International Convention for the Prevention of Pollution from Ships (MARPOL), 1973 as modified by the Protocol of 1978. Regulation 26 of Annex I and regulation 16 of Annex II of MARPOL 73/78 require ships to carry a shipboard oil pollution emergency plan.

In November 1990 the International Convention on Oil Pollution Preparedness was held at London. Each party at the convention agreed to require that ships entitled to fly its flag, as well as operators of offshore units have on board a shipboard oil pollution emergency plan as required by and in accordance with the provisions adopted by the IMO for this purpose (UN, 1995, p.81).

On 13 March 2000 IMO adopted the MEPC.85(44) Resolution of the Marine Environment Protection Committee presenting Guidelines for the Development of Shipboard Marine Pollution Emergency Plans for Oil and/or Noxious Liquid Substances (IMO, 2000), as starting point for the preparation of the Plans for specific ship.

## 2. Objectives and sections of the Shipboard oil pollution emergency plan

Plan's primary purpose is to set in motion the needed actions to quickly stop or minimize oil pollution. An effective plan ensures that "necessary actions are taken in a structured, logical, safe and timely manner" (IMO, 2000, p.2).

The primary objectives of the Plan are to:

- prevent oil pollution;
- stop or minimize oil outflow when a damage to the ship or its requirements occurs;
- stop or minimize oil outflow when a operational spill occurs in excess of the quantity or instantaneous rate permitted under the MARPOL Convention.

SOPEP contains sections and appendices with the following operational elements:

- The *action plan* with duty of each crew member at the time of spill, including emergency muster and actions.
- *General information* about the ship and the owner of the ship, as in Table 1 model:

Table no. 1 Ship's identification details

<b>Shipping company-Register-Number</b>	<i>Internal registration number</i>
<b>Name of Ship</b>	<i>Vessel name</i>
<b>Distinctive Number or Letters (Call Sign)</b>	<i>The vessel's current radio call sign</i>
<b>IMO-Number</b>	<i>The vessel's 7-digit Lloyd's registration number or IMO number (leave off "IMO" prefix). If the vessel has no Lloyd's/IMO number, enter N/A</i>
<b>Type of Ship</b>	<i>BULK (bulk cargo), CONT (container ship), LPG/LNG (liquefied petroleum or natural gas), PASS (passenger), REEF (reefer), LARGE YACHT. If MISC or OTHER give a brief description in the blank.</i>
<b>Port of Registry</b>	<i>Port name</i>
<b>Gross Tonnage</b>	<i>The vessel's registered tonnage</i>
<b>Flag</b>	<i>The nation of registry</i>

Source: ( DNV GL SOPEP Sample Plan, p.6)

- *Steps and procedure* to contain the discharge of oil into the sea using SOPEP equipments, in case of: operational spills; spills resulting from casualties; priority actions; mitigating activities; transfer of bunker/lightening; damage stability and hull stress calculation; general responsibilities of the master and designated officers or crew members;
- On board *Reporting* procedure and requirement in case of oil spill is described, including: when to report actual or probable discharge, information required, who to contact, including ship interest contacts (owners, ship managers, charterer, insurance, P&I club etc.);
- *Authorities* ( port state control, oil clean up team) *to contact and reporting requirements* in case of oil spill are listed in SOPEP: coastal state contacts, port contacts and ship interest contacts. Oil Spill Response Organization (OSRO) Contract – Contract or document evidencing an agreement between the Plan holder and the OSRO(s) for the types spill response coverage needed in the Geographic Regions where the ship may operate. Vessel Emergency Services / Salvage Contract – Contract or document evidencing an agreement with a vessel emergency services provider or other means for rendering all services to save the vessel and cargo from any marine peril that could reasonably be expected to cause a discharge of oil into the marine waters, and including actions necessary to control or stabilize the vessel or cargo.

- *General arrangement of ship* is also listed in SOPEP, which includes location of all the oil tanks with size, capacity, content, types of oil for each tank etc.
- SOPEP includes *technical drawing* of various fuel lines, along with other oil lines on board vessel with positioning of vents, save all trays etc. Vessel diagrams indicating the general arrangement and location of each fuel and lube oil storage tank and other features pertinent to an emergency response. The size, storage capacity, and type of oil carried must be specified for each tank. Diagrams must be in a scale that is clearly legible for review. A plan will not be approved without an adequate diagram. A single diagram may be submitted for sister ships.
- The location of the *SOPEP locker* and contents of the locker with a *list of inventory* (MI News Network, 2016).
- Each plan shall identify a *Spill Management Team*. If the plan holder contracts for this service, documentation that the Spill Management Team acknowledges this capacity shall be included in the plan.
- Each plan shall identify a *Qualified Individual*, and any alternates, for the purpose of *implementing the plan*. If the plan holder contracts for this service, documentation that the Qualified Individual or company, and any identified alternates, acknowledge this capacity shall be included in the plan.
- Each plan shall provide the name, physical address and mail address, telephone number, email addresses, and facsimile number of an *agent* for service of process designated to receive legal documents on behalf of the plan holder. If the plan holder contracts for this service, documentation that the agent for service of process acknowledges this capacity shall be included in the plan. (California Department of Fish and Wildlife, 2016)

Each SOPEP must be considered in regard to ship's variable: type and size of the ship, cargo, and cargo's properties. An effective plan that complies with MARPOL Convention must be prepared taking into consideration ship's particularities.

### 3. Steps of action in case of oil discharge

In order to stop or minimize the discharge of oil and consequent effects, based on the IMO guidelines (IMO, 2000), there are two types of steps of action that shipboard personnel should follow in case of oil pollution emergency: reporting and action to control discharge, described below (DNV GL, 2016).

The first step after a probable or actual discharge of oil is the *assessment* of the nature of incident. All the crew members are alerted, and the spill source is identified and monitored. Measures for personnel protection are taken. Further, it is made a spill assessment, vapour monitoring and if needed, *evacuation*.

When the ship is involved in an incident which results in the discharge or probable discharge of oil, the Master is obliged under the terms of MARPOL 73/ 78 to *report* details of the incident, without delay, to the nearest Coastal State by means of the fastest telecommunication channels available. Coastal States have to be informed, without delay, of any incident giving rise to oil pollution, or threat of oil pollution, of the marine environment, as well as of assistance and salvage measures, so that appropriate action may be taken.

Ship personnel will most probably be in the best position to take quick action to mitigate or control the discharge of oil from their ship. Therefore, SOPEP provides the Master with clear guidance on how to accomplish this mitigation for a variety of situations. It is the Master's responsibility to initiate a response in the event of a discharge of oil or substantial threat of discharge of oil – actual or probable – into the waters. In no case action should be taken that in any way could jeopardize the safety of personnel either onboard or ashore.

Top priority shall in all cases of casualty be put on the safety of the persons onboard and to take actions to prevent escalation of the incident. Immediate consideration should be given to protective measures against fire, explosions and personnel exposure to toxic vapour (DNV GL, 2016).

The two types of actions (reporting and action to control discharge) are presented in Figure 1 below.

Figure 1. Actions taken on board ship in case of oil spill incident

REPORTING By Master and/ or designated crew member	ACTION TO CONTROL DISCHARGE Measures to minimize the escape of oil and threat to the marine environment	
<p><b>When to report</b> All probable and actual spills</p> <p><b>How to report</b></p> <ul style="list-style-type: none"> <li>- By quickest means to coastal radio station</li> <li>- Designated ship movement reporting station or</li> <li>- Rescue Co-ordination Centre (at sea)</li> <li>- By quickest available means to local authorities</li> </ul> <p><b>Who to report</b></p> <ul style="list-style-type: none"> <li>- Nearest Coastal State Harbour and terminal operators (in port)</li> <li>- Shipowner's manager; P &amp; I insurer</li> <li>- Head Charterer; Cargo owner</li> <li>- Refer to contact lists</li> </ul> <p><b>What to report</b></p> <ul style="list-style-type: none"> <li>- Initial report (Res. A.851(20))</li> <li>- Follow-up reports</li> <li>- Characteristics of oil spilled</li> <li>- Cargo/ ballast/ bunker dispositions</li> <li>- Weather and sea conditions</li> <li>- Slick movement</li> <li>- Assistance required for               <ul style="list-style-type: none"> <li>• Salvage</li> <li>• Lightening capacity</li> <li>• Mechanical equipment</li> <li>• External strike team</li> <li>• Chemical dispersant/ degreasant</li> </ul> </li> </ul>	<p><b>NAVIGATION MEASURES</b></p> <ul style="list-style-type: none"> <li>- Alter course/ position and/ or speed</li> <li>- Change of list and/ or trim</li> <li>- Anchoring</li> <li>- Setting aground</li> <li>-Initiate towage</li> <li>- Assess safe haven requirements</li> <li>- Weather/ tide/ swell forecasting</li> <li>- Slick monitoring</li> <li>- Record of events and communications taken</li> </ul>	<p><b>SEAMANSHIP MEASURES</b></p> <ul style="list-style-type: none"> <li>- Safety assessment and precaution</li> <li>- Advice on priority countermeasures/ preventive measures</li> <li>- Damage stability and stress consideration</li> <li>- Ballasting/ deballasting</li> <li>- Internal cargo transfer operations</li> <li>- Emergency ship-to-ship transfers of cargo and/ or bunker</li> <li>- Set up shipboard response for:               <ul style="list-style-type: none"> <li>• Leak sealing</li> <li>• Fire fighting</li> <li>• Handling of shipboard response equipment (if available)</li> <li>• Etc.</li> </ul> </li> </ul>
	<p><b>STEPS TO INITIATE EXTERNAL RESPONSE</b></p> <ul style="list-style-type: none"> <li>- Refer to Coastal State Contact List for local assistance</li> <li>- Refer to ship interest contact list</li> <li>- External clean-up resources required</li> <li>- Continued monitoring of activities</li> </ul>	

Source: (IMO, 2000, p.21)

The SOPEP is furnished by owners, possibly by assistance of a consultant or shipyard representative. Only a few company-specific instructions could be sufficient for a dry cargo ship.

For oil tankers procedures in regard for loading/ discharging of cargo have to be added to the contents as necessary. Is also needed a clear list of crew members who are in charge in the event of an oil spill to bring the accident under control, limit outflows, organize onboard clean-up procedures and determine the additional manpower needed. Arrangements shall be made that in case of sudden unavailability of superior ranks other available ranks are prepared to take over. The list of duties of the team members has to be tailored to the actual crew onboard.

Additional information material may be attached to the individual Plan at the owners/ operators discretion and documented in the form that the Master/ company/ operator considers most effective: diagrams and additional ship's plans (e.g. midship section plan, lines plan/ tables of offsets, tank tables, load line assignment, light ship characteristics, etc.); availability of response equipment (onboard spill equipment) and its location; guidance for the keeping of appropriate records of the pollution incident (e.g. for liability, compensation and reimbursement issues); reference material (e.g. industry guidelines issued by various industry organization like ICS, OCIMF, SIGTTO, INTERTANKO, etc); procedures for Plan testing; record-keeping procedures or procedures for Plan review. All this information may be appended to the Plan if appropriate for the individual ship.

The instructions included in the Plan have to be in line with the Safety Management Manual instructions (Lubetech, 2014)

#### 4. Conclusion

Shipboard Oil Pollution Emergency Plan (SOPEP) is a good example of technical and conceptual preventing planning applied to navigation, precisely in case of oil incidents events happened on board ship.

The Plan includes a set of information from the owners communicated to the Master and ship's crew.

The Plan contains information related two different types of action: adequate reporting and action to control discharge and has to be tailored to the particularities of the ship and crew.

Ship oil pollution plan contains an action plan with instructions for the oil pollution prevention team with a list of duties the crewmembers have to fulfill in case of an oil spill; an emergency plan; general information about the ship; procedures to discharge the oil into the sea in accordance to MARPOL regulations; drawings of fuel/oil lines and location of SOPEP boxes.

The information included in the Plan advise the Master how to react in case of an oil spill to prevent or mitigate the negative impact on the safety of crew, ship and environment.

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