

Chapter 1

Establishing a National Preparedness and Response System

So long as oil resources are explored, produced, transported and stored on or in the marine environment, there will be an inherent risk of oil spills. Since the adoption of preventative and response measures required by the *International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL)*, *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)*, and other international conventions, there has been a significant decrease in worldwide oil spills despite an ever-increasing volume of seaborne oil trade and the expansion of offshore oil exploration and production. Yet despite these notable improvements, oil spills continue to occur throughout the world. It is imperative that governments with jurisdiction where these activities occur are prepared to respond to oil spills. Flag States, port States, coastal States and countries with offshore oil exploration and production need clear legislation and regulations, a predetermined oil spill response management system and careful planning to ensure rapid, efficient and effective oil spill response when oil is spilled. The legislation, designation of national authorities, contingency plan, international cooperation, training and exercises and response equipment available for responses to oil spills are the main elements of a National Response System. This chapter is written to assist countries in developing a National Response System for oil spills by identifying and describing the primary elements and issues that should be included or considered.

Each National Response System will be unique to the specific needs and situation of the country for which it has been developed, yet there are certain elements that are universal to all effective oil spill response systems. Parties to the 1990 OPRC Convention are obligated to develop and implement many of these universal elements. Sample legislation establishing a National Response System may be found in Appendix 1.

1.1 International conventions

The first step in developing a National Response System is to ratify the applicable international conventions. These conventions provide well-established and broadly accepted standards for oil spill preparedness, response and compensation. Oil producers and transporters are accustomed to working within the standards of these conventions. Accordingly, a government that is party to these conventions and implements the standards required of each, provides a familiar and uniform operating environment for oil producers and transporters. Further, the implementation requirements set forth for parties to the conventions provide a solid foundation for any National Response System.

The international conventions applicable to oil spill contingency planning and response are:

- *International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC), 1990;*
- *Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances (OPRC-HNS Protocol), 2000;*
- *International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL);*
- *1992 Protocol to the International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969;*
- *1992 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund 1992);*
- *Supplementary Fund Protocol, 2003;*
- *International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER), 2001;*
- *Convention on Limitation of Liability for Maritime Claims (LLMC), 1976;*
- *Nairobi International Convention on the Removal of Wrecks, 2007;*
- *Intervention Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION), 1969;*
- *International Convention on Salvage (SALVAGE) 1989.*

Each of these conventions is examined in detail in Chapters 4 and 5 of this section. Some countries may choose to make reservations to the international conventions they enact, or instead, choose to enact specific national legislation.

In addition to these international conventions, coastal States should be actively engaged in bilateral and multilateral oil spill preparedness and response efforts with neighbouring countries, as discussed in Chapter 4. Regional agreements have already been established in various areas of the world to facilitate cooperation between neighbouring countries in the fields of preparedness and response to marine oil spills through effective notification and communication procedures, coordinated exercises or responses to large spills, and sharing of response resources with expedited customs and immigration procedures. Some regional frameworks have been established through the United Nations Environmental Programme's (UNEP) Regional Seas Programme. It is recommended that governments refer to common standards established through the Regional Seas Programme when developing their own national legislation, regulations and guidelines.

1.2 National legislation and regulations

National legislation and regulations establish the requirements for overall oil spill preparedness and response capability, and will be essential to building a framework in which the National Response System and industry's preparedness requirements will integrate. Each country should develop clear policies regarding oil pollution preparedness and response. These policies, which should be documented in the National Contingency Plan, will provide industry with the information required to make plans according to the requirements of the country in which they are operating. Further, these clear policies will provide the Competent National Authority and any supporting agencies with the information required for them to ensure correct plan implementation and response operations.

Other policies that may be established include waste management requirements (i.e. preferred method of disposal, storage sites and transportation) and pre-authorization or prohibitions, if any, of response tactics such as in situ burning, dispersants, surface washing agents or bioremediation.

1.3 Designated Competent National Authority

The designation of a Competent National Authority or Lead Agency is one of the most significant steps in establishing a National Response System. A rigorous selection process should be followed when identifying the most

appropriate Competent Authority or Lead Agency. Ideally, the Agency will possess, or have knowledge of, many of the following skill sets:

- oil spill response strategies;
- marine salvage;
- ship operations;
- meteorology and oceanography;
- aircraft operations;
- petroleum and environmental scientific expertise;
- satellite spill monitoring;
- fisheries management;
- environment protection;
- legal;
- logistics;
- customs and immigration arrangements;
- health and safety;
- training and exercises;
- communications; and
- waste handling and disposal.

No single Competent National Authority or Lead Agency will possess all of these skills, so it is essential that the designated Competent National Authority or Lead Agency has the authority and ability to coordinate the efforts and input from various Supporting Agencies that do possess the supplemental skill sets. It is also essential that the designated Authority or Agency has jurisdiction and the ultimate decision-making authority for oil spill preparedness and response, and that the Supporting Agencies do not have overlapping or duplicative authorities that can lead to contradictory directives or requirements to industry. Typical National Competent Authorities and Lead Agencies include:

- Defence Agency;
- Maritime Transport (Civil) Agency;
- Environmental Protection Agency;
- Coast Guard;
- National Committee designated for response; or
- Disaster Management Agency.

Depending on the size of the country, number of regional ports, diversity of oil related facilities and/or other activities that may result in oil spills, responsibility for oil pollution preparedness and response may need to be assigned at a regional and/or local level. In this case, the national plan would be developed at a higher management or organizational level. Regional or local plans would be prepared by the associated jurisdictional authorities and contain more detailed information on coordinating on-scene response efforts at the beginning of an incident. These plans, however, must be subordinate to, and consistent with, the policies and programmatic requirements of the National Contingency Plan and Response System.

1.4 National operational contact point

A rapid, appropriately-sized response to an oil spill incident may reduce the amount of oil spilled, and/or mitigate the impacts of the spill to the environment, economy and public trust. Establishing a clear oil spill reporting system and clear reporting requirements enables timely notification to the appropriate authorities and the subsequent responses to oil spills. Critical elements to an effective national oil spill reporting system include:

- designation of a national operational contact point, which shall be responsible for the receipt and transmission of oil pollution reports;
- an established procedure for receiving and disseminating reports of oil pollution;
- procedures for notifying applicable government agencies, officials and other relevant organizations and international parties;
- clear standards as to what must be reported and when;
- spill notification forms or checklists; and
- reporting of point of contact and key personnel involved in the response.

Legislation should specify minimum reporting standards, as well as penalties for failure to report oil spills per prescribed national standards.

1.5 Requesting or rendering assistance

As discussed in 1.1, there are international and regional agreements (both multilateral and bilateral) established for countries to either request or provide assistance to another country. Most of these agreements were

established because two or more States may share borders or a specific or regional waterway, or because of a special relationship established between the States, for instance a kingdom or a territory. Recognizing that many States, especially developing ones, may not have oil spill response resources or expertise available, it is wise to establish in the national legislation, an agency that has the authority to request assistance from another State or decide to render assistance following a request by another country.

This authority is usually delegated to the Competent National Authority. However, given the international nature and the legal and financial implications of such decisions, this authority may instead be given to a higher government body such as a parliament or executive body.

During a large oil spill response, especially one in a developing country, there may be many offers of assistance from international organizations or other States. Managing these offers can be challenging. IMO has developed guidelines to be used as a tool to assist in managing a multitude of requests for, and offers of, assistance from other countries, regional coordinating bodies, or other entities. The *Guidelines on International Offers of Assistance in Response to a Marine Oil Pollution Incident* (2016) may be utilized by IMO Member States, particularly those that are party to the OPRC Convention that requires States to establish procedures for international cooperation during pollution incidents.

1.6 National Oil Spill Contingency Plan

The cornerstone of any National Response System, and this section of IMO's *Manual on Oil Pollution*, is a National Oil Spill Contingency Plan. A National Contingency Plan, and area and local contingency plans where warranted, ensure critical information, operational plans and oil spill response management structures have been established and are readily available prior to a major oil spill. Essential elements of a National Contingency Plan are:

- Competent National Authority or Lead Agency, Supporting Agencies, and responsibilities;
- relevant national and international legislation;
- oil spill risk assessment;
- assessment and/or identification of places of refuge;
- notification and reporting procedures;
- oil spill assessment;
- oil spill response management system;
- response resources;

- sensitivity maps, vulnerability atlases or environmental sensitivity indices;
- response strategies;
- national policy for use of dispersants and other non-mechanical response technologies;
- waste management;
- decontamination;
- demobilization and termination of response;
- training, exercise and plan update requirements; and
- cost recovery.

Each of these elements is examined in detail in Chapter 2 of this section.

1.7 Pre-positioned oil spill response equipment

Under the 1990 OPRC Convention, a State, either individually or through bilateral or multilateral agreements and in cooperation with the oil and shipping industries, port authorities and other relevant entities, should ensure the availability of pre-positioned oil spill response equipment. Whether or not minimum levels of pre-positioned equipment are codified in domestic regulations, the National Response System should contain provisions for certifying that adequate oil spill response equipment, appropriate to the risk, is available and maintained in a serviceable condition.

One method for ensuring the availability of adequate response equipment is for States to set minimum levels of pre-positioned oil spill response equipment in nationally devised standards. On-site or immediately available oil spill response equipment enables the rapid response and containment of minor, most probable spills in the vicinity of oil handling operations. Personnel expected to deploy the equipment should be trained in its use and relevant safety precautions.

While governments may choose to purchase, maintain and train in the use of oil spill response equipment, it is common practice to require the oil industry to maintain, or ensure the availability of, a minimum level of equipment. Standards should be set for oil recovery or containment capacity, recovered oil storage capacity and response timelines.

Recognizing that oil spills are an infrequent event and stockpiling response equipment is expensive for a National Authority, alternative means, such as cooperatives and private oil spill response organizations, may be utilized to ensure response equipment availability in the unlikely case of an oil spill.

1.8 Exercises, training and health and safety

Each State, either individually or through bilateral or multilateral agreements and in cooperation with the oil and shipping industries, port authorities and other relevant entities, should establish a programme of exercises for owners and oil spill response organizations and training of relevant personnel, based on IMO model courses.

Standardized training and exercise requirements may be codified in legislation and regulations to ensure that owners and organizations expected to conduct oil spill response operations are proficient at the time of an actual spill and are familiar with national and local response plans. On-scene Commanders should be trained in the relevant spill response management system and supervisors must fully understand the operational requirements, limitations and safe operating requirements of oil spill response equipment.

Required exercises may include tabletop, drill and functional deployment exercises. No matter the format, exercises are an ideal time for government and industry to jointly test and verify their respective contingency plans and procedures, as well as verify the roles and expectations of the various parties involved. Tabletop exercises and equipment deployment drills should be conducted periodically (at least once a year), and ideally conducted jointly with industry. Further useful information may be found in *Oil spill exercises – Good practice guidelines for the development of an effective exercise programme* (IPIECA-IOGP, 2014e). Health and safety of oil spill response personnel is of paramount importance and should be addressed within the National Contingency Plan and practiced through exercises and training. Further useful information may be found in *Oil Spill Responder Health and Safety* (IPIECA-IOGP, 2012).

1.9 Industry oil pollution contingency plans

Each State, either individually or through bilateral or multilateral agreements and in cooperation with the oil and shipping industries, port authorities and other relevant entities, should establish detailed plans and communication capabilities for responding to an oil pollution incident.

In accordance with MARPOL Annex I, tank ships over 150 gross tons and all ships over 400 gross tons are required to carry a shipboard oil pollution emergency plan. Whether acting as a flag State or port State, States should ensure these plans are complete and should address communication capabilities required to adequately respond to an oil spill.

The requirements for contingency plans for ships will be determined by national legislation and by international conventions. The majority of ships operating commercially are required to comply with the provisions under MARPOL to have on board a Ship Oil Pollution Emergency Plan (SOPEP), describing the actions to be taken following a pollution incident, including the procedures for reporting to an authority on shore. This places a complimentary requirement on Signatory States to make arrangements for receiving and acting on such notifications. These requirements are reinforced within the OPRC Convention.

The requirements under MARPOL, as well as under SOLAS, are expanded under the IMO *International Code for Ships Operating in Polar Waters* (Polar Code) that requires a ship to have on board a Polar Water Operational Manual (PWOM). The PWOM includes the specific procedures to be followed in the event of an incident in polar waters, including the procedures for contacting emergency response providers for salvage, search and rescue, spill response, etc., as applicable.

Operators of offshore installations under the jurisdiction of a coastal State are required to have oil pollution emergency plans, which are coordinated with the national system for responding to oil pollution incidents, approved in accordance with procedures established by the Competent National Authority. These plans often contain information on how communications will be facilitated during a response.

Authorities or operators in charge of sea ports and oil handling facilities under the jurisdiction of Parties are also required to have oil pollution emergency plans or similar arrangements which are coordinated with the national oil pollution response system.

These plans are discussed in detail in Chapter 3.

1.10 Oil spill response resource coordination

As discussed in 1.7, industry may maintain and operate the appropriate initial oil spill response equipment and resources for small and most probable spills. When the spills are larger in magnitude, pre-established mechanisms or arrangements should be in place to ensure adequate oil spill response equipment and resources are available within an effective time frame.

There is no international requirement for the coordination of provisioning oil spill response resources between industry, spill response organizations and possibly governments. Where these coordination arrangements do exist, they are typically made by a contract between ships, offshore units, or oil

handling facilities and an oil spill response organization that maintains a stockpile of equipment, trained oil spill response experts and the logistical support to deliver both to the location of a larger spill.

1.11 Tiered response

Examined in detail in the *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness* (IMO, 2010) and the *Tiered Preparedness and Response Good Practice Guide* (IPIECA-IOGP, 2015g), tiered response has become a widely accepted operational concept that provides a convenient categorization of response levels and a practical basis for planning. Tiered response may also be incorporated into the development of planning, equipment and operational preparedness requirements for ships, offshore installations, and oil handling facilities operating within the jurisdiction of a State. Tiered response systems are based on the concept that the response to spills may be categorized into the following three tiers:

- *Tier 1* – preparedness and response capability for small spills within the purview of an individual facility or harbour authority that may be mitigated by locally available resources.
- *Tier 2* – preparedness and response capability for spills that require equipment and personnel resources beyond those available locally (Tier 1). For a Tier 2 response, assistance can come from a number of entities outside the immediate geographic area, including national resources.
- *Tier 3* – preparedness and response capability for major spills, including those of national or international significance, requiring the mobilization of national and international resources. It is imperative that customs and immigration procedures have been streamlined ahead of time to expedite the importation of international resources should they be required to facilitate an effective response.

Some countries do not have Tier 2 oil spill response equipment or capability, and few countries have Tier 3 resources. While it is generally recommended that countries ensure Tier 1 level response equipment and capabilities are on site or immediately available, there is the understanding that Tier 2 and, if needed, Tier 3 level resources will “cascade” in over time. Integration of additional resources that may be needed should be planned for and integrated into oil spill contingency plans.

Further, response capabilities required over the course of an oil spill will vary, requiring mobilization and demobilization of equipment and personnel

as dictated by the changing requirements of the spill. Response impacts and costs can be greatly reduced by rapid mobilization and effective use of resources, and demobilizing those that are no longer needed. It is good practice for planners and response organizations to have a bias towards a proactive response in the early stages of a spill, especially when the extent of the spill may not be fully realized. Early response is generally more effective than later response (i.e. secure the source of the spill, take a vessel in tow before it grounds, etc.). Planners and responders should mobilize resources early as it is better to stand down resources if not needed than to lose an opportunity to mitigate a spill early in the response for want of resources.

1.12 National oil spill response management system

Effective responses to major oil spills are complex operations that require the seamless integration of material resources, operational processes and personnel from many different organizations, under a commanding team qualified to lead the response. This integration is made possible by establishing and operating within a national oil spill response management system. The response management system must be flexible enough to rapidly expand or contract so as to effectively manage the oil spill throughout the entire course of the response.

IMO has published a *Guidance Document on the Implementation of an Incident Management System (IMS)* (IMO, 2012); such systems may be adopted by countries when developing their particular response management system. Other government and industry organizations, including the United States Federal Emergency Management Agency Incident Command System (ICS) Resource Center, the International Tanker Owners Pollution Federation (ITOPF) and the oil industry itself in the *Incident Management System for the Oil and Gas Industry* (IPIECA-IOGP, 2016), have also presented similar recommendations for effective response management systems. Most important is that a country adopts a single response management system and requires its use during training, exercises and responses by all agencies and all oil spill response plan holders. An incident management system that is flexible and robust and is shared by all oil spill response plan holders will facilitate integration of government and industry response resources and will help ensure the most effective response.

1.13 Assessing oil spill response preparedness

Whether developing or improving a National Response System, it is important to periodically assess oil spill response planning and readiness and to identify challenges, information needs and areas for improvement. Oil spill response

assessment criteria are the foundation for a consistent approach to gauge the level of oil spill response planning and readiness. There are several tools and many organizations that can assist a government or industry to assess their oil spill response preparedness. One widely accepted assessment tool is the Readiness Evaluation Tool for Oil Spills (RETOS™), developed by the Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean (ARPEL), and freely available on their website (ARPEL, 2015).

Chapter 2

A National Oil Spill Contingency Plan

Effective oil spill responses that minimize environmental, economic and health impacts are a result of significant advance planning and coordination between the government and owner/operators of ships and offshore and other oil handling facilities. The foundation for this planning and coordination is typically codified in a National Oil Spill Contingency Plan that describes the entire national preparedness and response system, including public, non-governmental organizations and private resources, for responses to marine oil spills or spills that might affect other areas.

The primary objective of any National Oil Spill Contingency Plan should be to ensure timely, coordinated and effective responses to oil spills. The plan should describe the government's roles and responsibilities as well as the procedures and processes that will be followed when responding to a spill. The plan should remain strategic. Tactical response information may be included but is typically covered in a country's regional or area contingency plans, and/or the contingency plans developed by ship and oil handling facility owners/operators.

Most countries have adopted the "polluter pays" principle wherein the party responsible for the spill must fund the response activities to the full extent of its legal liability. In some countries the polluter also arranges the response, in which case the Competent National Authority or Lead Agency provides oversight to ensure the owner adequately executes the response and coordinates the activities of any involved supporting government agencies. In any case, a National Contingency Plan should focus on national policies and protocols for oil spill preparedness and response as a means of communicating the government's expectations on these issues to those implementing the response. This chapter will examine the critical elements of an effective National Contingency Plan. An outline of all the recommended elements of a National Contingency Plan is provided in Appendix 2.

2.1 Responsibilities of the Competent National Authority

Once designated, as discussed in 1.3, the Competent National Authority has overall responsibility for response to oil spill emergencies and should be given the authority to make and implement decisions to mitigate the impacts

of oil spills. The plan should define the national policy and responsibilities for oil spill preparedness, planning and response, and cite legislation that authorizes the Competent National Authority or Lead Agency to prepare and implement the plan. The plan should also specify the position within the authority or lead agency that heads the national response organization and has ultimate authority and responsibility for managing and coordinating responses to oil spills (e.g. National Incident Commander, National On-scene Coordinator, etc.). The geographic area within which the Competent National Authority is authorized to implement the plan should be clearly indicated, with reference made to supporting legislation and agreements.

The plan should expressly define the assigned tasks and responsibilities of the Competent National Authority or Lead Agency, as well as those of other government and private agencies that may provide resources or technical and scientific advice during both the spill planning and operational phases. Items to be considered in inter-agency matters should include the following:

- how supporting agencies can work together collectively to help the spill response organization;
- the types of advisory and assessment responsibilities and technical tasks that such a support group can undertake;
- the organizational links by which their work can be delivered to the response managers; and
- the need for mechanisms by which disputes or conflicting priorities would be settled.

2.2 Oil spill risk assessment

Governments should begin the development of their National Contingency Plan with an assessment of the risk of oil spills in the waters and, if applicable, terrestrial or other areas over which they have jurisdiction. To complete a risk assessment, a government will need to determine all of the operations that could result in the release of crude oil or refined oil products and then calculate the probability and consequences of the potential spills. The government must then ensure that the National Contingency Plan addresses each of these individual risks.

2.2.1 The oil spill risk assessment process requires that planners consider the following elements of potential oil spill releases from operations within their jurisdiction:

- facility or oil handling operation locations with a higher probability of impacting sensitive areas – would constitute a greater risk;

- likelihood of a spill – small, Tier 1 spills are the most likely spills;
- potential volume released and discharge rates – worst case scenarios (i.e. entire ship's cargo, uncontained well blow-out, etc.) should be considered;
- oil type and behaviour of the oil once spilled (spreading, weathering, etc.) – some oils have greater environmental or health impacts than others;
- prevailing environmental conditions – they may preclude the use of many response options; and
- consequences of a spill – oil drift analyses are used to predict the impact area of potential spills and locations of particularly sensitive areas within the impact area are identified to assess the possible consequences.

2.2.2 Results of the assessment should be summarized and an explanation provided on how the results were used to inform the development of the National Contingency Plan and response policies. Further information may be found in the *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness* (IMO, 2010).

2.3 Notification, reporting and alerting

Notification of a marine emergency which could result or has resulted in oil spillage can come from a number of sources and will typically need to be communicated to a variety of government agencies and representatives. To facilitate rapid communication of these incidents the plan should identify a single agency which will receive and disseminate such notifications or reports. The plan should also specify reporting content requirements that may include, but are not limited to, the following information:

- location (e.g. latitude and longitude or position relative to coastline);
- identification of the person reporting incident (see *International Maritime Code of Signals* or POLREP Appendix 5);
- date and time of observation;
- details of observation;
- source and cause of pollution (e.g. name and type of vessel, IMO number and circumstances of the spill);
- type and estimated quantity of oil spilled and the potential and probability of further pollution;

- weather and sea conditions;
- actions taken or intended to respond to the incident; and
- shipowner or operator.

Existing conventions that can be utilized to inform the development of reporting requirements include Article 8 and Protocol I of MARPOL 73/78 which establishes reporting requirements for masters or persons in charge of a ship, Article 4 of the OPRC Convention which contains similar requirements, and the IMO Polar Code.

2.3.1 In some cases, a ship message, Maritime Rescue Coordination Centre (MRCC) message, remote sensing by satellite, airborne or coastal radar, or other means may trigger the oil spill alerting system. The plan should describe how these inputs will be utilized to activate the alerting system and, due to the potential for false alarms, should include a confirmation step for each one.

2.3.2 Following the initial notifications, which are typically verbal, subsequent verbal or written reports are often required by the party responsible for, or who made the initial observation of, the oil spill. The plan should describe how these subsequent reports will be quickly disseminated to the lead and support agencies and other government representatives.

2.3.3 The National Contingency Plan should include the national incident management team alert and call-out procedures and identify specific actions that should be taken at an early stage for the protection of vulnerable resources while taking account of any health and safety issues.

2.4 Oil spill assessment

A rapid assessment of an oil spill is of paramount importance in determining the most appropriate response tactics and strategies. Immediately following the discovery of a spill, arrangements should be made to estimate the volume and extent of the spill, conduct a health and safety hazard assessment posed by the floating oil and predict the spill's probable movement using drift or trajectory models and available meteorological and hydrographic data. The model results should then be used to determine the likely spill migration path and potential impact area which are critical inputs into the development of response strategies. Additionally, a spill surveillance and monitoring programme should be implemented to validate the model results and determine the actual movement, extent and characteristics of the slick. This can often be achieved by aerial observation.

The National Contingency Plan should include a section on spill assessment that summarizes the key components of an assessment and surveillance programme similar to the above summary, followed by a description of the assessment activities the government can or will undertake following a spill. The latter should include the identification of assessment or surveillance resources the government owns or has access to (e.g. special radar-equipped aircraft or vessels, access to satellite imagery, sampling equipment, etc.) as well as specialized skill sets such as trajectory modelling, trained spill observers, satellite imagery interpretation and others. The plan should also identify the agencies that can provide assessment resources and capabilities, and whether the assessment activities will be conducted in support of, and in conjunction with, the owner's assessment activities, or if they will be in parallel to assess response effectiveness.

The key components of a spill assessment and surveillance programme that should be identified in a National Contingency Plan include:

- identification of the health and safety hazards of a spill to ensure safety of response personnel;
- determination of the spill size and procedures for estimating the volume;
- assessment of the properties of the spilled oil and procedures for assessing physical and chemical properties, as well as changes over time due to weathering at sea and on the shoreline;
- surveillance of the movement and extent of the spilled oil; and
- modelling future movement of the spilled oil.

2.5 National oil spill response management organization

As discussed, a well-trained and exercised oil spill response management organization will greatly increase the potential for an organized and effective response. A National Contingency Plan should:

- explain the role of the Competent National Authority or lead government agency during a spill response (this may be a single national representative who is overall in charge);
- identify the various government agencies that could be involved in a response;
- explain delegated roles, responsibilities and authorities of each participating agency/organization;

- identify the organizational structure to be used for incident management so that industry may align their response organization with it;
- describe the roles and responsibilities of each position identified in the response system; and
- describe the initial actions to be taken and by whom, and the location(s), such as an Emergency Operations Centre, where they will assemble and conduct operations.

2.6 Sensitivity maps

In planning for responses to oil spills, knowledge of coastal environmental, socio-economic and cultural sensitivities in the threatened area is essential to the development of an effective response strategy. It will also facilitate the prioritization of the sensitive areas for protection which, in turn, will enable the most effective use of available response resources. Communication of coastal sensitivity information to decision-makers is best achieved through the preparation of sensitivity maps (also known as vulnerability atlases) for the coastal or inland waters identified as higher risk areas in the aforementioned risk analysis. Therefore, a National Contingency Plan and/or associated legislation should mandate the preparation of sensitivity maps, as well as the government agency responsible for developing them. During a response operation, it is important to verify that the information provided in the sensitivity maps is accurate, up to date and applicable to the specific time of year. In the case that there are not enough response resources to protect all sensitive areas, the Lead Agency or agencies should have the authority and procedures in place to decide which priority areas should be protected.

2.6.1 Sensitivity maps should delineate the locations of sensitive areas and be accompanied by a table or narrative that, ideally for each area, includes:

- physical description;
- identification of environmental resources, receptors, habitats, etc., socio-economic factors or areas of special cultural significance;
- explanation of why each of the above are particularly sensitive to oil spills and the degree to which they are often impacted;
- estimations or actual data on the population or density of wildlife or cultural resources present or economic value provided;
- identification of seasonal factors that affect sensitivity to oil impacts, wildlife populations, cultural resources or economic value;

- protected areas; and
- key economic activity areas.

2.6.2 Some countries have incorporated sensitivity information and other spill response information as layers in a geographical information system (GIS) database. Example layers include pre-determined resource staging areas, oil spill response equipment stockpiles, coastal maps that can be overlain on base maps, along with the spill movement projections, to inform the development of the most effective response strategies. Further information can be found in the publication *Sensitivity mapping for oil spill response* (IPIECA-IMO-IOPG, 2012).

2.7 Response resources

Rapid access to response resources is critical to minimizing spill impacts and implementing an effective response. The National Contingency Plan should describe the process by which response resources owned by, or available to, the government will be inventoried and available for rapid mobilization.

2.7.1 When drafting a National Contingency Plan, it is important to identify the process by which locations and inventories of government- and industry-owned oil spill response resources are accounted. For the different Tiers, typically, subordinate government and industry plans will:

- *Tier 1* – identify locations and inventories of government, industry and other resources that can be mobilized quickly to respond to localized spills in the vicinity of the resource caches.
- *Tier 2* – identify locations and inventories of regional or national caches of government and industry resources that may be called upon during a larger response.
- *Tier 3* – identify potential sources of third party resources that may come from international locations and describe the procedures for expediting the customs and immigration processes to avoid delays in mobilizing the resources to the spill location.

2.7.2 Specialized resources such as aircraft and vessels for surveillance or dispersant application, remote sensing capabilities, wildlife response, sampling and monitoring equipment and personnel, should all be identified in subordinate plans. Inventoried support resources may also include non-government, non-specialized equipment such as vacuum trucks, excavation equipment, construction contractors, etc. (see Appendix 6). All responses require support, which may include services such as medical, transportation, cost documentation, scientific, wildlife response, public health and safety, and

which should also be identified in the plan. Volunteer management may also be required, in which case further information may be found in the publication *Oil spill volunteer management manual* (POSOW, 2010).

2.8 Response strategies

A successful response strategy usually involves the use of multiple response techniques that have been selected as being the most effective at containing and/or removing the oil, while minimizing the negative effects of the oil spill and response operations to the environment. National Contingency Plans or even national legislation do not generally describe or specify which response techniques or strategies should be used to respond to spills. They should, however, identify any policies or restrictions on, or preference for, the use of selected response techniques based on spill location, environmental conditions, proximity to sensitive areas, etc. The National Contingency Plan should also identify specific techniques, if any, that may be prohibited from use in jurisdictional waters.

If a government has granted pre-approval or conditions for the use of specific technologies, such as dispersants, they should be included in the National Contingency Plan, including locations where approval, conditional approval or prohibition have been determined. Information regarding national policy for the use of dispersants may be found in the IMO Dispersant Guidelines (see References Section). Additionally, if government authorization is required for the use of one or more of these non-mechanical response techniques, the plan should clearly describe the process and any plans or information submittals required to obtain authorization. Given the short window to effectively employ certain techniques, such as use of dispersants or in situ burning, it is essential that any approval process be efficient and rapid.

Other policies that may be established include the use of a Net Environmental Benefit Analysis (NEBA), (some countries also consider economic impacts (NEEBA) when developing response strategies), waste management requirements (i.e. preferred method of disposal, storage sites and transportation), and pre-authorization or prohibitions, if any, of response tactics such as in situ burning, dispersants, surface washing agents or bioremediation.

2.9 Waste management

A robust waste management programme is paramount to achieving an efficient and effective spill response. Inadequate waste collection, transport or interim storage capabilities, or uncertainty about waste treatment or disposal requirements can slow or even stop oil recovery and clean-up operations.

Therefore, the National Contingency Plan should describe the government's expectations for an effective waste management programme and identify or reference any regulatory requirements or protocols associated with the characterization, storage, transport and treatment, recycling or disposal of oil spill wastes. The types or names of recycling, treatment and disposal facilities approved to accept liquid and solid oil spill wastes should also be included in the plan. Additionally, any waste management resources or services that can be provided by the government should be identified in the plan.

Consideration should be given to including key criteria for an effective waste management programme in the National Contingency Plan including:

- minimizing volume of waste created;
- treatment of oiled substrate in situ;
- segregation of waste; and
- reuse or recycling as much recovered material as possible.

More information regarding waste management may be found in Chapter 9 of Section IV of the *IMO Manual on Oil Pollution* and the *Guidelines on Oil Spill Waste Management* (REMPEC et al., 2010).

2.10 Demobilization and termination of response

The progress of the response and clean-up operations should be monitored and as the activities wind down, resources should begin to be demobilized and, ultimately, a decision should be made to terminate the response. When this decision is made, the response enters the remediation or restoration phase to monitor or enhance natural recovery of the impacted areas.

The National Contingency Plan should describe the general process for the demobilization of response equipment and other resources and which, if any, government approvals may be required for demobilizing key response resources. Response or clean-up end points should be determined early in a response through collaboration with relevant stakeholders. The plan should also outline a process for establishing clean-up/response end points. This will expedite the determination of appropriate end points and the identification of stakeholders that should be involved in the process. The NEBA is often utilized to establish the point when continued cleanup will cause more environmental damage than the remaining oil. Additional information on establishing end points can be found in Sergy and Owens (2007) *Guidelines for Selecting Shoreline Treatment Endpoints for Oil Spill Response* (see Appendix 7).

2.11 Restoration and post-spill monitoring

Upon completion of the clean-up operations, some monitoring of the recovery and restoration of ecosystems within impacted areas may be necessary. The degree of restoration and post-spill monitoring will be determined in collaboration with the Lead Agency, other agencies such as those representing environment, tourism, fishery, coastal industry, and ports, as well as the owner. Some examples of such restoration are replanting mangrove stands, marsh, and sea-grasses, and restocking aquaculture projects. Shoreline areas where the clean-up end points allow residual oil to be left in place, may need to be monitored over time to document the natural degradation of the remaining oil.

Although restoration and post-spill monitoring activities are often conducted under regulatory regimes that are separate from spill response, they can still be covered in the National Contingency Plan. In this case, the plan should generally describe the conditions or scenarios under which monitoring or restoration would be required or considered, as well as a summary of the monitoring and restoration processes. Existing restoration or monitoring regulatory requirements, protocols or guidelines should also be referenced. Further useful information may be found in the *IMO/UNEP Guidance Manual on the Assessment and Restoration of Environmental Damage following Marine Oil Spills (IMO, 2009)*.

2.12 Training, exercising, record keeping and plan updating requirements

The National Contingency Plan should include a section describing the training and exercise programme for the national response management organization (2.5) that is designed to ensure a high level of preparedness and build competency. It should be, to the extent practical, consistent with any training and exercise requirements imposed on industry as discussed in Chapter 3. The plan should also encourage the participation of the national organization and supporting agencies in the exercises and training events conducted by industry. Guidance and considerations on developing various aspects of a training and exercise programme are provided below.

2.12.1 IMO provides guidance and training to developing nations through its Technical Cooperation Programme. One particularly well-established programme is for oil spill response training. Training modules are available for first responders and incident commanders, as well as senior leaders of lead or supporting agencies.

2.12.2 It is essential to conduct annual drills and exercises to ensure all are familiar with the national, regional and local contingency plans. Where appropriate, these exercises are best coordinated with industry to provide an opportunity to learn how well different plans and organizations interface.

2.12.3 From time to time, such exercises should require mobilization and deployment of personnel, equipment and materials to ensure their availability, performance and the competency of those using such materials.

2.12.4 A national oil spill contingency plan should be reviewed regularly to incorporate experience gained from regular exercises and actual incidents. Regular updates to notification lists and response equipment information should also be made. Any organizational changes or legislative changes that modify the response organization or policies should be reflected in timely amendments to the affected plan, and communicated to all relevant parties.

2.12.5 It is of great importance to clearly identify in the national plan both who is responsible, and the mechanism to be employed, for the collection of detailed information and records concerning the response operation and decision making, at the early stage of an incident or even before the spill occurs. Record keeping is not only required to support claims (see section 5.4.6), it is also the basic source of information to conduct a review into the technical, operational and coordination aspects of a response, which can then be used to revise and improve the national plan accordingly.



Chapter 3

Contingency plans for oil handling facilities, ports and offshore installations

Historically, oil spill incidents have occurred most frequently in port during ships' loading, discharging and bunkering operations. The majority of these incidents result in comparatively small spill volumes. Overall, spill frequency and volumes have decreased over the last several decades through government and industry's increased emphasis on spill prevention. However, despite improvements in the prevention of oil spills, unanticipated events can and do still occur. These events can negatively affect health, safety, natural resources, property, tourism and other regional community values.

Oil Pollution Emergency Plans or Contingency Plans for spills from oil handling facilities and offshore installations (including oil exploration and production facilities) are essential components of a national or regional system to manage oil spill incidents. These industry-generated plans should align and integrate with the plans of port and coastal States where a spill may occur, and cover both minor and major spills. Countries are encouraged to develop national guidelines and/or minimum requirements for the scope and content of Oil Pollution Emergency or Contingency plans for operations within their jurisdictional area.

Oil industry groups have published various guidance documents for the development of oil spill contingency plans for ships, oil handling facilities and offshore installations. One of the more recent and comprehensive guides for industry was produced by IPIECA and the OGP in 2015, titled *Contingency planning for oil spills on water*. This and other documents listed in Appendix 7 (References and further reading) are a good source for industry's best practices for developing contingency plans for oil handling facilities and offshore installations.

While it is not recommended that governments become too prescriptive in their contingency plan content or formatting requirements, there are several key elements that should be incorporated into the facility or installation contingency plan development process and/or the plan itself. These essential elements are examined in greater detail in the following subsections and, along with the oil industry guidelines referenced above, can be used to inform the development of national oil spill contingency plan preparation guidelines or requirements.

3.1 Risk analysis

3.1.1 Oil spill risk is generally defined as the probability of a spill occurring from a specific source plus the consequences of the spill. The likelihood and consequences of an oil spill are determined by a risk analysis. Therefore, the risk analysis includes the identification of possible spill sources and the probability and estimated volumes associated with each source (i.e. spill scenarios). A consequence analysis is subsequently conducted for each scenario, or representative scenario, to predict the area that could be affected, along with an assessment of the potential impacts to ecological and socio-economic receptors located within the area. The probability of each scenario occurring, combined with the associated consequences, are then aggregated to provide an overall picture of the operation's spill risk. These analyses are typically part of a port or regional emergency response plan as well, but may be required by national authorities for oil spill emergency plans for oil handling facilities or offshore installations.

Hazard identification is conducted to ensure that all the potential hazards that are inherent to the operations of the ship or facility are identified. For example, the amount being transported or handled, storage locations, extreme weather conditions, navigation hazards or subsea geological faults are typical of the types of hazards that affect spill probabilities and volumes, and are considered in oil spill emergency plans or contingency plans.

As part of the consequence analysis, the vulnerability assessment seeks to determine assets, resources, activities and/or communities that may be affected by a spill. Such information enables responders to make well-informed decisions about protecting public health and welfare, and the environment. Lists of environmentally sensitive areas (or reference to documents that provide that information), municipal water supplies and other utilities, recreational areas, and facilities of special concern are among the information that should be made available during a risk assessment.

There is always some degree of uncertainty in the equation of risk assessment; however, the process of conducting a risk assessment is critical to ensuring a contingency plan appropriately addresses likely scenarios where a spill may occur.

3.1.2 There are many factors that will be unique to each spill (type of oil, proximity to vulnerable resources, proximity to international borders, etc.) and each country (availability of response resources) that may be considered when conducting a risk assessment, and later determining planning requirements for different tiers of response.

3.1.3 Scenario planning is particularly useful in oil spill and emergency response preparedness. Spill drift modelling is conducted for representative spill scenarios identified in the risk assessment to determine their potential impact areas. An environmental and socio-economic vulnerability assessment is conducted for the potential impact areas to determine the presence of areas that may be particularly sensitive to oil spills and that will need to be protected should a spill occur (consequence analysis).

A spill response strategy utilizing one or more tactics is then developed for each scenario that will minimize the overall spill impact, as well as specific impacts to the areas of higher vulnerability, taking account of the type and estimated volume of the spill and estimated time frame before coastal resources are affected. The resources required to implement those strategies are identified and measures taken to ensure their availability within the appropriate time frames.

Additional information on this type of risk assessment and scenario-based planning, including the dimensioning of the required response resources, is provided in the IPIECA-IOGP (2013a) publication listed in Appendix 7.

3.2 Tier definitions and minimum planning requirements

3.2.1 As discussed in 1.4, the principles of tiered response have become accepted practice among the world's oil spill response practitioners. While the concept of tiered response is well known, what remains to be established by each country are the tier definitions and the minimum planning requirements for ships, offshore installation, and oil handling facilities. Should a country choose to define the three tiers and their minimum planning requirements, the planning requirements should be based on the probability and consequences (risk) for each tier. By defining tiers and minimum planning requirements, a country assists an industry in establishing their planning criteria within their response plans. Each country can define, and may codify, in regulation:

- minimum response equipment/resources required for at least Tier 1 spills; and,
- contractual agreements for providing Tier 2, Tier 3, and, potentially, Tier 1 response equipment.

3.2.2 It is important to remember that the tiers are for planning purposes only, and in the event of a spill, the owner should mobilize whatever resources are necessary to adequately respond to the spill.

3.3 Incident reporting

As discussed in 1.2.2, timely reporting of an incident is critical to an appropriate response by the owner, as well as government officials and other parties with a role to play in oil spill response. While various conventions put the onus of reporting on responsible parties, States must have in place arrangements to receive and act upon such reports.

3.3.1 In accordance with the OPRC Convention, parties responsible for an offshore installation are required to report without delay any event on their offshore installation involving a discharge or probable discharge of oil to the coastal State to whose jurisdiction the unit is subject.

3.3.2 Industry contingency plans should include procedures for internal and external (governmental) notifications including contact details, forms, regulatory requirements, timelines and instructions. Flowcharts and diagrams are effective ways of displaying the flow of notifications that are required. It is also important to specify the management role responsible for ensuring notification and reporting requirements are met.

3.4 Response time frames

3.4.1 Not only is it important to establish planning and minimum response equipment/resource requirements for potential Tier 1 response capability, but also to provide maximum time frames for Tier 2 and Tier 3 response equipment to arrive on scene. Again, this is a planning requirement only and should not be used as a performance standard, as there are many factors such as weather, road conditions, customs requirements, etc. that are beyond the control of the owner and can result in the maximum time frames being exceeded. These planning requirements could, however, be used by industry and governments to decide in what time frames response equipment should be available for each tier. For example, a facility located in a remote area may be required to maintain a more sophisticated Tier 1 response capability on scene than a facility near a large port, due to extended response times for Tier 2 and 3 equipment.

3.4.2 Special consideration should be given to response time frames for remote areas or those with extreme weather conditions, such as polar or near-polar regions. The type of equipment and other resources, including personnel, as well as the logistical requirements for mobilization and staging, need to be considered. Coordination with national and regional entities is particularly important in developing response time frames for these areas.

3.5 Spill response organization

3.5.1 It is important that oil spill contingency plans for oil handling facilities, ports and offshore installations describe the organization or team(s) that will be utilized to implement the tactical activities and manage the response. Facility owners/operators may have a multi-level response organization consisting of one or more teams for each level. The first level is generally activated for all spills, with subsequent levels activated as necessary to manage escalating incidents. Ideally they are organized around the three tier concept, as described below, to better align with other components of the plan. If a multi-level response organization is utilized, the plan should describe the process for transitioning or escalating from one level or tier to the next.

3.5.2 For a facility operator, a Tier 1 response may be undertaken by in-house teams of workers trained in pollution response, supplemented by local contractors where necessary, to conduct the tactical activities, such as containment boom and skimmer deployment and operation. An incident management team may include facility personnel to support the tactical operations. Government agencies will usually be notified and may contribute to the response.

3.5.3 The Tier 2 response team may consist of the facility owner/operator's corporate or regional incident management team possibly supplemented by contractors or subject matter experts with specific skill sets. The Tier 2 incident management team may be mobilized to the site and will integrate with the Tier 1 incident management personnel, but may also perform their functions remotely. Regional or national contractors may also be mobilized to the site to supplement the Tier 1 tactical team.

3.5.4 A Tier 3 response is more likely to be overseen by a national government authority with support from the facility owner/operator and contractor incident management personnel to further expand the capabilities of the Tier 2 resources. An incident affecting a number of countries may involve significant government resources of various nations. International response contractors may also be mobilized to further supplement the on-site tactical team.

3.6 Plan implementation and response strategies

The requirements for contingency plans for oil handling facilities, ports and offshore installations will be determined in part by national legislation and by international conventions, primarily the 1990 OPRC Convention. As described in section 4.1, the OPRC Convention requires authorities or

operators in charge of oil handling facilities, ports and offshore installations to have oil pollution emergency plans or similar arrangements which are coordinated with the National Preparedness and Response System, as deemed appropriate by the designated National Authority of the signatory country to the Convention. In some countries, planning requirements are more comprehensive, with specific obligations for pre-contracting resources and activation of the plan by designated local persons.

Plans for oil handling facilities, ports and offshore installations should describe the process for plan implementation that often utilizes the following sequence, although many steps are conducted in parallel:

- initial spill and hazard assessment;
- notifications;
- initial response actions including controlling the source, securing the area, ensuring safety of responders and the public, and others;
- mobilization of resources;
- activation of response organization (tactical response and incident management teams);
- development and implementation of response strategies; and
- decontamination, demobilization and debrief.

All contingency plans should contain information on when and how the plan will be activated and who is responsible for overseeing the plan activation. Similar to the government designating a Competent National Authority or Lead Agency with ultimate responsibility for oil spill preparedness and response, in some countries the facility owners/operators must also designate a position (e.g. a duty officer, qualified individual etc.) within their organization that has the authority and responsibility to implement the plan and manage the response. Additionally, the contingency plan should define the types of incidents and geographic area (scope) that it is intended to address as well as how it is integrated with other applicable response plans.

The plan should identify which response techniques should be used and in what circumstances. There are many response techniques, including mechanical containment and recovery, as well as use of dispersants, burning or other non-mechanical response technologies. The plan should state the regulatory policy with regard to whether, where and when such non-mechanical response options may be used, as well as a description of the required approval process, if any.

3.6.1 The plan should make provision for the various response options/techniques to be considered:

- if possible, prevent or reduce outflow of oil from the source;
- if marine or coastal resources are threatened, decide whether to begin response operations at sea and/or to protect sensitive shoreline areas by use of booms;
- whether to permit the use of dispersant, and if permitted, define the conditions under which dispersant may be used and provide an approved dispersant list;
- whether to permit use of in situ burning methods, and if acceptable, define the conditions of use;
- if no marine or coastal resources are threatened or likely to be threatened, continue monitoring the movement and behaviour of the oil slick; and
- if, due to weather conditions, response at sea and shoreline protection is not feasible or shoreline resources have already been affected, decide on shoreline clean-up priorities.

Details about response techniques may be found in Section IV of the *IMO Manual on Oil Pollution*.

3.6.2 The selection of the most appropriate oil spill response techniques or options is not an exact science, and there will always be different opinions as to which techniques are most effective or have the greatest net environmental benefit. Ideally, planners should incorporate the NEBA process into the contingency plan development process to work with stakeholders to pre-identify the most appropriate response options (see *Response strategy development using net environmental benefit analysis*, IPIECA-IOGP, 2015c). If not, the plan should describe the NEBA process to be followed during the response to select the most appropriate response options and strategy.

3.6.3 Similar to using the above-mentioned NEBA process during contingency plan development to involve stakeholders in the pre-selection of response options, stakeholders should also be involved in the prioritization of sensitive areas for protection. This will enable the priorities to be listed in the plan and cross-referenced to any coastal sensitivity maps. Such an order of priorities can reduce the risk of disagreement and indecision when faced with difficult choices during an oil spill emergency.

3.7 Waste management

3.7.1 The plan should identify resources to transport any recovered oil and oily debris to collection and disposal locations and identify equipment and temporary storage sites which can be used for collection and reception of recovered oil and oily debris. Final disposal of the recovered oil will depend on its nature and the degree of contamination.

3.7.2 Disposal of oily debris and oiled shoreline substrate can present particular problems in handling due to the large quantities sometimes involved. It is recommended that suitable final disposal sites are identified in the plan in consultation with the relevant government agencies. More information regarding waste management may be found in Chapter 9 of Section IV of the *IMO Manual on Oil Pollution* (2005).

3.8 Decontamination

Decontamination of resources used in a response should be considered prior to a response and many decontamination facilities should be mobilized in the early stages of a response. Decontamination of response personnel, equipment and affected resources will be required on a daily basis, as well as at the end of a response. It is best to pre-identify locations and approved cleaning agents to be used in decontamination. Vehicles may require cleaning prior to leaving oiled areas to minimize secondary contamination. Similarly, oiled hulls of ships and workboats will need to be cleaned to ensure they do not trail pollution beyond the affected area.

3.9 Demobilization and termination of response

The progress of the clean-up operation should be monitored, using inputs from aerial surveillance and site supervisors, to reassess response decisions. Each area will require different standards of cleanliness; for example, amenity beaches are normally cleaned to a higher standard than exposed rocky headlands that may be cleaned naturally. The decision to terminate clean-up operations should be made by the On-scene Commander in consultation with all other parties concerned, usually involving government officials. In general, termination is decided when further operations would be ineffective, or the desired level of cleanup has been achieved.

3.10 Special considerations for offshore exploration and production installations

3.10.1 Offshore oil production and exploration installations require special consideration due to the potential for a large volume of oil to be released in cases where the spill source cannot be immediately secured. National authorities may require that an owner or operator of an offshore production or exploration installation develop a separate source control plan or section of the oil pollution emergency plan that describes how they will control the source of a well blowout or any other loss of well control event. In particular, the source control plan should identify sources of well capping and containment equipment and associated resources (remotely operated vehicles, subsea dispersant application systems, if appropriate, debris removal equipment, etc.), as well as procedures for equipment mobilization and deployment.

3.10.2 Although generally addressed in the Risk Assessment, the total volume, as well as the rate and duration, of potential spills from an offshore production or exploration installation should be included in the contingency plan. The methods used for calculating these figures should also be included. The calculations for operational releases may include the capacity of one or more oil storage tanks and flow lines on the facility and the volume and release rate from possible ruptures in any pipelines connected to the facility.

3.10.3 The worst credible case discharge, which oil pollution contingency plans are largely designed to address, should also be included. For oil production facilities, the scenario often includes riser or flow line rupture from the most productive well, along with a failure in the well control valves. A daily discharge rate and total duration is calculated considering reservoir characteristics, reservoir pressure, historical rates of production, and casing/tube sizes, as well as available well control or intervention/mitigation measures.

3.10.4 For oil exploration facilities, the daily discharge rate and duration is calculated for an uncontrolled well blowout, considering reservoir characteristics or analogous reservoirs in the same geographic area, reservoir depressurization, natural well bridging or obstructions (drill pipe) in the well that will reduce the rate, etc. The duration is often based on the time required to drill a relief well or to mobilize and deploy a well capping or containment system.

3.10.5 In the absence of specific national guidelines or requirements, approved industry-association guidelines on oil pollution response from oil exploration and production facilities should be consulted, such as those developed by the global oil and gas industry association for environmental and social issues (IPIECA) and the International Association of Drilling Contractors (IADC).

3.11 Integration of industry and government response management structures

A cooperative approach with the oil industries operating within the area of the plan is key to the establishment and sustainment of an effective response system. It is the government's role to establish the legal and organizational framework for this relationship. Whatever relationship is established, the roles of government and industry should be clearly defined. It is essential that industry contingency plans should comply and align with national regulations. In many jurisdictions, the government will be the lead responder whereas in others, the facility owner may be required by legislation to respond.

3.11.1 Coordination and cooperation at local and national levels amongst government agencies and industry, are essential to all preparedness and response actions. Entities that should be included in the process of drafting the plan to ensure they are familiar with and capable of achieving their role include:

- port or maritime authorities;
- facility and terminal operators;
- fire departments;
- local police;
- health and safety officials;
- industry and commercial contractors;
- archeological and cultural experts;
- municipal, local, regional, tribal and national government authorities;
- fisheries officers;
- wildlife response organizations
- environmental specialists; and
- oil spill response and waste contractors.

3.11.2 Industry's oil spill response contingency plans should take into account National Response Systems as well as acknowledging the roles of other agencies and parties, such as salvors, insurance agencies, etc. Industry's oil spill contingency plans should facilitate the integration of these parties, as appropriate, during the course of an oil spill response. Local spill response plans of ports, oil depots, power stations and other entities with significant oil spill risk exposure should also integrate with and be compatible with the National Response System. Having a common incident management system, as described in section 1.5, will substantially facilitate this integration, cooperation and coordination.

3.12 Contingency plan testing and update requirements

After an oil spill contingency plan has been developed, it is important that the elements of the plan are tested regularly to ensure that planning assumptions are correct and that the plan works as anticipated. Drills and exercises developed around scenarios developed by the risk assessment process work particularly well to examine oil spill contingency plan components and to test their viability.

3.12.1 Drills typically evaluate a specific element of a plan such as communications procedures or equipment deployment. Emergency notification drills are frequently used to ensure that the plan not only identifies appropriate persons to be contacted in the event of a spill, but that the list of individuals or organizations to be notified and their contact information is current.

3.12.2 Exercises usually evaluate an entire plan and can last from a few hours to several days. The hierarchy for exercises includes tabletop exercises, functional exercises and full-scale exercises.

Tabletop exercises are sessions during which participants meet in an informal setting to discuss their roles during a spill and their response to a particular situation. Typically, a facilitator guides the discussion through one or more scenarios. The duration of the tabletop exercise is largely dependent on the complexity of the scenario, but most can be conducted in a few hours.

Functional exercises help validate a plan by allowing personnel involved in a spill response to perform their duties in a simulated operational environment. Functional exercises are scenario-driven and are designed to exercise specific team members, procedures and resources. This can include simple equipment deployment exercises used to promote familiarity with the equipment, as well as ensure it is working properly.

Full-scale exercises are designed to simulate real-world situations as closely as possible. They are typically conducted by public agencies to test the effectiveness and interoperability of the hierarchy of plans that may be in effect in the event of a Tier 2 or Tier 3 spill. Full-scale exercises usually involve the physical deployment of resources and personnel from both the public and the private sector.

3.12.3 The frequency and type of drills and exercises may be specified by national authorities, but in the absence of such national requirements, operators should establish a drill and exercise programme of sufficient frequency and type to ensure an adequate review of the oil spill emergency plan. Typically, drills should be held quarterly and exercises annually.

3.12.4 Contingency plans should be reviewed and updated regularly. Personnel responsible for maintaining plans should periodically consider any changes that may affect the operation of the plan, for example changes in legislation that introduce different response requirements, changes in the risk (new shipping routes, new oils carried), changes in operations, reorganization of jurisdictional government departments, changes in contact details, etc. Changes to a plan should be made in consultation with all plan holders. It may be appropriate to develop regulations requiring periodic review and updates of industries' contingency plans.

Chapter 4

International cooperation

This chapter identifies those elements that a government should consider when developing mechanisms of cooperation in the field of multilateral preparedness and response with regional partners and governments. These multilateral plans and agreements ensure that general arrangements between governments to cooperate in responding to oil pollution, or the threat of oil pollution, are in place at the operational level. These elements may be expanded and used for the development of specific plans under the framework of regional, subregional or bilateral agreements, and are not intended to replace existing contingency plans. This chapter is principally intended to assist developing countries in establishing operational arrangements between neighbouring States. It is recommended that participating governments begin such activities on a modest scale within their national capabilities.

It is strongly recommended that each government that intends to participate in multilateral cooperation ratifies applicable international conventions and develops and implements a National Response System and plan, as discussed in Chapter 2.

4.1 Applicable international agreements and code

4.1.1 International Convention on Oil Pollution Preparedness, Response and Cooperation, (OPRC 1990)

Parties to the OPRC 1990 are required to establish measures for dealing with pollution incidents, either nationally or in cooperation with other countries.

Ships, oil handling facilities and offshore installations are required to report incidents of pollution to coastal authorities; the Convention details the actions to be taken. The Convention calls for the establishment of stockpiles of oil spill combating equipment, the holding of oil spill combating exercises and the development of detailed plans for dealing with pollution incidents.

Parties to the Convention are required to provide assistance to others in the event of a pollution emergency and provision is made for the reimbursement of any assistance provided.

4.1.2 International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL)

MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

The MARPOL Convention was adopted on 2 November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents between 1976 and 1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments over the years.

The Convention includes regulations aimed at preventing and minimizing pollution from ships – both accidental pollution and that from routine operations – and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes.

Annex I Regulations for the Prevention of Pollution by Oil covers prevention of pollution by oil from operational measures as well as from accidental discharges; the 1992 amendments to Annex I made it mandatory for new oil tankers to have double hulls and implemented a phase-in schedule for existing tankers to fit double hulls, which was subsequently revised in 2001 and 2003. One of the most applicable provisions of MARPOL is the requirement for ships to report oil spill incidents to coastal States and for States to have in place a system to receive and process such reports. Further, MARPOL requires certain ships to carry a shipboard Oil Pollution Emergency Plan.

Operators of offshore installations under the jurisdiction of Parties are also required to have oil pollution emergency plans or similar arrangements which must be coordinated with national systems for responding promptly and effectively to oil pollution incidents.

4.1.3 International Code for Ships Operating in Polar Waters (Polar Code)

IMO has adopted the *International Code for Ships Operating in Polar Waters* (Polar Code) and related amendments to make the Code mandatory under both SOLAS and MARPOL. The Polar Code applies to ships constructed after 1 January 2017. Ships constructed before 1 January 2017 will be required to meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 January 2018.

The Polar Code is intended to cover the full range of shipping-related matters relevant to navigation in waters surrounding the two poles – ship design, construction and equipment; operational and training concerns; search and rescue; and the protection of the environment and ecosystems of the polar regions.

Ships will need to carry a *Polar Water Operational Manual (PWOM)* to provide the Owner, Operator, Master and crew with sufficient information regarding the ship's operational capabilities and limitations in order to support their decision-making process.

4.2 Cooperation between participating governments

OPRC requires that Parties cooperate and provide advisory services, technical support and equipment for the purpose of responding to an oil pollution incident upon the request of any Party affected or likely to be affected by such incident. For many regions, this cooperation takes the form of regional agreements and bilateral or multilateral agreements, including their associated instruments such as regional contingency plans and regional coordination centres.

4.2.1 Multilateral agreements and plans are intended to establish a framework within which two or more governments can cooperate to facilitate certain operational aspects of oil spill response. These plans and agreements can include, but are not limited to the following areas of cooperation:

- the exchange of information regarding preparedness and response to pollution incidents, including pollution notification and reporting procedures (see Appendix 5), relevant national legislations and policies, national authorities, resources available, etc.;
- the requests for assistance during an oil spill incident;
- the strengthening of cooperation mechanisms between the national emergency response centres in order to ensure a good coordination of response activities during a pollution incident;
- the harmonization of national response strategies concerned by joint response operations such as custom and immigration procedures, national dispersant policies and liability and compensation issues;
- in the case where a multilateral contingency plan has been adopted, the implementation of its provisions concerning the

- operational procedures and the command structure for oil spill response operations; and
- the participation in other collaborative initiatives, which may include, but are not limited to:
 - working visits between national coordinators and other regional stakeholders;
 - joint trainings and exercises;
 - the exchange of relevant information; and
 - the sharing of technical expertise.

4.3 Reporting international oil spills and related communications

4.3.1 A multilateral oil spill plan should include agreed lists for each individual State, detailing the authorities or organizations assigned responsibility under their National Contingency Plan. These lists should identify contact points with appropriate telephone and email contact information, which must be available on a 24-hour basis as well as existing facilities, such as defence, coastguard, coastal administration or police headquarters, which could be used to receive and disseminate reports.

4.3.2 A State in whose zone of responsibility a spill or a serious threat thereof arises should immediately inform any neighbouring State(s) if it appears likely that it may affect their sea areas and shorelines, giving as much detail as possible about the incident. In the event of a spill, notification information should include:

- source;
- date/time;
- position;
- type and amount of oil spilled;
- likelihood of further spillage;
- prevailing and forecasted weather conditions; and
- proposed actions.

Prepared standards for sharing information might be developed. As the situation develops, information provided to these States should be updated continuously and a regular synopsis provided to keep them informed. Examples of report formats appear at Appendix 6. Transmission of such reports should not be delayed, even if complete information is not immediately available.

4.3.3 Available meteorological and hydrographic data should be used to give approximate early predictions of general spill movement. More sophisticated methods of prediction of spill movement may subsequently be used. However, visual observation of any spill is essential and the responsible authority under the appropriate National Contingency Plan should use those resources already identified, such as charter, military or commercial aircraft, for surveillance. It is essential that the results of such observation and prediction be transmitted to other States which may be affected by the spilled oil until it no longer threatens any State in the area covered by the plan.

4.4 Logistics of multilateral agreements

4.4.1 A multilateral oil spill agreement should contain contact information to acquire response equipment and specialist personnel available through each National Authority, procedures for mobilizing equipment and materials, and the respective relevant charges. Guidelines for identifying response resources may be found in Appendix 6. The resources of national governments, industry and commercial companies available for assistance within a region may still be found to fall short of what is desired. It may, therefore, be necessary to agree upon an increase in individual holdings or, alternatively, to make arrangements to maintain a common supplemental holding or stockpile of equipment and materials. The multilateral oil spill plan should also consider commercial and government resources which may be readily available from outside the region, so that a reasonable response to worst-case situations can be mounted. All States would nevertheless maintain control over the commitment of their national spill-response resources.

4.4.2 It is vital for the implementation of multilateral oil spill plans to be able to move equipment, materials and personnel to the places where they are needed without undue delay or formality. It is, therefore, essential that each State participating in a multilateral oil spill plan make administrative arrangements (“emergency procedures”) to expedite customs, immigration, and other control of material and personnel entering or leaving its territory for the purposes of assisting it or another State in combating oil pollution.

4.4.3 Details of such arrangements should be included in the multilateral contingency plan and promulgated by all States participating in this plan throughout their respective governments. International organizations or other States which may be called upon to assist in the case of an oil pollution incident should also be made aware of the arrangements. Such details should include the essential information required by the appropriate National Authority (customs, immigration, etc.) to facilitate special arrangements. Ideally, such arrangements should include provisions for the rapid granting of entry visas, as well as the temporary importation of oil spill clean-up equipment and material free of duty or import taxes.

4.4.4 Specific agreements should be made for funding joint response operations and for the loan of resources. Participating States should be aware of international regimes and voluntary schemes applicable in the region for obtaining compensation for oil spill clean-up costs. Specifically, States should refer to and, to the maximum extent possible, use the annex to the OPRC Convention on reimbursement of assistance costs as a basis for funding international assistance.

4.4.5 Each State should maintain individual records of action taken and of equipment and other resources used to respond to the incident. These records can be utilized, both to support claims for compensation, and for subsequent analysis of actions taken during the spill incident to upgrade the multilateral contingency plan.

4.5 Administration

4.5.1 Each government may provide the following information to the multilateral plan:

- identification of the Competent National Authority and national operational contact point responsible for oil spill matters (OPRC, Article 6(1)(a));
- description of the national oil spill response organization and, if available, the national plan;
- types of oil spill response resources, if any, and the proper method to request them as outlined in the *Guidelines on International Offers of Assistance (IOA) in Response to a Marine Oil Pollution Incident* (IMO, 2016);
- country available for response; and
- identification of storage for recovered oil and disposal methods.

4.5.2 National arrangements should be consistent with any multilateral oil spill plan or agreement. It is also suggested that a summary of the possible sources of oil spills, resources at risk and priorities for protection is prepared for the geographic area covered by the multilateral contingency plan, drawing on the information provided in the national plans.

4.5.3 Multilateral oil spill plans must remain simple and easy to operate. However, mechanisms should be established to permit activation by stages, on a set of prearranged signals and procedures, whereby States may initiate the appropriate levels of action.

4.5.4 The geographical area covered by any international oil spill plan should be clearly defined. Areas in which individual States or several States jointly may be responsible for taking actions such as surveillance, reporting, alerting and response activities should also be clearly defined. The geographical area may be identified by use of suitably annotated maps attached to the plan, latitude and longitude coordinates, or both.

4.5.5 Typically, the State in whose zone of responsibility the spill occurs assumes the lead role, and is initially responsible for all of the actions taken related to both tracking the spill and any necessary response. The basis on which responsibility is transferred from one State to another must be clearly defined in any multilateral oil spill plan. Any State involved may escalate the response activities by calling upon assistance from other States participating in the plan, or from States or organizations not participating in the plan.

4.5.6 Procedures should be developed for requesting, offering and accepting assistance in the event of a spill incident. Procedures are provided in IMO's International Offers of Assistance guidelines.

4.5.7 Multilateral oil spill plans should include policies regarding waste generated during an international response, bearing in mind the Basel Convention restricting the international movement of waste.

4.6 Review and update of a Multilateral Contingency Plan

A Multilateral Contingency Plan should be reviewed at least once a year to incorporate experience gained from regular exercises and actual incidents in the region. Periodic updates of points of contact and equipment inventories should be made, using the information provided by individual States.

Chapter 5

Intervention and cost recovery

This chapter addresses the legal basis for a national State to intervene in an incident involving a ship which threatens to cause, or results in, an oil spill, and the means by which the costs incurred by the implementation of the measures to prevent, assess or mitigate the effects of such incident may be compensated. This chapter does not address spills arising from other sources, such as exploration or drilling rigs, pipelines or storage tanks. In such cases many operators are self-insured, with compensation paid directly by the operator causing the pollution. Within north-west Europe, the Offshore Pollution Liability Association (OPOL) is a scheme supported by offshore operators active in the area, to provide an additional source of funds in certain circumstances. Further information regarding compensation for ship and non-ship sources is available in *Economic assessment and compensation for marine oil releases* (IPIECA-IOGP, 2015a).

5.1 National considerations

5.1.1 Intervention

The United Nations Convention on the Law of the Sea (UNCLOS) came into force in 1994 and defines the rights and responsibilities of nations with respect to their use of the world's oceans. Parties to UNCLOS have the obligation to protect and preserve the marine environment. Coastal States are empowered to take and enforce measures within their territorial waters and Exclusive Economic Zone to protect their coastline or related interests, including from pollution or the threat of pollution following a maritime incident.

The basis for a Coastal State to intervene in a pollution incident on the high seas, i.e. outside their territorial waters and Exclusive Economic Zone, is provided through the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (Intervention Convention) that entered into force in 1975. Under certain conditions, State Parties to the Convention are empowered to take measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastlines or related interests, from pollution or threat of pollution of

the sea by oil. A protocol to the Convention was later adopted to extend its scope to substances other than oil.

The separate International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC 90) requires signatory States to establish a national system for responding to oil pollution incidents and to have resources available to effectively and promptly respond to marine oil spills. Signatories to OPRC 90 shall take all necessary action to assess the incident and its possible consequences, and inform without delay all States whose interests are likely to be affected.

The responsibility of the vessel master during an incident is defined under MARPOL 73/78, which states that every oil tanker of 150 gross tonnage and above, and every ship other than an oil tanker of 400 gross tonnage and above, shall carry on board a Shipboard Oil Pollution Emergency Plan (SOPEP). Under this Convention, the master of the casualty vessel should take immediate action to ensure the safety of the crew and the preservation of the ship and cargo.

5.1.2 Identification of the polluter

In many oil spills, the identification of the source of the oil is straightforward. However, in some situations, the source of the spilled oil may not be clear, with a number of potential sources identified. Good practice calls for samples of the spilled oil and oil from potential sources (e.g. vessel tanks and machinery spaces, terminals, and other shore-based sources) to be taken as soon as practicable. Samples should be appropriately handled, stored and labelled, ensuring that at all times a clear custodial chain can be proven in court. Correct procedures for sampling and storage of samples must be followed.

5.1.3 Places of refuge: a case-by-case decision

IMO Assembly Resolution A.949(23) – *Guidelines on Places of Refuge for Ships in Need of Assistance* was adopted in November 2003. This resolution, although not a binding instrument, provides a framework for governments, shipmasters, companies and salvors to respond effectively, and in a complementary manner. These Guidelines address situations when a ship has suffered an incident and the best way of preventing damage or pollution from the vessel's progressive deterioration is to transfer its cargo and bunkers, and to repair the casualty and for which such an operation may be best carried out in a place of refuge. The IMO Guidelines on Places of Refuge recommend that coastal States endeavour to establish procedures by which requests for assistance are received and acted on with a view toward authorizing, where appropriate, the use of a suitable place of refuge.

5.2 Regulatory framework for Liability and Compensation

An oil spill may result in a financial loss to governments, individuals, companies and other organizations. The costs of a clean-up response and pollution damage may result in one or more claims for compensation. Liability for the costs of a pollution incident will generally be set out in civil law, as opposed to criminal law, in relevant national legislation. As a consequence, liability and the availability of compensation can vary widely around the world.

“The polluter pays” is a concept that is generally well-accepted throughout the world, but should be established in formal legislation or policy. In practice, the policy requires whoever caused the pollution to pay for the response and remediation efforts, in accordance with the polluter's legal liability. In cases where there is no owner, such as a mystery spill, or where the polluter is unable to pay for the response, the government will usually pay for the response and then seek remuneration from a national pollution response fund, where available, or in accordance with international liability and compensation conventions to which the government is party.

To ensure claimants obtain prompt and adequate compensation following a release of oil from a ship, many countries have signed several international conventions. These conventions provide uniform rules and criteria for the owners of ships and for those affected by an oil release in countries that have signed the appropriate convention and in which the oil release occurred. In contrast, releases of oil from sources other than ships are not the subject of international conventions currently in force.

Consequently, the payment of compensation following a release, or the threat of a release, is dependent upon two primary factors; the jurisdiction in which the incident or impact occurred and the source of the released oil. This section of the document considers the availability of compensation for incidents involving ships, considering the legal basis on which liability is imposed on the shipowner, and the potential sources of payment of compensation.

5.2.1 The International Convention on Civil Liability for Oil Pollution Damage (CLC)

The 1969 CLC entered into force in 1975 to provide compensation for spills of persistent oil from tankers. This was superseded by the 1992 CLC which expanded the scope of available compensation. Under the 1992 CLC, the tanker owner has strict liability for pollution damage and is able to limit liability to an amount of money dependent upon the size of the tanker, currently up to a maximum of 89.77 million Special Drawing Rights (SDR), paid by the vessel's owner or insurer. The convention requires tanker owners to maintain compulsory insurance cover for ships carrying more than 2,000 tons of

persistent oil in bulk as cargo. Compensation under the CLC is paid by the vessel's owner but who is backed by their insurer, usually a Protection and Indemnity (P&I) Club. Claimants also have a right of direct action against the insurer under the convention if the vessel owner does not pay. The CLC is often referred to as the first tier of compensation for tanker spills.

5.2.2 The 1992 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage Fund (1992) and the 2003 Protocol establishing an International Oil Pollution Compensation Supplementary Fund

The *1992 Fund Convention* came into force in 1995 to provide a supplement to the 1992 CLC when compensation is not available from the shipowner or the money available under the CLC is inadequate to pay claims resulting from spills of persistent oil from tankers. This second tier of compensation provides up to 203 million SDR (including the amounts payable under the 1992 CLC) and is paid by receivers of oil in countries that have signed the 1992 Fund Convention. A Supplementary Fund is available, providing a third tier of compensation of up to 750 million SDR (approximately US\$ 1.1 billion), including the amounts payable under the 1992 CLC and Fund Conventions, in countries that have signed the Supplementary Fund Protocol. The International Oil Pollution Compensation Fund, and the Supplementary Fund, are administered by a secretariat based in London.

5.2.3 The International Convention on Civil Liability for Bunker Oil Damage (Bunker Convention)

The *2001 Bunker Convention* came into force in 2008 and applies to spills of hydrocarbon mineral oils, including lubricating oil, used for the operation or propulsion of a ship. The Bunker Convention is modelled on the 1992 CLC to provide compensation for pollution response and pollution damage. The provisions of this Convention do not affect the right of the shipowner or its insurer to limit liability under the applicable national or international limitation regime. The Convention requires the registered owner of a ship having a gross tonnage greater than 1,000 tons to maintain compulsory insurance equal to the limit of liability calculated in accordance with the separate *Limitation of Liability for Maritime Claims Convention* (LLMC), as amended. As with the CLC, compensation under the Bunker Convention is paid by the vessel's owner backed by their insurer, usually a Protection and Indemnity (P&I) Club, in the same manner described in section 5.2.2 above.

5.2.4 The International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances (HNS Convention)

The HNS Convention of 1996 (amended by the HNS Protocol in 2010), is modelled on the two-tier compensation regime of the Civil Liability and Fund Conventions. The shipowner or insurer is strictly liable to pay claims under the first tier up to a limit of liability determined by the size of the vessel, with compensation paid by the vessel's insurer, usually a P&I Club. The second tier, providing compensation up to a maximum of 250 million SDR, is paid from a fund established by receivers of HNS in countries that have signed the Convention. The Convention covers both pollution damage and damage caused by other risks (e.g. fire and explosion), including loss of life.

The shipowner is entitled to limit liability under this Convention in respect of any one incident to 11.5 million SDR for a ship not exceeding 2,000 tons. For larger ships, an aggregate calculated on the basis of the ship's tonnage is added to that amount, and provides compensation of up to 100 million SDR for bulk goods, and 115 million SDR for packaged goods.

A substance is classified as HNS under the Convention if it is included in one or more lists of IMO Convention and Codes designed to ensure maritime safety and prevention of pollution. HNS includes non-persistent hydrocarbon oil, bulk cargoes (solid, liquids or liquefied gases) and packaged goods. However, the HNS Convention has now been superseded by its 2010 Protocol which, as of the publishing of this section, is not yet in force as an insufficient number of countries have ratified it.

5.2.5 Convention on Limitation of Liability for Maritime Claims (LLMC Convention)

Under the 1976 LLMC Convention, the limit of liability is specified for a wide variety of claims.

The Convention provides for a virtually unbreakable system of limiting liability. Shipowners and salvors may limit their liability except if "it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such a loss, or recklessly and with knowledge that such loss would probably result."

The LLMC Convention does not apply in the case of pollution damage covered by the 1992 CLC or HNS Convention when entered into force. It should also be noted that while the LLMC may apply to wreck removal in some jurisdictions, the LLMC is not universally adopted and other limitation

regimes may apply (e.g. under the Bunker Convention) depending on the law of the State in which the spill occurs.

5.2.6 Nairobi International Convention on the Removal of Wrecks (Nairobi WRC 2007)

The Nairobi WRC 2007 entered into force in April 2015 to provide a legal basis for States to remove, or have removed, shipwrecks located within their Exclusive Economic Zone (EEZ) that may have the potential to affect adversely the safety of lives, goods and property at sea, as well as the marine and coastal environment. Among several provisions, the Convention places financial responsibility with shipowners for locating, marking and removing certain wrecks posing a hazard to the affected State.

5.2.7 Liability and compensation in States that have not ratified the international conventions

In countries that have not signed an applicable convention, or when the convention is not yet in force, liability for pollution response costs and pollution damage, and the availability of compensation will depend upon legislation developed nationally.

5.3 Liability and compensation – Core principles

5.3.1 Strict liability

Under the international oil spill compensation conventions, the shipowner has strict liability for pollution damage caused by the escape or discharge of oil from the ship. This means that the shipowner is liable even in the absence of fault on their part. The shipowner is exempt from liability only if it is proven that:

- the damage resulted from an act of war, hostilities, civil war, insurrection, or a natural phenomenon of an exceptional, inevitable and irresistible character;
- the damage was wholly caused by an act or omission done with the intent to cause damage by a third party; or
- the damage was wholly caused by the negligence or other wrongful act of any government or other authority responsible for the maintenance of lights or other navigational aids in the exercise of that function.

5.3.2 Limitation of liability

Under the international oil spill compensation conventions, shipowners may limit their liability, except if it is proven that the incident resulted from their personal act or omission, committed with the intent to cause such an incident, or recklessly and with knowledge that such incident would probably result. The limitation of liability is usually derived from the tonnage of the vessel, in accordance with the regime of the incident as defined in the international conventions such as the CLC, Bunker and HNS Conventions.

5.3.3 Admissibility of the claim

To be entitled to compensation, the expense or loss caused by an oil spill must be measurable and quantifiable. The onus rests with the claimant to prove the link of causation, and the claimant must be able to provide appropriate evidence supporting the amount claimed for the expenses or loss. The shipowner's insurer, and the IOPC Fund if involved, usually appoints experts, often on a joint basis, to investigate the technical merits of claims and to make independent assessments of the expenditure or losses.

5.3.4 Reasonableness

It is important to note that under the international oil spill compensation conventions, the amount claimed should be reasonable. In general, the reasonableness of a claim for preventive measures, including cleanup, is assessed in terms of the rates charged, the resources deployed and the activities claimed. The assessment of claims for pollution damage takes account of the value of the property affected, the economic loss incurred and costs of reinstatement. These concepts of "reasonableness" are set out in the IOPC Fund's Claims Manual for the purposes of the CLC and Fund Conventions.

5.3.5 Time bar

Claimants should submit their claim as soon as possible after the damage has occurred or, if for any reason a formal claim cannot be submitted shortly after the incident, the claimant should notify the liable organization of an intention to submit a claim as soon as possible. Under the international oil spill compensation conventions, the claimant may lose the right to compensation unless an action is brought against the liable organization in a court within a specified period after the date of the incident, or the date on which the damage occurred.

5.4 Preparation of claims from oil pollution

5.4.1 Prevention and cleanup

For many oil spills, significant costs will be incurred in the initial emergency phase of a response as a result of deploying resources to prevent further spills, protect sensitive areas and recover the oil. Consequently, it is important that an orderly system for logging and filing associated records is established as quickly as possible after the response commences. Accurate records are vital since reliance on memory for subsequent claims compilation is unrealistic, particularly during a lengthy and fast-moving response.

Daily worksheets should be compiled by supervisory personnel, describing the operations in progress, describing the equipment in use, where and how it is being used, the number of personnel employed, how and where they are deployed, and the materials consumed. Recording such information is facilitated by the use of standard electronic worksheets.

Costs for many items used in a response will be calculated as the sum of the period worked and the rate for that period; for example, an aircraft used for surveillance for a number of hours or a worker employed on a beach for some days, are best entered and submitted in electronic format, preferably using spreadsheets. In addition to itemizing costs, a claim should include as much information as possible to explain the reason for the work, such as records of decision, meetings and records of the activity undertaken to recover and clean up the oil, such as vessel logs, personnel timesheets, and worksite reports. Early participation of the P&I Club or insurer in the management of the incident and their co-approval of expenditure related to the response is recommended.

Waste transport, storage, treatment and disposal can often be the most expensive component of a response and accurate recording of volumes and weights handled is important.

In summary, below is a non-exhaustive list of supporting information required:

- Summary of events, including a description of the work carried out in different areas and the working methods chosen in relation to the circumstances prevailing during the incident.
- Delineation of the area affected, describing the extent of pollution and identifying those areas most heavily contaminated. This should be presented in the form of a map or chart supported by photographs or video.
- Analytical and/or other evidence linking the oil pollution with the ship involved in the incident (e.g. chemical analysis; wind,

tide and current data; observation and plotting of movement of floating oil).

- Dates on which work was carried out (with weekly or daily costs).
- Labour and administrative costs (number and categories of response personnel; regular and overtime rates of pay; days/hours worked).
- Equipment and material costs (types of equipment used; rate of hire; consumable material quantity and cost).
- Transport costs (number and types of vessels, aircraft and vehicles used; number of days/hours operated; rate of hire or operating cost).
- Costs of temporary storage (if applicable) and final disposal of recovered oil and oily material.

5.4.2 Property damage

Claims for damage to property may be made by the public as well as the private sector, such as fishermen, pleasure-boat owners, marina operators and port authorities. In this case, it may be desirable to arrange, through the shipowner's insurer, to appoint insurance adjusters to whom claimants may be referred. In some incidents, a special telephone number and office have been established to process claims, and the public is advised through the media that this service is available.

Items affected commonly include: hulls of fishing vessels and pleasure craft; fishing gear such as nets and traps; and mariculture structures such as fish farms, mussel rafts and oyster trestles. Property damage claims may also arise as a result of clean-up activity; for example, damage to roads or paths used for access by workers and vehicles.

As a minimum, photographs of the property before and after restoration should be provided in support of a claim. However, for many property damage claims, a survey, usually undertaken jointly with representatives of the organization paying compensation, will be necessary prior to the commencement of work to restore the property. Surveys are necessary to confirm the link of causation to the incident, to corroborate the level of contamination or other damage claimed and to advise on the appropriate work to be undertaken. In any case, the claim should mention the extent of pollution damage to the property, description of items destroyed, damaged or needing replacement or repair (e.g. boat, fishing gear and clothing), including their location. In order to facilitate the assessment, the cost of repair work or replacement of item should be mentioned, as well as the age of item to be replaced, in order to take into consideration the depreciation.

5.4.3 Economic losses

Contamination of fishing vessels, other fishing gear, mariculture facilities or tourism assets may prevent their subsequent use. Income lost while the polluted or damaged items are cleaned or replaced may form the basis of a claim for consequential economic loss. In addition to the documentation required to support the property damage, evidence of the ensuing loss of income will also be required. Claims may be accepted for the costs of measures taken to prevent or minimize pure economic loss. Economic losses can include but are not limited to: restriction of fishing activity, closure of coastal industrial and processing installations, or marketing campaigns and loss of income by resort operators (hotel owners and restaurateurs). In many cases, the financial records for previous years may be readily available, although difficulties may arise in distinguishing losses caused by the oil spill from those caused by other unrelated factors such as bad weather or overfishing.

Claims for pure economic loss can also arise even though no damage to property has occurred; for example, if a fishing fleet is unable to depart port. Media reports of an oil spill may also result in a loss of market confidence, which might deter tourists from visiting a coastal area or the public from purchasing seafood perceived to be contaminated by oil. Pure economic losses can more easily be seen on a balance sheet only, rather than as a consequence of damage to property. Therefore, for many economic loss claims, the most important supporting documentation will be copies of company accounts, trading records, invoices or other financial statements. Although accepted in principle under the international compensation regimes, in some national jurisdictions claims for pure economic loss are inadmissible.

When dealing with artisanal fisheries, formal records may not be available and some other form of assessment may be required. Subsistence or artisanal fishing involves the provision of daily food or seafood for barter that may not include financial transactions. The assessment of claims from such fisheries may be problematic as supporting documentation is often unavailable and only verbal reports of activities can be provided. Experts are available to work with the claimants to determine accurate losses. Also, there could be additional indirect expenditures incurred by the local authorities in providing alternative protein sources for the coastal communities affected by the spillage; this should be documented. Guidelines available from the International Oil Pollution Compensation (IOPC) Fund may assist in this area.

Supporting information relative to economic claims may include, but is not limited to, the description of the nature of the loss, including demonstration that the loss resulted directly from the incident, the comparative figures for profits earned in previous periods and for the period during which such damage was suffered, and a comparison with similar areas outside the area affected by the spill, together with the method of assessment of loss.

More specifically for fisheries, the claims should include the costs of inspecting and monitoring the presence of oil in potentially impacted fisheries areas and the subsistence foods as well as the government costs of monitoring and responding to native food issues.

5.4.4 Environmental damage

To facilitate decision-making, monitoring programmes may be undertaken, necessitating surveys and the collection and analysis of oil, water, sediment, or biota for chemical analysis. Claims for sampling should include rationale for the work and information on the sample collected and analyzed. It can contain environmental assessments of the effects of the spill, including both field work and report preparation, often after the cleanup has stopped. It is highly recommended to involve the vessel's insurers or the IOPC Funds before the beginning of such programmes in order to later facilitate the claim assessment of those studies.

Claims for work done to restore damaged resources and encourage natural recovery are acceptable under the international conventions only if certain criteria are met; for example, the work should significantly accelerate natural recovery. Costs should be itemized to clearly explain the work done.

However, claims based on calculations made according to theoretical models and claims for compensation for loss of function of the environment are inadmissible under the international conventions, although they are recognized under some national legislation.

5.4.5 Other types of claims

The foregoing are the principal categories of claims that are likely to prove acceptable; however, there may be other categories of claims eligible under national and regional compensation schemes. In all cases, the claim should be presented clearly and in sufficient detail so that it is possible to assess the amount of damage suffered on the basis of the facts and the documentation presented. It should be noted that each item of the claim must be supported by an invoice or by other relevant documentation, such as daily worksheets and explanatory notes.

5.4.6 Importance of recordkeeping

The type of information required to support a claim depends upon the type of loss, in particular, whether the loss is incurred as a result of the cost of responding to the incident or as a result of the effects of the oil on, for example, tourism or fisheries businesses. However, the quality of this documentation

and other information required depends to a large extent upon the measures taken to record and preserve this information at the time the loss is incurred. As time passes, and unless records are meticulous, the availability of information to support claims, verify losses and answer questions is likely to diminish. Settlement of a claim may require time, and if key personnel are no longer available to answer queries during this period, the records may be the sole source of information. Similarly, unless evidence is preserved correctly, substantiation of a subsequent claim may not be possible.

A wide variety of organizations such as salvage companies, government agencies, waste contractors and wildlife charities may be involved in a response. In addition to utilizing owned resources, each organization may spend large amounts of money to purchase or contract-in goods and services. The resulting trail of expenditure can include hire agreements, contracts, invoices, receipts and many other individual documents.

5.5 Submission, assessment and settlement of the claim

5.5.1 Who can claim and to whom?

Anyone who has been involved in prevention or clean-up operations, or anyone who has suffered measurable damages due to a pollution incident, can submit a claim. Claimants may be private individuals, companies, private organizations, or public bodies, including States or local authorities. For convenience, claims can be grouped together to facilitate their assessment by the liable party or organization.

The insurer of the vessel owner's third party liabilities is typically a Protection and Indemnity (P&I) Club. As noted above, under some conventions, such as CLC and Bunker, claimants have a right of direct action against the insurer if the vessel owner is unable to pay. Pollution damage claims should be submitted to a vessel's P&I Club and/or the IOPC Fund for large incidents likely to exceed ship limitation. In situations where the shipowner is not known or cannot pay, claims can be submitted to the International Oil Pollution Convention Fund, when relevant, or a national fund, if available.

Government and publically operated vessels, including warships and other vessels on military duty or charter, usually operate outside established P&I and other commercial insurance.

In the case of pollution damage as defined under CLC 92, caused in a State that is Party to both the 1992 CLC and the 1992 Fund Convention, claims can be submitted to the 1992 Fund. However, the 1992 Fund typically begins to distribute compensation once the shipowner or its insurer has paid up to the

limit of its liability; therefore claims should be sent directly to the shipowner or its insurer who will channel the claim to the 1992 Fund when the limit of its liability has been reached.

5.5.2 Information to be provided

Regardless of the type of claim, the documentation in support should contain the following basic information:

- name and address of the claimant;
- identity of the ship involved in the incident;
- date, place, and specific details of the incident;
- type of loss or pollution damage sustained;
- supporting documents for each claimed item; and
- amount of compensation claimed including taxes, profit, and any other extra costs where applicable.

5.5.3 Assessment and settlement of the claim

After receiving a claim, the owner, shipowner's insurer and/or the IOPC Fund if involved, will assess the claim in order to determine its admissibility, as well as the sum that is considered recoverable. To do so, the owner, the shipowner's insurer and/or the IOPC Fund may require the services of technical advisors who may have been present at the scene of the incident.

If the information provided by the claimant is not sufficient to verify the admissibility or the reasonableness of the claim, the Fund/responsible party's insurer may query some of the claimed costs pending the provision of additional information. While a claim may have been considered admissible in principle, the burden of proving the claim rests upon the claimant, and thus, if the claim is not supported by the documentation submitted or is not technically reasonable, some or all of the costs may be rejected after all the queries have been exhausted.

In most incidents under the international conventions, agreement on the amount of compensation to be paid is reached on an amicable basis, without the need for legal action and associated costs. If, however, such agreement is not possible, the claimant has the right to bring a claim to the court in the State in which the damage occurred. This must be done before the applicable time bar date.

Appendix 1

Sample legislation establishing a National Response System

As discussed in Chapter 1 (especially section 1.2) and Chapter 2, passing national legislation is an important step in establishing a National Response System. While each country will have its own particular way of drafting and approving legislation, codifying the different aspects of a National Response System, this appendix provides potentially applicable sections of proven legislation from one nation. Below are excerpts from New Zealand's legislation that define requirements for:

- obligations to protect the marine environment from harmful substances;
- marine oil spill response strategy;
- marine oil spill contingency plans;
- shipboard and site marine oil spill contingency plans;
- regional marine oil spill contingency plans;
- national marine oil spill contingency plans; and
- a national oil pollution fund.

The following legislation is very prescriptive and not all sections will be applicable to all countries (for instance the section on a national oil pollution fund), however it is included here as a sample of one country's legislation for the edification of those that may not be familiar with legislation establishing a National Response System.

Excerpts from New Zealand legislation:

Maritime Transport Act 1994

Public Act: 1994 No 104
Date of assent: 17 November 1994

Obligations to protect marine environment from harmful substances**226 Harmful substances not to be discharged into sea or seabed of exclusive economic zone or continental shelf**

Harmful substances shall not be discharged or escape, otherwise than in accordance with the marine protection rules,—

- (a) from any ship, offshore installation, or pipeline—
 - (i) into the sea within the exclusive economic zone of New Zealand; or
 - (ii) onto or into the seabed below that sea; or
- (b) from any ship or offshore installation involved with the exploration or exploitation of the sea or the seabed, or any pipeline,—
 - (i) into the sea beyond the outer limits of the exclusive economic zone of New Zealand but over the continental shelf of New Zealand; or
 - (ii) onto or into the seabed below that sea; or
- (c) from any New Zealand ship—
 - (i) into the sea beyond the outer limits of the exclusive economic zone of New Zealand; or
 - (ii) onto or into the seabed below that sea; or
- (d) as a result of any marine operations,—
 - (i) into the sea within the exclusive economic zone of New Zealand or beyond the outer limits of that exclusive economic zone but over the continental shelf of New Zealand; or
 - (ii) onto or into the seabed below that sea.

227 Duty to report discharge or escape of harmful substances

(1) Notice of any discharge or escape of a harmful substance into the sea, or onto or into the seabed, in breach of [section 226](#) of this Act or of [section 15B](#) of the Resource Management Act 1991 shall, forthwith after such discharge or escape, be given in accordance with the requirements of the marine protection rules (and whether or not any defence may be available under this Act or the [Resource Management Act 1991](#)) to the Director or,

where a discharge or escape has occurred within the internal waters or the territorial sea of New Zealand, the Director or the regional council within whose region the discharge or escape has occurred.

(2) Each of the following persons shall be under a duty to give notice of a discharge or escape of a harmful substance in accordance with subsection (1), namely,—

- (a) if the discharge or escape was from a ship, the owner and the master of the ship;
- (b) if the discharge or escape was from an offshore installation, the owner of the offshore installation;
- (c) if the discharge or escape was from a pipeline, the owner of the pipeline;
- (d) if the discharge or escape was a result of any marine operations, the person in charge of and the person carrying on such operations.

(3) The giving of notice of a discharge or escape in accordance with subsection (2) by one person shall be sufficient to relieve every other person from a duty to give such notice in respect of that discharge or escape.

(4) Where any discharge or escape of a harmful substance in breach of [section 226\(c\)](#) occurs, the master of the ship shall, as soon as is practicable, report the discharge or escape to the appropriate authority of the nearest State.

New Zealand marine oil spill response strategy**283 Preparation and review of response strategy**

The Director shall prepare, by a date specified by the Minister by notice in the *Gazette*, the New Zealand marine oil spill response strategy and shall review that response strategy at least once every five years.

284 Purpose and contents of response strategy

(1) The purpose of the New Zealand marine oil spill response strategy is to—

- (a) describe the action to be taken, and by whom the action is to be undertaken, in response to a marine oil spill in New Zealand marine waters; and
- (b) promote a standard response to marine oil spills in New Zealand; and

- (c) promote the co-ordination of marine oil spill contingency plans and the action taken in response to marine oil spills under such plans.

(2) The New Zealand marine oil spill response strategy shall include such matters as the Director considers appropriate to achieve its purpose as specified in subsection (1) and any other matters that the marine protection rules require to be included in the response strategy.

Marine oil spill contingency plans

286 Purpose of marine oil spill contingency plans

The purpose of marine oil spill contingency plans is to—

- (a) promote in New Zealand planned responses to marine oil spills at shipboard, site, regional, and national levels; and
- (b) specify the functions and responsibilities of persons at shipboard, site, regional, and national levels, with respect to responses to marine oil spills.

Shipboard and site marine oil spill contingency plans

287 Preparation, review, and keeping of shipboard and site marine oil spill contingency plans

Shipboard and site marine oil spill contingency plans shall be prepared, reviewed, and kept in accordance with the provisions of the marine protection rules.

Regional marine oil spill contingency plans

288 Purpose of regional marine oil spill contingency plan

The purpose of a regional marine oil spill contingency plan is to promote a planned and regionally co-ordinated response to any marine oil spill within a region that is beyond the resources of the persons who have caused the marine oil spill or that has not been appropriately responded to by such persons.

National marine oil spill contingency plan

296 Purpose of national marine oil spill contingency plan

The purpose of the national marine oil spill contingency plan is to promote a planned and nationally co-ordinated response to any marine oil spill that—

- (a) is beyond the resources of the regional council within whose region it is located; or

- (b) is outside the region of any regional council, but within the exclusive economic zone of New Zealand, and is an oil spill for which the Director considers that a national response is required.

300 Function of regional on-scene commanders after notification

(1) Subject to section 313, if a regional on-scene commander is notified or otherwise becomes aware, of a marine oil spill within the region of the council by whom that on-scene commander is appointed, he or she shall decide whether or not it is appropriate for any action to be taken in response to that marine oil spill, including the taking of any measures under the regional marine oil spill contingency plan or the exercise of any powers under this Act.

(2) Subject to section 313, if, in the opinion of any regional on-scene commander, containing and cleaning up any marine oil spill within the region of that regional council is or may be beyond the capacity of the resources available to that regional council, that regional on-scene commander shall forthwith notify the Director that assistance is or may be sought from the Authority.

(3) Notification by the regional on-scene commander of the Director under subsection (2) shall not relieve a regional council from its obligations under section 313 to comply with its regional marine oil spill contingency plan.

301 Function of National On-Scene Commander after notification

(1) If a National On-Scene Commander is notified by the Director or otherwise becomes aware of a marine oil spill, he or she shall decide whether or not it is appropriate for any action to be taken in response to that marine oil spill, including the taking of any measures under the national marine oil spill contingency plan or the exercise of any powers under this Act.

(2) If, in the opinion of the Director, containing and cleaning up any marine oil spill is beyond the capacity of the Authority, the Director may seek assistance from other States or persons in accordance with the national marine oil spill contingency plan.

Obligations and offences in respect of marine oil spill contingency plans**313 Compliance with marine oil spill contingency plans**

(1) In the event of a marine oil spill from a ship, an offshore installation, or an oil transfer site in respect of which there has been prepared under the marine protection rules a shipboard or site marine oil spill contingency plan, as the case may be, the provisions of the relevant shipboard or site marine oil spill contingency plan shall be complied with except to the extent that a person is directed otherwise by an on-scene commander.

(2) In the event of a marine oil spill within the region of a regional council, the regional marine oil spill contingency plan shall be complied with except to the extent that a person is directed otherwise by the National On-Scene Commander.

324 Director responsible for training

The Director shall be responsible for the development and co-ordination of training necessary to successfully implement a marine oil spill response under the New Zealand marine oil spill response strategy.

New Zealand Oil Pollution Fund**330 New Zealand Oil Pollution Fund**

(1) The Authority shall establish and administer a fund to be known as the New Zealand Oil Pollution Fund.

(2) The oil pollution levies payable under [section 333](#), and any other money that is lawfully payable to the Fund, shall be paid into the Fund.

(3) All money payable to the Fund shall be paid to the credit of a bank account established under [section 158\(1\)](#) of the Crown Entities Act 2004 for the purpose.

(4) The Authority shall invest the Fund in accordance with its investment powers, but subject to the restrictions in [section 161](#) of the Crown Entities Act 2004.

(5) All income of the Fund shall be added to and form part of the Fund.

(6) There may from time to time be paid out of the Fund any money that may lawfully be paid out of the Fund under this Act or any other enactment.

(7) The financial statements of the Fund shall form part of the financial reports of the Authority.

331 Application of money in New Zealand Oil Pollution Fund

(1) Subject to the provisions of this Act, the Authority shall apply the New Zealand Oil Pollution Fund only for the following purposes:

- (a) to meet the costs of the Oil Pollution Advisory Committee:
- (b) to purchase plant, equipment, or any other thing to make preparations for, or to implement, or assist in implementing, any responses to marine oil spills:
- (c) to meet the reasonable costs of the Authority (including the costs incurred by the Director and the National On-Scene Commander) in controlling, dispersing, and cleaning up any marine oil spill:
- (ca) to meet the costs of services associated with planning and responses for marine oil spills that are services provided under a contract or arrangement with the Authority or the Director:
- (d) to meet the costs of the Authority in—
 - (i) the performance of the other functions and duties and the exercise of other powers of the Authority, the Director, and the National On-Scene Commander under [Part 23](#); and
 - (ii) taking measures to avoid marine oil spills:
- (e) to meet the reasonable costs of a regional council (including the costs of its regional on-scene commander) in investigating a suspected marine oil spill and in controlling, dispersing, and cleaning up any marine oil spill:
- (f) to meet the reasonable costs of any regional council in—
 - (i) the performance of the other functions and duties and the exercise of the powers of the regional council and its regional on-scene commander under [Part 23](#); and
 - (ii) taking steps to avoid marine oil spills:
- (g) to meet the reasonable costs incurred by any person, in assisting any animal or plant life affected by any marine oil spill, with the consent or in accordance with the requirements of an on-scene commander:

- (h) to meet any other expenditure for which this Act contemplates that reimbursement may be made from the Fund:
 - (i) such other expenditure, or classes of expenditure, related to marine oil spills, as may from time to time be approved by the Governor-General by Order in Council.
- (2) The following provisions apply to payments made under either or both of paragraphs (c) and (e) of subsection (1), and to payments made under paragraph (g) of that subsection for the purpose of assisting any wildlife:
- (a) the payments may be made if, and to the extent that, the costs for which the payments may be made have not been recovered from the person who caused the oil spill:
 - (b) the recipient must make all reasonable efforts to recover those costs from that person:
 - (c) payments may be made on an interim or periodic basis; and each time it recovers money from the person who caused the oil spill, the recipient must pay the Fund a proportionate amount.

Appendix 2

Sample outline of a national oil pollution contingency plan

This appendix provides a sample outline and suggested content for a National Contingency Plan (NCP). Detailed discussion regarding the development of a National Contingency Plan may be found in Chapter 2.

1 Introduction

- 1.1** *Authority* – cite the legislation authorizing development of an NCP.
- 1.2** *Purpose and Scope* – describe the purpose and intended use of the NCP, as well as what it covers and what it does not cover.
- 1.3** *Competent National Authority* – identify the lead government agency or position within the agency that has the ultimate authority and responsibility for managing and coordinating the response to oil spills.
- 1.4** *Relationship to other Government Emergency Response Plans* – list any other government emergency plans and explain how they relate to the NCP.
- 1.5** *Plan Review and Revision* – describe the plan review and revision process and frequency.
- 1.6** *Abbreviations and Definitions* – provide a list of abbreviations and technical terms and their definitions as used in the NCP.

2 Risk assessment

- 2.1** *Introduction* – explain that risk assessments are necessary to identify the higher oil spill risk areas and operations to ensure the NCP adequately addresses those risks.
- 2.2** *Process* – describe the process used for the risk assessment to determine the country's spill risks and their probabilities and consequences. Consider categorizing by tier.
- 2.3** *Results* – summarize the results and explain how they were used to inform the development of the NCP and response strategies.

3 Tiered response planning system

3.1 Describe the tiered system to be used by government agencies for response planning to ensure adequate procedures, strategies and resources are available to mitigate the range of potential spills identified in the risk assessment.

4 Oil spill/emergency response management organization

4.1 *Introduction* – explain the need for a robust management system and a clear definition of responsibilities, and describe the various system components.

4.2 *Competent National Authority* – explain the role of the organization or its position in a spill/emergency response.

4.3 *Responsibilities* – identify the various government agencies that could be involved in a response, explain the delegated roles, responsibilities and authorities of each and ensure there are no, or only limited, overlaps.

4.4 *Organization structure* – describe the overall structure to be used for incident management and coordination. Include organograms/organization chart(s).

4.5 *Position descriptions* – describe the roles and responsibilities of each position or organization identified in the structure.

4.6 *Mobilization* – describe the procedure to be followed in activating and mobilizing the various agencies and personnel that make up the response organization.

5 Notifications, alerts and reporting

5.1 *Introduction* – explain the need for prompt and accurate notifications or alerts that a spill has occurred and subsequent reporting (consider including a notification decision guide). Also identify the various parties that may be making notifications and the means by which notifications or alerts are received.

5.2 *Discovery* – describe the initial notification process, time frames, and the government agency or agencies that must be contacted by the party discovering a spill. Also, describe the information that should be provided when making the notifications.

5.3 *Supplemental notifications* – describe the process and responsibilities for making supplemental inter-agency notifications following the initial notifications from the party discovering a spill.

5.4 *Reporting* – identify requirements and responsibilities for providing more detailed verbal or written reports as a follow-up to the verbal notifications.

6 Oil spill assessment

6.1 *Introduction* – explain the need to assess both the hazards presented by the spill and the spill size, characteristics and projected movements to inform response strategy development.

6.2 *Hazard assessment* – describe procedures for assessing the spill's health and safety hazards to ensure it is safe to respond and identify the government agency or agencies with the expertise and equipment that could be utilized to assess the hazards.

6.3 *Spill volume, aerial extent and characteristics* – describe procedures for determining or estimating the spill volume, as well as the area covered and physical and chemical characteristics. Also, identify the government agency or agencies with the expertise and equipment to perform these tasks.

6.4 *Spill movements* – describe the need to predict spill movements through drift or trajectory modelling and identify the government agency with the expertise to conduct the modelling.

6.5 *Spill surveillance* – identify the spill surveillance technologies (special radar, IR cameras, satellite imagery, etc.) and platforms (aircraft, vessels, satellites) the government owns or has access to and how they will be utilized in a response to monitor and document spill size, movements and characteristics as well as the agency or agencies that will conduct the surveillance activities.

7 Response resources

7.1 *Introduction* – explain that rapid access to response resources is critical to minimizing spill impacts and implementing an effective response, and that the resources should be categorized by tier. Also, distinguish between situations where the responsible party will provide the majority of response resources, but which may need to be supplemented with government equipment and personnel and where the relevant government authority or agency will do so.

7.2 *Tier 1 resources* – identify locations, types and potentially the inventories of government and other resources that can be mobilized quickly to respond to localized spills in the vicinity of the resource caches (consider also including an explanation of how to mobilize the resources).

7.3 *Tier 2 resources* – identify locations, types, and potentially the inventories of regional caches of government-owned and other resources or those that the government has access to (consider also including an explanation of how to mobilize the resources).

7.4 *Tier 3 resources* – identify potential sources of international third party resources and describe the procedures for expediting the customs and immigration process to avoid delays in mobilizing the resources to the spill location.

7.5 *Support resources* – identify sources of government and private sector support resources, such as aircraft for aerial surveillance and search and rescue, vessels, remote sensing, sampling and monitoring equipment/personnel, etc.

7.6 *Support services* – identify government agencies and private sector organizations that could provide support services such as medical, transportation, volunteer management, weather, scientific support, etc.

8 Response strategies

8.1 *Introduction* – explain that a successful response strategy typically involves the use of multiple response tactics selected as being the most effective while minimizing environmental and socio-economic impacts. Also, explain that this section is intended to provide information on government policies and any restrictions, prohibitions, preferences, authorization requirements, etc. on the use of individual response techniques, where applicable.

8.2 *Net Environmental Benefit Assessment (NEBA)* – explain that any response strategy development should incorporate the NEBA process to ensure the selected tactics will result in a net benefit to the environment and socio-economic values and describe the NEBA process.

8.3 *Response tactics* – provide a list of the response techniques or tactics that are authorized for use in the country and include a brief description of each, along with any restrictions, preferences or prohibitions for their use.

8.4 *Non-mechanical recovery technique authorization* – describe the requirements and processes for obtaining government authorization for the use of dispersants, in situ burning, surface washing agents, herders and other non-mechanical tactics, and identify areas where specific techniques may be pre-approved or prohibited for use.

9 Waste management

9.1 *Introduction* – describe the need to establish requirements and processes for management of oil spill wastes to avoid any delays or impediments to response activities.

9.2 *Waste designation* – describe the regulations/requirements governing the designation of oil spill wastes and the different designations (general, special, hazardous, etc.), as well as the requirements, if any, for characterizing the wastes, to determine the most appropriate designation.

9.3 *Waste handling, interim storage, and transport* – describe the regulations/requirements, if any, for handling wastes generated during a spill response, their interim storage (storage pits, container types, permits, etc.) and transportation (container types, licensed transporters, etc.).

9.4 *Waste reuse, treatment and disposal* – describe the regulations/requirements for reuse, treatment and disposal of oil spill wastes divided by waste designation, and including the names or types of facilities that are approved to handle such wastes.

10 Demobilization and response termination

10.1 *Introduction* – explain the need to develop a demobilization plan covering when and how key resources are demobilized and to establish end points to determine when the response is complete.

10.2 *Demobilization* – describe the process and include guidelines for demobilizing key resources, including approvals needed, prioritization, equipment decontamination and inspection, to ensure an orderly de-escalation of the response.

10.3 *End points* – explain the need and describe the process for establishing end points for various aspects of the response (floating oil/sheen on water, stranded oil on shorelines, residual oil on land, etc.) to determine when the response is complete.

10.4 *Post spill assessments* – explain the need and describe the process for post spill assessments, whether to determine efficacy of response techniques, assess natural resource damages, or efficacy of natural attenuation.

10.5 *Termination* – describe the process to confirm the above end points have been achieved and to obtain consensus from all involved parties to terminate the response.

10.6 *Cost recovery* – describe the process specific to the State for recovering the cost of the oil spill response.

10.7 *Debrief* – describe the benefits of, and process for, conducting a post-incident debrief from all involved parties to capture lessons learned which, in turn, will be used to improve processes, contingency plans, regulations and requirements.

Appendix 3

Sample outline of an industry contingency plan

As discussed in the introduction to this Section of IMO's *Manual on Oil Pollution*, there are several excellent publications that contain marine oil spill contingency planning guidance for organizations that produce, handle, transport, or store oil products. One such document is *Contingency planning for oil spills on water*, produced as part of the IPIECA-IOGP Good Practice Guide Series. This appendix is an excerpt from that document and provides a thorough outline for an oil spill contingency plan that should be developed, followed and exercised by any organization that poses a risk of oil spill due to their production, handling, transporting or storing of oil products. Full reference details may be found in Appendix 7.

Excerpt from IPIECA-IOGP *Good Practice Guide Series*:

The format of a contingency plan should be in compliance with existing:

- local legislation and regulations;
- company policy and standards; and
- the respective national contingency plan.

In the absence of prescriptive content defined by government regulations or company standards, the format presented in this Annex may be used as a guideline. The content of an oil spill contingency plan is intended to provide instructional actions specific to initiating and conducting a response. If a large volume of material creates difficulties in navigating the core procedures and information in the main body of the plan, it may be better to include some material as appendices or as separate plans (supporting documents). Examples of such material include sensitivity maps, tactical plans, directories and supporting elements. Material requiring frequent updates and redistribution (e.g. contact and resource directories, operational sensitivity maps, site-specific tactical plans) may benefit from separate document control and tracking. In some locations this may not be an issue; however, in developing regions, contact information, local supply services and logistics details will often need regular updating. Background information and capability justification, which has been compiled over the course of the planning effort, should be included as appendices or separate supporting documents.

There is no standard format for a contingency plan that meets the needs of all organizations; the format will vary depending on the scope of the plan and should be scaled accordingly, i.e. sections may be added or removed based on the level of risk and the need for the listed plan components. Planners should arrange the format in the most effective manner for the particular operation and in accordance with the local and national regulatory framework.

Simple techniques, such as the use of tabs, arranging pages into sections, and creation of a well-organized table of contents will help users to navigate to key information in the plan, and will also simplify the plan update process. Tables, flow charts and decision trees should be used as much as possible to simplify the presentation of material and facilitate the most efficient use of the plan in an emergency situation.

A suggested format for a contingency plan is summarized below.

1 Introduction

- 1.1 Overall response priorities and objectives
- 1.2 Plan scope (including a summary description of operations and risks)
- 1.3 Geographical area of coverage
- 1.4 Integration with other plans
- 1.5 Document control (plan custodian, distribution, review and update records)

2 Initial Actions

- 2.1 Initial actions and strategy decision guide
- 2.2 Initial site safety and spill assessment
- 2.3 Initial response priorities and objectives
- 2.4 Initial action checklists for key personnel
- 2.5 Immediate notifications and reporting
- 2.6 Activation of response management team
- 2.7 Identification of environmental and socio-economic sensitivities
- 2.8 Immediately available Tier 1 resources and contacts

- 2.9 Activation and deployment of Tier 1 resources
- 2.10 Response escalation procedures
- 2.11 Key facility information

3 Notifications and Reporting

- 3.1 Internal requirements and procedures
- 3.2 External requirements and procedures
- 3.3 Supplemental notifications, if any
- 3.4 Contact details and forms (included either within the main body of the plan or as a separate directory for ease of frequent updating)

4 Assessments

- 4.1 Site health, safety and security assessments
- 4.2 Spill surveillance methods (aerial surveillance, tracking buoys, etc.)
- 4.3 Spill observation and assessment guidance
- 4.4 Meteorological and hydrodynamic forecasting
- 4.5 Spill trajectory and modelling
- 4.6 Tier level assessment and escalation potential

5. Response Resources

- 5.1 Resource inventories and services list including required logistics support, contact information and mobilization times (included either within the main body of the plan, or as a separate directory if lists are extensive and/or frequent updates are anticipated)
- 5.2 Resourcing procedures
- 5.3 Vessels of opportunity (required vessel specifications, lists of locally available vessels, etc.)
- 5.4 Local labour sources and volunteers
- 5.5 Subject matter experts or specialty expertise

6 Response Management

- 6.1 Response organization
- 6.2 Roles and responsibilities
- 6.3 Management processes and procedures
- 6.4 Response management facility activation and location

7 Sensitive Areas

- 7.1 Identification of sensitivities
- 7.2 Protection priorities
- 7.3 Sensitivity maps (include either a full set of maps within the main body of the plan, or a reference list of maps that are supplied in a separate document or GIS; the best arrangement will depend on the volume, size and type of maps)
- 7.4 Operational sensitivity maps/site-specific tactical plans/geographical response plans (include a full set within the main body of the plan, or a reference list of maps/plans that are supplied in a separate document; the best arrangement will depend on the volume and size of the material)

8 Response Strategies

- 8.1 Strategy decision guidance (flow charts, scenario matrix, NEBA decision guidance, etc.)
- 8.2 Scenario-specific response strategy summaries
- 8.3 Offshore, near-shore, shoreline and inland waterway response capabilities, as applicable
- 8.4 Regulatory pre-approvals and/or approval application procedures
- 8.5 General tactical plans, if any (included either within the main body of plan or as separate documents) see Annex 2 for detail

9 Waste Management

- 9.1 Regulatory requirements
- 9.2 Procedures (including segregation, minimization, site removal, etc.)

- 9.3 Guidance for developing spill-specific waste management plan
- 9.4 Pre-designated temporary storage sites
- 9.5 Treatment and final disposal arrangements or options

10 Decontamination

- 10.1 Health and safety guidance
- 10.2 Procedures and approved cleaning agents
- 10.3 Pre-designated decontamination sites
- 10.4 Guidance for developing a spill-specific decontamination plan

11 Demobilization

- 11.1 Procedures (final equipment and vessel inspections, personnel checkout, resupply of consumables, claims for repairs, return of hired gear, etc.)
- 11.2 Guidance for developing a spill-specific demobilization plan

12 Termination of Response

- 12.1 Guidance on establishing treatment end points and response termination criteria
- 12.2 Designation of the roles with authority to sign off on completed areas and approve termination of the response

13 Response debrief

- 13.1 Responsibilities and guidelines for conducting a post-spill analysis

Potential appendices or supporting documentation**A General response information**

- Health and safety guidelines
- In-field communications
- Documentation requirements and forms

B Frequently updated information or large volumes of material

Resource and contact directories

Site-specific plans

Sensitivity maps and general tactical plans

C Background information

Description of the facility and/or operations (including facility information, oil types/volumes handled, oil properties and weathering data, etc.)

Baseline environmental and socio-economic information

Meteorological and hydrodynamic information (including both prevailing and limiting/extreme conditions)

D Specialized subject-specific plans

Shoreline assessment

Claims and compensation

Sampling and monitoring

Crisis (external) communications – public information, media, stakeholder engagement

Wildlife protection and response

Waste management

E Finance and administration

Human resources procedures (hiring, managing and compensating local labour)

Financial responsibility and sources of funding

Contractual agreements

Plan justification and other preparedness material

Risk assessment and scenario planning

Appendix 4

Sample outline for an international oil spill cooperation plan

1 Introduction

1.1 Background

1.2 Purpose and objectives

1.3 Scope and geographic coverage

1.4 Definitions and abbreviations

2 Policy and responsibility

2.1 Exchange of information

2.2 Designation of national authorities and points of contact

2.3 Assumption of lead role

2.4 Response planning

2.5 Joint training and exercises

3 Response elements and planning

3.1 Assumption of lead role

3.2 National On-scene Commander (NOSC)/Supreme On-scene Commander (SOSC)

3.3 Emergency Response Centres/Joint Emergency Response Centre

3.4 Support teams

3.5 Command structure

3.6 Communications arrangements

3.7 Response planning

3.8 Response strategy

4 Response operations

4.1 Response phases

4.2 Spill surveillance and forecasting

4.3 Requests for assistance

4.4 Joint response operations

4.5 Use of non-mechanical response methods

4.6 Requests for additional assistance

4.7 Termination of joint operations and deactivation

5 Reports and communications

5.1 Communications system(s)

5.2 Initial warning system

5.3 Pollution reports (POLREPs)

5.4 Post-incident reports

6 Administration and logistics

6.1 Logistics

6.2 Funding

6.3 Customs, immigration and over-flight procedures

6.4 Health and safety

6.5 Documentation of cleanup costs

6.6 Revisions to the plan

7 Public information/protocol

7.1 Public information office

7.2 Press releases/press conferences

7.3 Protocol

Annex 1 – National directory of points of contact and response personnel

Annex 2 – Map indicating geographical coverage and areas of responsibility for participating States

Annex 3 – Map showing possible sources of oil spills and environmentally sensitive areas

Annex 4 – Communications plan

Annex 5 – Equipment inventories and listing of specialist personnel

Annex 6 – National contingency plans of participating States

Appendix 5

International pollution reporting systems

As discussed previously, communications about oil spills and potential oil spills are essential. Communications may be roughly divided into three types: communications required of responsible parties to notify affected governments, intergovernmental communications and international communications. The first two types are discussed in Sections 2.1 and 1.2, respectively. This appendix addresses the communications between countries that share resources, responsibilities, or are potentially affected during an oil spill.

There are many systems of communication between countries that may be employed during an oil spill response. The best and most reliable systems are those that have been agreed upon and exercised prior to an oil spill that may cross international borders or require one country to request the assistance of another.

This appendix provides an example of a well-established and exercised reporting system. The following sample report is used to share information between countries signatory to the Helsinki Convention, and Bonn and Copenhagen Agreements, as well as the DANGER Plan (Denmark/Germany). The pollution reporting system employs a standardized report format referred to as a Pollution Report, or POLREP. The following serves as an example only, as the reporting requirements under the Bonn Agreement may change in the future. The current reporting requirements under the Bonn Agreement may be found at the Bonn Agreement website: www.bonnagreement.org.

In accordance with the Bonn Agreement:

- the pollution reporting system shall contain all relevant information of the nature and extent of the casualty or pollution likely to constitute a threat to the coast or related interests of any other Contracting Party, or which could be perceived by the public as representing a serious threat;
- the POLREP shall be transmitted in English, without delay, through the national contact point of the Contracting Party informed of the casualty or pollution;

- the first POLREP on a pollution incident should be sent out not later than the first official press release concerning that incident; and
- a POLREP should, to all possible extent, be addressed to all Contracting Parties having an interest in the incident, whether directly threatened or not, and to the Secretariat of the Bonn Agreement.

POLREP System

1 The pollution reporting system is for use between Contracting Parties for exchanging information when pollution of the sea has occurred or when a threat of such is present.

2 The POLREP is divided into three parts:

- *Part I: Pollution Warning (POLWARN)* provides first information or warning of pollution or threat of pollution (Figures 1–5).
- *Part II: Pollution Information (POLINF)* provides a detailed supplementary report, as well as situation reports (Figures 40–60).
- *Part III: Pollution Facilities (POLFAC)* deals with requests for oil spill response facilities or resources, as well as operational matters (Figures 80–99).

3 The division into three parts is for identification purposes. For this reason, consecutive figures are not used. This enables the recipient to recognize, merely by looking at the figures, whether they are dealing with Part I (1–5), Part II (40–60) or Part III (80–99). This method of division shall in no way exclude the use of all figures in a full report, or the separate use of single figures from each part or the use of single figures from different parts mixed in one report.

4 When Part I is used as a warning in the Helsinki Convention, the Copenhagen Agreement, or the DANGER Plan, it shall always be transmitted with the traffic priority URGENT, but when used in the Bonn Agreement the priority URGENT is optional.

5 Part II is the logical consequence of Part I. Having transmitted Part I, the Contracting Party concerned can inform the other relevant Contracting Parties of its assessment as to the nature and extent of the incident by using the appropriate figures from Part II.

6 Part III is exclusively for the request for assistance and related matters.

7 Detailed explanations of the different figures in Parts I, II and III are provided in Table 1.

8 One example of a POLREP in this system is given in Table 3.

9 It must be possible to identify each POLREP, and the person who receives it must be able to check if they have received all the reports concerning the particular pollution or threat in question.

10 The POLREP is to be identified by a serial number, e.g. "DK 2/3", which means that it is a POLREP from the Danish authorities; that it is a report concerning the second pollution and it is the third report concerning this pollution.

11 The last and final POLREP will show as follows: "DK 2/5 FINAL", which means that this is the fifth and final report concerning the second pollution.

12 Concerning Figures 5, 60 and 99, it is emphasized that ACKNOWLEDGE is made by the Competent National Authority with reference to the serial number in question.

13 When answering a POLREP, the serial number used by the transmitting country is to be used as a reference in the answer. However, it is not necessary for countries to adhere to the POLREP system in responding to POLREPs.

14 If the POLREP is used in exercises, the text is to be introduced with the word EXERCISE and finished with this word three times. Each of the subsequent reports that relates to the exercise is to be introduced and finished in the same format.

Table 1*Summarized list of a POLREP*

Address
Date Time Group
Identification
Serial number

Part I (POLWARN)

- 1** Date and time
- 2** Position
- 3** Incident
- 4** Outflow
- 5** Acknowledge

Part II (POLINF)

- 40** Date and time
- 41** Position
- 42** Characteristics of pollution
- 43** Source and cause of pollution
- 44** Wind direction and speed
- 45** Current or tide
- 46** Sea state and visibility
- 47** Drift of pollution
- 48** Forecast
- 49** Identity of observer and ships on scene
- 50** Action taken
- 51** Photographs or samples
- 52** Names of other States informed
- 53–59** Spare
- 60** Acknowledge

Part III (POLFAC)

- 80** Date and time
- 81** Request for assistance
- 82** Cost
- 83** Pre-arrangements for the delivery
- 84** Assistance to where and how
- 85** Other States requested
- 86** Change of command
- 87** Exchange of information
- 88–98** Spare
- 99** Acknowledge

Table 2

Further information regarding each figure:

POLREP BONN AGREEMENT DK 1/1 indicates the first report from Denmark of the pollution in question in the Bonn Agreement region.

POLREP BONN AGREEMENT DK 1/2 will, in accordance with the described system, then indicate the second report from the same pollution.

If the pollution caused by the incident splits up into clearly defined patches – in this example two – the wording POLREP BONN AGREEMENT 1, now splitting into POLREP BONN AGREEMENT 2 and POLREP BONN AGREEMENT 3, should be indicated in the last report in the incident identified by number 1 preceding the stroke. The first reports on the two patches originating from the incident first reported will then be numbered POLREP BONN AGREEMENT DK 2/1 and POLREP BONN AGREEMENT DK 3/1, and consecutive numbers after the stroke could then be used.

1 DATE AND TIME: The day of the month as well as the time of day the incident took place or, if the cause of the pollution is not known, the time of the observation should be stated using six digits. Time should be stated as GMT, for example 091900z (i.e. the 9th of the relevant month at 1900 GMT).

2 POSITION: Indicates the main position of the incident and longitude in degrees and minutes, and may in addition give the bearing of and the distance from a location known by the receiver.

3 INCIDENT: The nature of the incident should be stated here, such as BLOWOUT, TANKER GROUNDING, TANKER COLLISION, OIL SLICK, etc.

4 OUTFLOW: The polluting substance, such as CRUDE OIL, CHLORINE, DINITROL, PHENOL as well as the total quantity in tons of the outflow and/or the flow rate, and the risk of further outflow should be mentioned. If there is no pollution, but a threat of pollution, the words NOT YET followed by the substance (for example NOT YET FUEL OIL) should be stated.

5 ACKNOWLEDGE: When this number is used, the message (email or telefax) should be acknowledged as soon as possible by the Competent National Authority.

40 DATE AND TIME: Number 40 relates to the situation described in Numbers 41 to 60 if it varies from Number 1.

41 POSITION AND/OR EXTENT OF POLLUTION ON/ABOVE/IN THE SEA: Indicates the main position of the pollution in degrees and minutes of latitude and longitude, and may in addition give the distance and bearing of some prominent landmark known to the receiver if other than that indicated in Number 2. Estimated amount of pollution (e.g. size of polluted areas, number of tons of oil spilled if other than indicated in Number 4, or number of containers, drums lost). Indicates length and width of slick given in nautical miles if not indicated in Number 2.

42 CHARACTERISTICS OF POLLUTION: Gives type of pollution, e.g. type of oil with viscosity and pour point, packaged or bulk chemical, sewage. For chemicals, the proper name or United Nations number, if known, should be given. Appearance, e.g. liquid, floating solid, liquid oil, semi-liquid sludge, tarry lumps, weathered oil, discoloration of sea, visible vapour should also be given, as well as any markings on drums or containers.

43 SOURCE AND CAUSE OF POLLUTION: Indicates the source of pollution, e.g. from a vessel or other undertaking. If from a vessel, it should be notified whether the pollution is a result of a deliberate discharge or casualty. If the latter, a brief description should be given. Where possible the name, type, size, call sign, nationality and port of registration of the polluting vessel should be mentioned. If the vessel is proceeding on its way, course, speed and destination should be indicated.

44 WIND DIRECTION AND SPEED: Indicates wind direction and speed in degrees and in metres/second. The direction always indicates from where the wind is blowing.

45 CURRENT DIRECTION AND SPEED AND/OR TIDE: Indicates current direction and speed in degrees and knots and tenths of knots. The direction always indicates the direction in which the current is flowing.

46 SEA STATE AND VISIBILITY: Sea state indicates the wave height in metres. Visibility should be indicated in nautical miles.

47 DRIFT OF POLLUTION: Indicates drift course and speed of pollution in degrees and knots or tenths of knots. In cases of air pollution (gas cloud), drift speed should be indicated in metres/second.

48 FORECAST OF LIKELY EFFECT OF POLLUTION AND ZONES AFFECTED: Results of mathematical models could indicate, for example, arrival on beach with estimated timing.

49 IDENTITY OF OBSERVER/REPORTER IDENTITY OF SHIPS ON SCENE: Identifies who has reported the incident. If it is a ship, the name, home port, flag and call sign must be given. Ships on scene could also be indicated under this item by name, home port, flag and call sign, especially if the polluter cannot be identified and the spill is considered to be of recent origin.

50 ACTION TAKEN: Mentions action taken for the disposal of the pollution.

51 PHOTOGRAPHS OR SAMPLES: Indicates if photographs or samples from the pollution have been taken. Contact numbers (including telephone, email address, telefax, and telex numbers, as appropriate) of the sampling authority should be given.

52 NAMES OF OTHER STATES AND ORGANIZATIONS INFORMED

53–59 SPARE FOR ANY OTHER RELEVANT INFORMATION: For example, results of sample or photographic analysis, results of inspections or surveys, or statements of ship's personnel.

60 ACKNOWLEDGE: When this number is used, the telex/telefax/email should be acknowledged as soon as possible by the competent national authority.

80 DATE AND TIME: Number 80 is related to the situation described below, if it varies from Numbers 1 and/or 40.

81 REQUEST FOR ASSISTANCE: Type and amount of assistance required in the form of:

- specified equipment;
- specified equipment with trained personnel; and
- complete strike team's personnel with special expertise and indication of country requested.

82 COST: Information on cost of delivered assistance to be notified to requesting country.

83 PRE-ARRANGEMENTS FOR THE DELIVERY OF ASSISTANCE: Information concerning customs clearance and access to territorial waters in the requesting country.

84 TO WHERE ASSISTANCE SHOULD BE RENDERED AND HOW: Information concerning the delivery of the assistance, e.g. rendezvous at sea, with information on frequencies to be used, call sign and name of Supreme On-scene Commander of the requesting country or land-based authorities with contact numbers (including telephone, email address, telefax and telex numbers, as appropriate) and contact persons.

85 NAMES OF OTHER STATES AND ORGANIZATIONS: Only to be filled in if not covered by Number 81, e.g. if further assistance is later needed by other States.

86 CHANGE OF COMMAND: When a substantial part of an oil pollution or serious threat of oil pollution moves, or has moved, into the zone of another Contracting Party, the State which has exercised the supreme command of the operation may request the other party to take over the supreme command.

87 EXCHANGE OF INFORMATION: When a mutual agreement has been reached between two parties on a change of supreme command, the country transferring the supreme command should give a report on all relevant information pertaining to the operation to the country taking over the command.

88–98 SPARE FOR ANY OTHER RELEVANT REQUIREMENTS OR INSTRUCTIONS

99 ACKNOWLEDGE: When this number is used, the message (email or telefax) should be acknowledged as soon as possible by the competent national authority.

Table 3*Bonn Agreement POLREP Example*

Address: From DK

To: DE and NL

Date time group: 181100z June

Identification: POLREP BONN AGREEMENT

Serial number: DK 1/2 (DK 1/1 for DE)

1	Date and Time	1 181000z
2	Position	2 55°33' N 07°00' E
3	Incident	3 Tanker collision
4	Outflow	4 Crude oil, estimated 3,000 tonnes
41	Position and/or extent of pollution on the sea	41 The oil is forming a slick 0.5 nautical miles to the south-east. Width up to 0.3 nautical miles
42	Characteristics of pollution	42 Venezuela crude. Viscosity 3.780 Cs at 37.8°C. Rather viscous
43	Source and cause of pollution	43 Danish tanker ESSO BALTICA of Copenhagen, 22,000 GRT, call sign xxxx, in collision with Norwegian bulk carrier AGNEDAL of Stavanger, 30,000 GRT, call sign yyy. Two tanks damaged in ESSO BALTICA. No damage to the AGNEDAL
44	Wind direction and speed	44 270T 10 metres/second
45	Current direction and speed and/or tide	45 180T 0.3 knots
46	Sea state and visibility	46 Wave height 2 metres. 10 nautical miles
47	Drift of pollution	47 13T 0.4 knots
48	Forecast of likely effect of pollution and zones affected	48 Could reach the island of Sylt, DE or further south, NL on the 23rd of this month
49	Identity of observer/reporter Identity of ships on scene	49 Agnedal, number 43 refers
50	Action taken	50 Two Danish strike-teams with high mechanical capacity on route to the area

51	Photographs or samples	51 Oil samples have been taken. Telex 64471 SOK DK
52	Names of other States and organizations informed	52 DE
53	Spare	53 DANGER PLAN is activated
81	Request for assistance	81 DE is requested for two strike teams with high mechanical pick-up capacity
82	Cost	82 DE is requested for an approximate cost rate per day of assistance rendered
83	Pre-arrangements for the delivery of assistance	83 DE units will be allowed to enter Danish territorial waters for combating purposes or Danish harbours for logistics informing SOSOC beforehand
84	To where assistance should be rendered and how	84 Rendezvous 57°30' N – 07°00' E. Report on VHF channels 16 and 67. SOSOC, Lieutenant Commander Hansen in GUNNAR SEIDENFADEN, call sign OWAJ
99	ACKNOWLEDGE	99 ACKNOWLEDGE

Appendix 6

Guidelines for identifying response resources

The pre-identification of oil spill response equipment available to respond within a country or region is essential to facilitate rapid and effective oil spill responses. The appropriate response equipment will be determined by the risk assessment and subsequent strategic policy. It is important to keep in mind that some response techniques have only a brief window of opportunity to be utilized effectively before weathering processes, such as spreading and emulsification, render them ineffective.

It is a best practice for national authorities to develop and enforce legislation that establishes minimum response equipment inventories for oil handling operations. These requirements may be based upon various planning criteria, including NEBA, national legislations and economic considerations. The requirements can be scalable in recognition that equipment required to mount an effective response to a Type I (small spill, effectively managed by the spiller alone) should be maintained on hand, while response equipment required for Type II (multiple sources of response resources) or Type III (Regional/global resources required) spills will take time to be mobilized and transported to the spill.

Each ship, facility, national or regional oil spill response plan should contain an up-to-date inventory of response equipment available for oil spill response. This appendix provides a general listing of the potential equipment to be inventoried and may be used in developing contingency plans.

	Tier I	Tier II	Tier III
Boom	Y	Y	Y
Skimmer	Y	Y	Y
Storage	Y	Y	Y
Shoreline equipment	Y	Y	Y
Vessels	Y	Y	Y
Aircraft		Y	Y
Dispersants		Y	Y
In situ burning		Y	Y

	Tier I	Tier II	Tier III
Lightering/salvage		Y	Y
Wildlife recovery	Y	Y	Y
Communications	Y	Y	Y
Remote sensing		Y	Y
Subsea equipment		Y	Y
Fast water equipment		Y	Y

The type of information that is useful to include with the above equipment inventories is listed in the following table:

Conventional equipment	Booms	Skimmers	Storage	Shoreline equipment	Vessels
Types	X	X	X	X	X
Total dimensions	length	weight, size	weight, size, capacity		length, beam, draft, speed, endurance
Draught/freeboard length and weight per unit	X	X	X	X	X
Additional support equipment necessary	X	X	X	X	X
Design or intended use (e.g. use in open sea or sheltered water operations)	X	X	X	X	X
Mobilization time	X	X	X	X	X
Means of transportation required	X	X	X	X	X
Available transportation	X	X	X	X	X
Personnel for handling/operating	X	X	X	X	X
Procurement cost versus rental cost	X	X	X	X	
Estimated daily rental cost	X	X	X	X	X
Available equipment, not dedicated to oil spill response, that can be used (pumps, excavators, etc.)	X	X	X	X	X

In certain circumstances (e.g. when a certain type or volume of oil is spilled, or the spill occurs within a certain proximity to human settlements) the need for specialized equipment or services arises. In planning, due regard should be given to the specific types of features sought from the equipment or service. A partial list of the relevant features and considerations is found below each major heading.

Specialized equipment or service

Aircraft

- Mission or purpose: dispersant application, transport, surveillance, spotting
- Type: rotary/fixed wing/aerostat
- Operating speed
- Specialized equipment e.g. imaging, sensing
- Endurance
- Passenger capacity
- Load capacity
- Mobilization time
- Fuel/ramp requirements
- Estimated daily rental cost
- Drones, UAVs

Dispersant Systems

- Types, total stock of each type in litres
- System of storage
- Method of application
- Approval data (e.g. country of approval, approval number)
- Toxicity and efficiency data (e.g. tests applied and results obtained)
- Types of spraying equipment required
- Sources of supply and mobilization time
- Means of transportation required, capacity of unit
- Available transportation
- Estimated price/litre
- Monitoring equipment

Dispersant storage tanks

- Total stocks, by type, capacity and weight empty/full
- Means of securing on board
- Mobilization time
- Means of transportation required, weight per unit
- Available transportation
- Personnel for handling

Vessel and aircraft dispersant spraying equipment

- Stocks held, by type and size
- Whether suitable for dispersant concentrate and in what ratio
- Design or intended use
- Mobilization time
- Means of transportation required, weight per unit
- Available transportation
- Personnel for handling

Lightering and salvage equipment

- Pumps, total stocks by type/capacity and weight including prime mover
- Hoses, length, diameter and weight/section
- Fenders, total stocks by type/size and weight
- Personnel for handling
- Estimated procurement cost
- Estimated daily rental cost
- Mobilization time
- Submerged oil recovery devices
- Cranes and lift equipment

In situ burn methods

- Fire boom, amount
- Support equipment
- Mobilization time

- Transportation/delivery
- Personnel for handling
- Ignition methodology
- Procurement cost
- Weather and air monitoring equipment
- Fire break equipment for terrestrial burns

Wildlife treatment/rehabilitation

- Bird hazing devices
- Recovery/handling equipment (nets)
- Holding pens/facilities
- Cleaning agents and supplies
- Husbandry experts
- Mobilization time
- Transportation/delivery (boats/trailers)
- Cost of operations
- Mobile care facilities

Communications and auxiliary equipment

- Equipment available
- Mobilization time
- Portable equipment (on board and ashore)
- Frequencies
- Types of emission
- Power source
- Estimated daily rental cost versus procurement cost
- Geospatial Operational Display

Remote sensing/surveillance/tracking/detection equipment

- Airborne Automatic Identification System (AIS)
- Airborne laser fluorosensor
- Autonomous underwater vehicle (AUV)

- Electro optical/infrared (EO/IR) camera system
- EO/IR video
- Fixed and floating oil spill detection buoy
- Fixed oil detection sensor
- Global positioning system (GPS) tracking device
- High-resolution digital photography camera
- Line scanner: infrared/ultraviolet (IR/UV)
- Microwave radiometer
- Multi-spectral camera
- Oil spill detection by satellite remote sensing
- Satellite imagery
- Side-looking airborne radar (SLAR)
- Specialized software
- Synthetic Aperture Radar (SAR)
- Thermal imaging (infrared (IR)) camera
- Video system for visual documentation

Subsea equipment

- 2D sonar “Blue View”
- 3D sonar “Blue View”
- Autonomous underwater vehicle (AUV) (untethered/unmanned)
- Capping stack (toolbox)
- Debris clearing equipment
- Deepwater well capping
- High pressure/high volume (HP/HV) accumulator
- Manned submarines
- Remotely operated underwater vehicle (ROV)
- Subsea dispersant hardware toolbox

Fast water equipment

- Vanes and current diversion devices
- Current measuring equipment
- Outfall plugging devices
- Boom rudders
- Portable dams
- Fast water skimmers
- Anchoring systems

Appendix 7

References and further reading

- API (2013). *Guidelines for Offshore Oil Spill Response Plans*. American Petroleum Institute Technical Report 1145. Washington, D.C. API Publishing Services.
- AMSA (2015). *Technical Guideline for the Preparation of Marine Pollution Contingency Plans for Marine and Coastal Facilities*. Australian Maritime Safety Authority, January 2015.
- Anderson, C. M., Mayes, M. and LaBelle, R. (2012). *Update of Occurrence Rates for Offshore Oil Spills*. OCS Report. BOEM 2012-069. BSEE 2012-069. Herndon: Department of Interior Bureau of Ocean Energy Management and Department of Interior Bureau of Safety and Environmental Enforcement.
- ARPEL (2005). *Effective Trans-boundary Movement of Equipment and Personnel during Oil Spill Response* – <https://arpel.org/library/publication/328>.
- ARPEL (2015). *Manual and Tool to Evaluate Oil Spill Management Capabilities – RETOS V 2.0* [online]. Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean. www.arpel.org/library/publication/341.
- Aurand, D., Walko, L. and Pond, R. (2000). *Developing Consensus Ecological Risk Assessments: Environmental Protection in Oil Spill Response Planning. A Guidebook*. United States Coast Guard, Washington, D.C.
- DECC (2012). *Guidance Notes to Operators of UK Offshore Oil and Gas Installations (including pipelines) on Oil Pollution Emergency Plan Requirements*. UK Government, Department of Energy and Climate Change. DECC/OPRC/OPEP Guidance, July 2012.
- Hall, C. J., Henry, W. J. III and Hyder, C. R. (2011). *Hopedale Branch: A Vessel of Opportunity Success Story*. In International Oil Spill Conference Proceedings, March 2011, Vol. 2011, No. 1. pp. abs.407. <http://ioscproceedings.org/doi/abs/10.7901/2169-3358-2011-1-407>.
- International Maritime Organization (to be published). *Guidelines for the Use of Dispersants for Combating Oil Pollution at Sea, Parts I, II, III & IV*.
- International Maritime Organization (1990). *International Convention on the Oil Pollution, Preparedness, Response and Cooperation (OPRC)*. <http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/Default.aspx>.
- International Maritime Organization (1995). *Manual on Oil Pollution – Section II: Contingency Planning*.
- International Maritime Organization (2010). *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness*.
- International Maritime Organization (2011). *Manual on Oil Pollution, Section IV, Combating Oil Spills*, Chapter 7, “Chemical Dispersion”.
- International Maritime Organization (2012). *Guidance Document on the Implementation of an Incident Management System (IMS)*.
- International Maritime Organization (2016). *Guidelines on international offers of assistance in response to a marine oil pollution incident*.
- International Maritime Organization. *Updating of the IMO Dispersant Guidelines, Sub-Committee of Pollution Preparedness and Response, 2nd Session, Agenda item 13, IMO Doc. PPR 2/13, 15 October 2014*.
- International Maritime Organization/REMPEC. *Guidelines on Oil Spill Waste Management, Technical Group of the MEPC OPRC-HNS, 11th Session, Agenda item 3, IMO Doc. MEPC/OPRC-HNS/TG 11/3/1, 29 July 2010*.
- International Oil Pollution Compensation Funds (2013). *Claims Manual*. London.
- IPIECA-IMO-IOPG (2012). *Sensitivity mapping for oil spill response, IPIECA IOPG Good Practice Guide Series. IOPG Report Number 477*.
- IPIECA-IOPG (2012). *Oil spill responder health and safety. IPIECA-IOPG Good Practice Guide Series. IOPG Report Number 480*.
- IPIECA-IOPG (2013a). *Oil spill risk assessment and response planning for offshore installations. IOPG-IPIECA Oil Spill Response Joint Industry Project (OSR-JIP) Technical Report*.

- IPIECA-IOGP (2013b). *Guidelines on oil characterization to inform spill planning and decision making*. IOGP-IPIECA Oil Spill Response Joint Industry Project (OSR-JIP) Technical Report.
- IPIECA-IOGP (2013c). *The use of decanting during offshore oil spill response operations*. IOGP-IPIECA Oil Spill Response Joint Industry Project (OSR-JIP) Technical Report.
- IPIECA-IOGP (2014a). *Oil spill waste minimization and management*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 507.
- IPIECA-IOGP (2014b). *Wildlife response preparedness*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 516.
- IPIECA-IOGP (2014c). *A guide to oiled shoreline assessment (SCAT) surveys*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 504.
- IPIECA-IOGP (2014d). *Oil spill training*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 499.
- IPIECA-IOGP (2014e). *Oil spill exercises*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 515.
- IPIECA-IOGP (2015a). *Economic assessment and compensation for marine oil releases*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 524.
- IPIECA-IOGP (2015b). *Oil spill preparedness and response: an introduction*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 520.
- IPIECA-IOGP (2015c). *Response strategy development using net environmental benefit analysis (NEBA)*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 527.
- IPIECA-IOGP (2015d). *Volunteer management*. IPIECA-IOGP Oil Spill Response Joint Industry Project (OSR-JIP) Technical Report.
- IPIECA-IMO-IOGP (2015e). *Aerial observation of oil pollution at sea*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 518.
- IPIECA-IOGP (2015f). *Contingency planning for oil spills on water*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 519.
- IPIECA-IOGP (2015g). *Tiered preparedness and response*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 526.
- IPIECA-IOGP (2016). *Incident management system for the oil and gas industry*. IPIECA-IOGP Good Practice Guide Series, IOGP Report Number 517.

- ITOPF (2011a). *Contingency Planning for Marine Oil Spills*. ITOPF Technical Information Paper (TIP) 16.
- ITOPF (2011b). *Fate of Marine Oil Spills*. ITOPF Technical Information Paper (TIP) 2. IPIECA. IOGP 50.
- ITOPF (2011c). *Disposal of Oil and Debris*. ITOPF Technical Information Paper (TIP) 9.
- ITOPF (2012a). *Sampling and Monitoring of Marine Oil Spills*. ITOPF Technical Information Paper (TIP) 14.
- ITOPF (2012b). *Preparation and Submission of Claims from Oil Pollution*. ITOPF Technical Information Paper (TIP) 15.
- ITOPF (2012c). *Leadership, Command & Management of Marine Oil Spills*. ITOPF Technical Information Paper (TIP) 10.
- ITOPF (2014). *Introduction to oil spills*. (Film) www.itopf.com/knowledge-resources/library/video-library/video/1-introduction-to-oil-spills.
- Owens, E. H. and Taylor, E. (2007). *Guidelines to Evaluate Oil Spill Contingency Plan Adequacy, Response Competency, and Sustained Readiness*. Proceedings Asia Pacific Health, Safety, Security and Environment Conference and Exhibition, Society of Petroleum Engineers, Richardson, TX, 6 pp.
- Parker, H.A., Knutson, S.R., Nicoll, A. and Wadsworth, T. (2014). *International Offers of Assistance Guidelines – Developing an IMO Tool to “Internationalize” Oil Spill Readiness and Response*. Proceedings of the International Oil Spill Conference: May 2014, Vol. 2014, No. 1, pp. 328–339.
- Sergy, G.A. and Owens, E.H. (2007). *Guidelines for Selecting Shoreline Treatment Endpoints for Oil Spill Response*, October 2007 <http://www.shorelinescat.com/Documents/Manuals/Environment%20Canada%202007%20Endpoint%20Guidelines.pdf>.
- Taylor, E., Steen, A., Meza, M., Couzigou, B., Hodges, M., Miranda, D., Ramos, J. and Moyano, M. (2008). *Assessment of Oil Spill Response Capabilities: A Proposed International Guide for Oil Spill Response Planning and Readiness Assessments*. Technical Report IOSC-009. <http://edocs.dlis.state.fl.us/fldocs/oilspill/federal/2008IOSC.pdf>.
- White, D. and Bennis, G. (2011). *The Oil Spill Contingency Planning Process; A Process Commonly Misunderstood*. IOSC 2011. Proceedings of the International Oil Spill Conference: March 2011, Vol. 2011, No. 1, pp. abs126.