Instructor's Manual

IMO MODEL COURSE ON OIL POLLUTION, PREPAREDNESS, RESPONSE AND COOPERATION

3rd Edition, 2019

Introductory Level

Level 1

Level 2

Level 3

IMO INTERNATIONAL MARITIME ORGANIZATION

Foreword

The IMO OPRC Model training courses have been developed to address all general aspects of oil spill planning, response and management. They are intended to provide guidance on the general framework and content a training course may adopt to meet the specific needs of the participants, country or region in which the course is to be delivered. The courses have been developed by IMO to aid the Member States to the International Convention on Oil Pollution, Preparedness, Response and Cooperation (OPRC), 1990, in meeting their obligation to provide a programme of training for relevant personnel in cooperation with interested governments and industry. The IMO OPRC model courses, including the materials, guidance and recommendations they contain, should not be regarded as training requirements. Any training requirements that may be incorporated in an OPRC-related training programme or course are to be determined by a Member State, training accreditation body or private company, where applicable or appropriate.

Prior to delivery, each course should be further developed and tailored to incorporate information and material relevant to the local context and to the prospective audience. This may include information relating to:

- the relevant local, national and regional legislation governing marine pollution preparedness and response that may be in force or under development;
- reference to the local emergency response management structures and response arrangements;
- specific economic and environmental resources sensitive to impacts from oil spills; and
- past experiences of incident responses that highlight elements of a future response operation which may be unique or specific to the local area.

Four model training courses have been developed, each individual course designed to cater for personnel with specific roles and responsibilities within the preparedness and response to oil spills, i.e. Operational, Tactical or Strategic. These courses are not designed to be undertaken in succession; the specific course should be chosen giving consideration to the roles and responsibilities of the prospective audience.

To facilitate the wide dissemination of the courses and their adaptability, they have been developed in digital format, with presentation slides as the predominant means to illustrate and convey the various lessons and content of each course. These presentation slides are only intended to be used as a guide. Where possible, additional methods of promoting effective learning should be employed, for example through active participation, using discussion, feedback and activities, which may require the use of different materials, media or resources. Many aspects of preparedness and response to oil spills are practical in nature, and therefore in-field exercises, relevant site visits, practical response equipment deployments, site safety demonstrations and health and safety-focused practical exercises should be incorporated in each training course wherever possible.

Course certificates and training accreditation

A participant's successful completion of the course is determined at the discretion of the course instructor or the training institution delivering the course. Tests are not provided as part of the model training course, as the expectation is that each course will be adapted and tailored to best meet the needs of the participants.

Although IMO offers the OPRC Model Training Courses for purchase through IMO Publications, IMO does not endorse or accredit training institutions for the delivery of these courses. Accreditation schemes, where these occur (not every country has one), are usually implemented and carried out at the national level either through the national maritime authority or a recognized national accreditation body. To facilitate this process and assist countries in establishing a system of accreditation, IMO, through its Marine Environment Protection Committee, has developed 'Guidelines and Criteria for Accreditation or Approval of OPRC Training Organizations and Experts' (MEPC/Circ.478).

It is recommended that the logos on the certificates for course participants should be of the specific Accreditation Scheme under which the training body has received Accreditation. Certificates displaying IMO logos will only be provided for training courses organized and implemented directly by IMO.

DISCLAIMER

Although all possible efforts have been made to ensure the correctness and completeness of the information provided. The content and materials presented in this Model Course do not necessarily reflect the relevant national policy and procedures of all member states involved in its development.

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INTRODUCTION

The purpose of this Instructor's Manual is to provide the directing and instructional staff of the course with guidance in the use of course materials and the administration of the course.

GENERAL

The International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC) calls for the International Maritime Organization (IMO), along with relevant international and regional organizations, oil and shipping industries, to develop a comprehensive training programme in the field of oil pollution preparedness and response, together with the necessary expertise to develop and implement it. In this regard, four model training courses were developed aimed at the following:

Introductory Level:	Raising Awareness
Level 1:	First Responders (Operational)
Level 2:	Supervisors and On-Scene Commanders (Tactical)
Level 3:	Administrators and Senior Managers (Strategic)

These courses, when properly linked to a country's national contingency plan, can be used to train staff who are responsible for the conduct and management of an effective response to a marine oil spill.

The Level 2 course was designed to be conducted as a four-day training course and is aimed at Incident Managers, On-Scene Commanders, Supervisors and all those working in an incident command centre in response to an oil pollution incident.

With a potentially wide audience it is important that the training course be delivered within the local context of the participants. When preparing the training course, it is the responsibility of the instructional staff to establish the training course objectives and content in relation to the participants and the relevant contingency plans. This is further addressed in the section "Instructor Qualifications and Preparation".

COURSE DIRECTING STAFF

It is recommended that the training course be conducted with two or three instructors. One of the instructors should also be designated as the Training Course Director. If resources permit, a separate instructor should be provided for administrative activities.

The roles of the directing staff are broadly described as follows:

DIRECTING STAFF – GENERAL:

- to assist the participants to master the training course content;
- to guide the learning process;
- to make presentations;
- to answer questions;
- to correct mistakes; and
- to be available to answer any follow-up questions.

COURSE DIRECTOR:

- to organize and oversee the administration and logistics of the course;
- to plan the objectives of the course in discussion with the instructors and hosts;
- to facilitate the dissemination of information of the course/facilitate the learning process;
- to assist the participants and instructors throughout the training course;
- to ensure that the learning meets its intended objective;
- to introduce instructors and explain how each session relates to overall course objectives; and
- to ensure that the training course venue and exercise locations are suitable and safe for the participants.

INSTRUCTORS:

- to tailor the course materials to suit the participants and the local context;
- to make presentations, organize and lead exercises;
- to provide feedback on the exercises to the participants;
- to facilitate the learning process;
- to coach;
- to correct mistakes;
- to answer questions;
- to assist the participants to master the information presented; and
- to ensure that all HSE expectations are complied with.

INSTRUCTOR QUALIFICATIONS AND PREPARATION

Because of the operational and technical nature of the training course, instructors should have a background in oil spill response and response management and possess the requisite instructional skills. It is important during module presentations that the instructor is able to demonstrate relevant experience to develop and maintain credibility with the participants.

It is also recommended that, where appropriate, specialist instructional expertise be offered to the instructional staff in order for them to teach such subjects as media relations, legislation and legal implications, etc.

When preparing to teach the training course, instructors must take the following into account:

- personalizing the presentations;
- local contexts; and
- learning styles of the participants.

PERSONALIZING AND ADAPTING THE COURSE MATERIALS

The OPRC courses were developed as “model” courses. This means that they were designed to cover the basic principles and information required to respond to an oil spill. However, instructors are encouraged to personalize their delivery of the courses to suit the requirements of the participants. The course contains a number of optional lessons, which may be included if appropriate or omitted if not appropriate to the objectives of the course or workshop. The timetable and order of the

presentation is offered as a guide. A skilled instructor will customize the training according to the course objectives and requirements of the participants.

To personalize the modules, instructors are encouraged to add examples, additional subject matter, case histories or anecdotes, generating questions and discussions to ensure that all participants are engaged. It is important to incorporate tailored information on relevant local, national and regional legislation and specific response arrangements applicable to each location. It is during this process that the instructor stamps the modules with their own personality and experience.

FURTHER READING

At the end of each lesson there is a list of suggested reading, specifying the publications and materials approved by IMO. The sources have been compiled from documents that are commonly used and readily available online. This list in not exhaustive and instructors are encouraged to add locally relevant material tailored to the course.

There are a number of sources for further reading and reference and as time passes more are being developed. Instructors are urged to research the latest publications and videos to ensure that they are using the most recent and up-to-date versions.

LOCAL CONTEXT

The content of the training course should be geared towards the local context and relevant to the contingency plan(s) and responsibilities of the participants. The instructor should be aware of the local community response limitations and the types of resources available to respond to an oil spill (personnel, equipment and monetary).

This also includes being aware of the availability locally of non-traditional response resources, knowing the local areas of sensitivities and the appropriate response strategies for them, and the local environmental and seasonal implications.

Instructors should also take into account the local culture and values, as well as the political structure of the country.

This course has been designed to be delivered in the international arena. Courses delivered within a specific country or to a specific audience must be tailored to reflect the needs of the participants and may require changes to references regarding legislation, compensation, recent incidents, case histories, etc.

It may be appropriate to include a visit to a command centre, if available.

The Training Course Director, in collaboration with the host, needs to ensure that the chosen venue is suitable for the training course. This will include taking into account any HSE requirements, access to the emergency services in the event of a security or medical problem, any religious or dietary requirements of the participants and logistic arrangements for any visits or exercises.

LEARNING STYLES OF THE PARTICIPANTS

Participants in different parts of the world have different kinds of learning styles. These styles are generally a result of cultural differences and educational practices.

In some instances, participants are comfortable with a task-based approach to the subject matter; in others, participants are more used to a relational or conceptual approach where they are shown how everything fits together before addressing specific groups of tasks.

Some educational practices stress the importance of pre-course study to ground basic concepts or procedures before starting a module, while others employ a discovery style in the classroom. Some encourage active participation during lectures, while for others, participants play a more passive role.

When preparing to teach the course instructors should be aware of any learning differences that might affect the way the course is delivered. These differences should be taken into account when preparing and personalizing the module sessions.

Instructors are recommended to have undertaken a formal "Train the Trainer" course. These courses are intended for potential instructors who have the technical expertise but may require some advice or development in formal instructional techniques. These courses, of which there are many, assist in developing the ability to apply effective classroom and workshop instructional presentation techniques, in establishing a positive learning environment, and in helping to become comfortable in presenting training material in a classroom/simulation setting. Instructors are strongly recommended to have a knowledge of and to study these techniques.

STRUCTURE OF THE COURSE

COURSE OBJECTIVES

Each module has a number of clearly stated objectives. It is important to note that the objectives are not guidelines for instructors of what is expected while facilitating the subject matter. The instructor's role during the session is to ensure that the participants are able to achieve the stated objectives.

Instructional processes should be inserted when preparing a module. This will allow the participants to meet the requirements of enabling objectives. Before moving to the next enabling objective, the instructor should insert some instructional material into the lesson to assess whether or not the participants are able to explain the reasons for responding to or not responding to a spill. The instructor may stop at this point and ask the participants to summarize the main reasons for responding to a spill; alternatively, they may ask a number of multiple choice questions or give examples (good and bad) to assess whether participants are able to separate out the main reasons as taught from those which are inconsequential.

Whatever the process used by the instructor, it is important that the instructor assesses whether or not the participants have understood the main points taught as intended before moving on to the next objective or part of the lesson. Simply asking the participants if they have any questions is not enough.

Due to time constraints for this course, the instructor can only provide an introduction to the subject matter. Further reading is required and there are extensive reference works published by IMO, IPIECA[*]/IOGP[†], ITOPF[‡] and CEDRE[§] amongst others. Suggested further reading sources are given at the end of each lesson. Instructors are encouraged to seek out and research topics that are applicable to the proposed course and audience.

PARTICIPANTS' QUALIFICATIONS AND EXPERIENCE

As stated previously, the training course is designed as an intensive learning experience. The training course design assumes that participants do not have extensive experience in oil spill response but do

[*] IPIECA: The global oil and gas industry association for environmental and social issues
[†] IOGP: The International Association of Oil & Gas Producers
[‡] ITOPF: The International Tanker Owners Pollution Federation Limited
[§] CEDRE: Centre of Documentation, Research and Experimentation on Accidental Water Pollution (original: Centre de documentation, de recherche et d'expérimentations sur les pollutions accidentelles des eaux)

have a responsibility for ensuring that such capability exists in their company, department or country. The emphasis of the training course content is on the tactical response to an incident. There are other IMO model courses which address the operational (Level 1) and strategic (Level 3) aspects of oil spill response.

The training course addresses the management of the response within an incident command structure and within an incident command centre, either in the public sector or in industry. It does so in the context of the application of management practices to an oil spill and does not attempt to teach basic management or theory.

During the training course participants are expected to:

- work hard;
- ask questions;
- complete assignments and exercises accurately and on time;
- cooperate with the training course director and instructional staff;
- assist other participants during classroom and exercise discussions and assignments;
- participate fully in all discussions (classroom, exercises, assignments, briefings, etc.); and
- observe all HSE expectations and report any unsafe situations.

COURSE MATERIALS

The course material on the course CD or USB pen drive consists of the following components:

- a complete set of Presentation Slides ; and
- the Participant's Manual.

PRESENTATION SLIDES

A series of presentation slides have been prepared which are closely linked with the material contained in the Participant's Manual.

It is suggested that, in addition to the Participant's Manual, trainees should be given a printout of the presentation slides as an aide-memoire. Because the details are contained in the Participant's Manual, it is suggested that the printouts should be provided in handout form, three slides to a page, which leaves sufficient additional space for any personal notes.

THE PARTICIPANT'S MANUAL

The Participant's Manual contains the subject matter of each lesson. It contains detailed information and a summary of the lesson material, which, combined with the Further reading section, is intended as a source of reference for students after the course is finished.

ACKNOWLEDGEMENTS

The course material is based on the Model Courses developed by IMO and approved by the Sub-Committee on Pollution Prevention and Response (PPR) and by the Marine Environment Protection Committee (MEPC) at its Seventy-first session (3–7 July 2017).

Where known, the sources of images, graphics and information are gratefully acknowledged on the presentation slides.

COURSE ADMINISTRATION

Effective course administration contains many elements, a few of which are referenced here:

SCHEDULE

The course is scheduled to run from 0900 hours to 1700 hours over a four-day period. The schedule is flexible to take into account any local traditions or practices. The Course Director should agree the timetable in advance with the host and make amendments as required.

A suggested course timetable is included within this manual. It is stressed that this timetable is a suggestion and the running order may be altered. Course Directors and Instructors are urged to tailor the timetable to reflect the objectives of the training and the needs of the participants.

The videos are optional and may be replaced by a presentation on case histories or topics of relevance, developed and tailored by the instructors in accordance with the specific interests of the participants.

If changes are made to the timetable, these need to be reflected in any manual issued to the participants.

CLASS SIZE

It is recommended that the class size does not exceed numbers that allow interaction and participation during the lectures and instructor attention during group exercises.

COURSE ARRANGEMENTS

When courses are conducted by IMO, all the facilities will be pre-arranged by IMO staff, in discussion with the host country.

All materials should be prepared in advance of the course, using the model course material.

Participant seating and the physical arrangement of desks, tables, etc. should allow for ease of discussion during the sessions among the participants and the facilitators and leave sufficient desk space for making notes.

A side table will be available for the facilitators to place handouts, reference materials and other supplies (e.g. paper punch, charts, etc.) to be used during modules and the exercise.

Presentation equipment, such as the LCD video projector for the slide presentations, flip charts and projection screens should be arranged so as not to obstruct participant views while at the same time allowing ease of use by the instructors.

Participant supplies such as pens, paper, binders and reference materials should be arranged and distributed in advance of the sessions to minimize administrative activities occurring during the instructional periods.

The following items will be required;

- A presentation projector, screen and sound system capable of being read by the participants from all parts of the room
- A computer with compatible software for viewing presentations and videos
- Pens and paper for participants
- Flipcharts and whiteboards
- A suitable darkened and sound-proofed room for presentations

- Sufficient tables and chairs for all participants and instructors. It is recommended that no more than two participants share a desk to ensure sufficient writing and storage space
- Ventilation appropriate to the climate to maintain a suitable temperature with adequate fresh air
- Sufficient electrical power points for the instructor's equipment paying strict compliance with all health and safety measures
- Back up equipment for key items, such as the LCD projector

OVERVIEW OF THE EXERCISES

The exercise modules have been designed to reinforce and demonstrate the lessons learned from the modules. It is recommended that the exercises should be tailored to the needs of the participants and further developed to effectively meet the objectives outlined in this manual.

It is obviously important that the participants have completed the relevant course modules prior to attempting the exercise.

The participants should be split up into syndicate groups:

- the groups need to be carefully chosen to ensure a mixture of skills and backgrounds; and
- participants should be encouraged to sub-divide their own groups to tackle various tasks.

Normally a review or presentation session will follow the exercise.

At the end of the exercise the participants should be able to:

- discuss problems linked to the course modules in a group environment;
- present a solution to the specific problems given; and
- elect a spokesperson to lead the group's presentation.

There are no prizes for correct answers. The aim of the exercise is to promote discussion and aid learning. The instructor's role is crucial in promoting discussion, raising issues and linking course elements. It is these exercises that bind the course together and they should be considered the most vital element.

The instructor should give the groups time to develop their answers, but be prepared to check on the groups from time to time to ensure that the exercise is being properly managed.

The Course Director may wish to also include a table-top exercise. This may be developed specifically for the course or use could be made of EXERCISE NEPTUNE, developed by IMO as a stand-alone table-top exercise.

Insert sponsoring Ministry's logo as required

Insert sponsoring Ministry's logo as required

TRAINING COURSE TITLE

To be held at the ……

Dates

OPRC Level 2

TRAINING COURSE PROGRAMME

(Suggested Draft)

Facilitator	Representing	Initials
	International Maritime Organization	XXX
		XXX
		XXX

Day 1

Day 1	Module	Lesson	Date	Facilitator
08:30 - 09:00			Arrival of Participants/Registration	**Host**
09:00 - 09:30			Opening Ceremony Welcome Address • Host • IMO	**Host** **XXX**
09:30 - 10:00	M.2.1	L.2.1	Workshop timetable and administrative matters • Workshop aims and objectives • Facilitators introductions • Participants introductions	**XXX** **XXX**
10:00 - 10:30			**Refreshment**	
10:00 - 10:30	M.2.1	V.2.1	Video – Introduction to Oil Spills (ITOPF)	**XXX**
10:30 - 11:30	M.2.1	L.2.2	Sources and Impacts of Oil Spills	**XXX**
11:30 - 12:00	M.2.1	L.2.3	Overview of Contingency Planning and Preparedness	**XXX**
12:00 - 13:00	M.2.1		Presentation by each Participant on the current status of their NOSCP and their role within it.	**XXX**
13:00 - 14:00			**Lunch**	
14:00 - 15:00	M.2.1	L.2.4	Principles of Incident Management	**XXX**
15:00 - 15:30	M.2.1	Ex 2.1	Exercise – IMS	**XXX**
15:30 - 16:00			**Refreshment**	
16:30 - 17:00	M.2.1	L.2.5	Response Tools	**XXX**
17:00 - 17:15			Review of Day 1	**XXX**
17:15			**End of day 1**	

Day 2

Day 2	Module	Lesson	Date	Facilitator
09:00 - 09:10			Review of Day 1 and Outline of Day 2	XXX
09:10 - 09:40	M.2.2	L.2.6	Fate and Behaviour of Oil in the Marine and Shoreline Environment	XXX
09:40 - 10:10	M.2.2	V.2.2	Video – Environmental Impacts (ITOPF)	XXX
10:10 – 10:30	M.2.2	L.2.7	Observation & Remote Sensing	XXX
10:30 - 11:00			**Refreshment**	
11:00 – 11:20	M.2.2	L.2.7	Observation (continued)	XXX
11:20 – 11:40	M.2.2	V.2.3	Aerial Surveillance (ITOPF)	XXX
11:40 - 12:10	M.2.2	Ex 2.2	Aerial Observation Exercise	XXX
12:10 - 12:40	M.2.2	L.2.8	Containment, Recovery and Salvage Considerations	XXX
12:40 - 13:40			**Lunch**	
13:40 - 14:20	M.2.2	L.2.8	Containment, Recovery and Salvage Considerations (continued)	XXX
14:20 - 14:50	M.2.2	L.2.9	Use of Dispersants	XXX
14:50 - 15:20	M.2.2	L.2.10	In Situ Burning (Optional)	XXX
15:20 - 15:50			**Refreshment**	
15.50 - 16:20	M.2.2	V.2.4	At-sea Response (ITOPF)	XXX
16:20 - 17:20	M.2.2	Ex 2.3	Exercise – Implementing Response Strategy (At-sea)	XXX
17:20 - 17:35			Review of Day 2	XXX
17:35			**End of day 2**	

Day 3

Day 3	Module	Lesson	Date	Facilitator
09:00 - 09:10			Review of Day 2 and Outline of Day 3	XXX
09:10 - 10:00	M.2.2	L.2.11	Shoreline Assessment and Clean-up	XXX
10:00 - 10:30	M.2.2	V.2.5	Video – Shoreline Clean-up (ITOPF)	XXX
10:30 - 11:00			**Refreshment**	
11:00 - 11:30	M.2.2	L.2.12	Oil Spill Response in Fast Water	XXX
11:30 - 12:00	M.2.2	L.2.13	Oil Spill Response in Ice (Optional)	XXX
12:00 - 12:30	M.2.3	L.2.14	Oiled Wildlife Management	XXX
12:30 - 13:30			**Lunch**	
13:30 – 14:00	M.2.3	L.2.15	Archaeological and Cultural Resources	XXX
14:00 – 14:30	M.2.3	L.2.16	Health and Safety Considerations	XXX
14:30 – 15:00	M.2.3	L.2.17	Logistical and decontamination issues	XXX
15:00 - 15:30			**Refreshment**	
15:30 - 16:30	M.2.2	Ex 2.4	Exercise – Implementing Response Strategy (Shoreline)	XXX
16:30 - 16:45			Review of Day 3	XXX
17:00			**End of day 3**	

Day 4

Day	Module	Lesson	Date	Facilitator
09:00 - 09:10			Review of Day 3 and Outline of Day 4	XXX
09:10 - 09:35	M.2.3	L.2.18	Waste Management and Disposal	XXX
09:35 - 10:00	M.2.3	V.2.6	Video– Waste Management (ITOPF)	XXX
10:00 - 10:30			**Refreshment**	
10:30 - 11:15	M.2.3	L.2.19	Communications and Media	XXX
11:15 - 11:35	M.2.4	L.2.20	Response Termination Criteria	XXX
11:35 - 12:00	M.2.4	L.2.21	Post-incident Operations	XXX
12:00 - 12:30	M.2.4	L.2.22	Post-incident Administration Issues	XXX
12:30 - 13:00	M.2.4	V.2.7	Video – Oil Spill Compensation (ITOPF)	XXX
13:00 - 14:00			**Lunch**	
14:00 - 15:00	M.2.2	Ex 2.5	Exercise – Implementing Response Strategy (Ongoing and Post-incident Operations)	XXX
15:00 - 15:30			**Refreshment**	
15:30 - 16:00			Evaluation and Review of Training Course	XXX
16:00 - 17:00			Closing Ceremony Farewell Address • Host • IMO Issue of Certificates	**Host** XXX
17:00			**End of day 4 and the training course**	

MODULE 2.1: OVERVIEW OF OIL SPILL RESPONSE

MODULE OBJECTIVE

The overall objective of this module is to enable participants to understand the various tactical aspects to be considered during an oil spill response.

This section of the course focuses on the function and operation of the incident command centre. It commences by looking at the sources and impacts of oil spills and continues with an overview of contingency planning and preparedness, followed by the principles of incident management, including a short exercise on Incident Management Systems (IMS). It concludes by considering what response tools may be available to facilitate decision-making during an oil spill.

This module is composed of five lessons, one video and one exercise:

- L.2.1: Course introduction
- V.2.1: Video – Introduction to oil spills
- L.2.2: Sources and impacts of oil spills
- L.2.3: Overview of contingency planning and preparedness
- L.2.4: Principles of incident management
- Ex.2.1: Exercise: IMS
- L.2.5: Response Tools

The objectives for each lesson are described below.

LESSON 2.1: COURSE INTRODUCTION

Objective:

The objective of this lesson is for participants to understand the aims and objectives of the training course.

At the end of this lesson, participants will:

- understand the timetable and course content of the training course;
- understand the organizational and domestic arrangements for the training course;
- have received a full safety briefing; and
- have been introduced to their fellow participants and facilitators.

Rationale:

It is important for participants to be briefed on the safety, domestic and organizational aspects of the course. This lesson plays a vital role in welcoming and settling the participants, ensuring that they are aware of the content of the course and what will be required of them.

Lesson length: 30 min.

VIDEO 2.1: INTRODUCTION TO OIL SPILLS

Objective:

The objective of this video is for participants to gain an understanding of the size, scale and complexity of oil spills.

At the end of this video, participants will:

- understand the range and scale of oil spill incidents; and
- have an appreciation of the difficulties and complexities of oil spill responses.

Rationale:

It is important that participants have an appreciation of the potential size, scale and complexity of an oil spill or potential oil spill incident. This lesson plays a vital role in setting the scene for the remainder of the course. After playing the video discuss recent incidents that are relevant to the workshop participants or workshop location.

Lesson length: 30 min.

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/1-introduction-to-oil-spills/

Note: Instructors may consider creating a presentation of relevant oil spill incidents, appropriate to the aims and objectives of the course level, either instead of, or in support of, this introductory video.

Further Reading:

- IMO. *International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC),* 1991 Edition, International Maritime Organization, London, 1991 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section I – Prevention,* 2011 Edition. International Maritime Organization, London, 2011 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section II – Contingency Planning,* 2018 Edition, International Maritime Organization, London, 2018 **(Approved by IMO)**; and
- IMO. *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness,* 2010 Edition, International Maritime Organization, London, 2010 **(Approved by IMO)**.

Lesson 2.2: Sources and Impacts of Oil Spills

Objective:

The objective of this lesson is for participants to gain an understanding of the potential sources of oil spills, to recognize the potential impact of oil spills on social and economic activities, the marine environment and fisheries.

At the end of this lesson, participants will:

- recognize the potential sources of oil spills;
- recognize the potential impact of oil spills; and
- be able to use this information to develop a tactical response to oil spills.

Rationale:

It is important that participants have an understanding of the potential impact of oil spills on social and economic activities, the marine environment and fisheries in order for them to develop a tactical response to any oil spill incident that they are called upon to respond to.

Lesson length: 60 min.

Further reading:

- IMO. *International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC),* 1991 Edition, International Maritime Organization, London, 1991 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section I – Prevention,* 2011 Edition. International Maritime Organization, London, 2011 (Approved by IMO);
- IMO. *Manual on Oil Pollution, Section II – Contingency Planning,* 2017 Edition, International Maritime Organization, London, 2017 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO)**;
- IMO. *IMO/UNEP Guidance Manual on the Assessment and Restoration of Environmental Damage Following Marine Oil Spills,* 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO)**; and
- IMO. *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness,* 2010 Edition, International Maritime Organization, London, 2010 **(Approved by IMO)**.

LESSON 2.3: OVERVIEW OF CONTINGENCY PLANNING AND PREPAREDNESS

Objective:

The objective of this lesson is for participants to gain an understanding of the main elements of the OPRC Convention and its requirements, the differing levels of contingency plans required for oil spill planning, preparedness and response, the tiered approach to oil spill planning, preparedness and response and the general planning requirements at the Strategic Level. In addition, the participants will need to understand not only why plans are necessary but how to use them effectively.

At the end of this lesson, participants will understand:

- the requirements of the OPRC Convention;
- the differing levels of contingency plans;
- the tiered approach to oil spill planning, preparedness and response;
- the general planning requirements at the Strategic Level; and
- the need for an efficient and effective contingency planning system.

Rationale:

It is important that participants have an understanding of the requirements of the OPRC Convention, the differing levels of contingency plans and the tiered approach to oil spill planning, preparedness and response. It is also important that participants understand the general planning requirements at the Strategic Level, not only why the participants have plans but how to use them effectively.

It is also important that participants understand how best to prepare for response to an oil pollution incident and to understand the need for an efficient contingency planning system.

Furthermore, it is important to highlight that all components of a contingency plan should be periodically and practically tested to prepare for a real emergency. In this regard, Article 6(2) of the OPRC Convention requires each Party to establish a programme of exercises for oil pollution response organizations and training of relevant personnel.

Instructors may introduce the following four categories of exercises, which allow different aspects of a plan to be exercised separately and promote understanding of the purpose and scope of the whole plan:

- Notification exercise – test the procedures to alert and call out the response teams via telephone or other means;
- Table-top exercise – interactively discuss a simulated scenario among members of a response team without involving the mobilization of personnel and equipment;
- Equipment deployment exercise – exercise deployment of oil spill response equipment at particular locations in response to an oil spill scenario; and
- Incident management exercise – simulate several different aspects of an oil spill incident with third parties who would actually be involved in a real emergency to test and train a whole response team.

Instructors may stress that training of relevant personnel should include theoretical training at the appropriate level and practical deployment of equipment, as required, and that the IMO OPRC Model Training Courses could be used as a guidance to plan and conduct such a training.

Instructors may also introduce "Recommended Steps in Plan Development" in detail, referring to the following information based on the *Manual on Oil Pollution – Section II: Contingency Planning*.

1. Define scope of the plan

The first step is to define the scope of a contingency plan to be developed: i.e. a national contingency plan; a bilateral or multilateral agreement/contingency plan for regional cooperation; shipboard oil pollution emergency plan (SOPEP); or oil pollution emergency plans for offshore installations, sea ports or oil handling facilities.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- National Oil Spill Contingency Plan (section 1.6);
- Industry oil spill contingency plans (section 1.9 and chapter 3); and
- Bilateral or multilateral agreements/contingency plans (chapter 4).

The following steps 2 to 7 are examples for the case of a national contingency plan.

2. Conduct the risk assessments

In advance of developing a national contingency plan, it is necessary to conduct an assessment of oil spill risks in the waters and, if applicable, terrestrial or other areas under the national jurisdiction. To complete an oil spill risk assessment, the government will need to determine all of the operations that could result in the release of crude oil or refined oil products and calculate the probability and consequences of the potential spills.

It is also necessary to identify coastal environmental, socio-economic and cultural sensitivities in the threatened area so as to develop an effective response strategy, facilitate the prioritization of the sensitive areas for protection and thereby enable the most effective use of available response resources. In this regard, the preparation of sensitivity maps should be mandated under the national contingency plan and the associated national legislation.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- Oil spill risk assessment (section 2.2); and
- Sensitivity maps (section 2.6)

3. Develop a strategy

To develop a strategy for oil spill preparedness and response and construct key contents of a national contingency plan, the following systems, procedures and elements should be considered.

- Pre-positioned oil spill response equipment

  It is important to establish a minimum level of pre-positioned oil spill response equipment based on the identified risks, either individually or through bilateral or multilateral agreements and in cooperation with the oil and shipping industries, port authorities and other relevant entities.

  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 of the resources.

- Tiered response

  Tiered response arrangements, including possible regional and international cooperation in case of major oil spills, may be established as a part of the national contingency plan, taking into account the local and national capability of oil spill preparedness and response and the result of the oil spill risk assessment and sensitivity mapping.

- Incident management system

  As effective responses to a major oil spill are complex operations, an incident management system may be developed to achieve the seamless integration of material resources, operational processes and personnel from many different organizations under a commanding team qualified to lead the oil spill response.

- Roles and responsibilities

  The national contingency plan should explain the roles and responsibilities of a National Competent Authority (or a lead government agency) and other government agencies that could be involved in an oil spill response. It should also describe the organizational structure to be used for the above-mentioned management system.

- Notification, reporting and alerting

  The national contingency plan should identify an entity whose responsibility is to receive and disseminate a notification or report of a marine emergency, which could result or has resulted in an oil spill, to relevant government agencies and representatives to facilitate rapid communication among them.

- Assessment and monitoring of an oil spill

  An immediate assessment of an oil spill is essential in determining the most appropriate response tactics and strategies. Such an assessment can be achieved by: estimating the volume and extent of the spill; conducting a health and safety hazard assessment posed by the floating oil; and predicting the spill's probable movement using drift or trajectory models and available meteorological and hydrographic data. In addition, a spill surveillance and monitoring programme (e.g. aerial observation) should be implemented to validate any model results and determine the actual movement, extent and characteristics of the oil slick. These assessment and monitoring measures should be described in the national contingency plan.

- Oil spill response strategy

  An oil spill response strategy should be developed which involves the use of multiple response techniques selected as being the most effective at containing and/or removing spilled oil, while minimizing the negative effects of the spilled oil and response operations to the environment. It is essential to identify any policies, restrictions or prohibition on, or preference for, the use of selected response techniques based on spill location, environmental conditions, proximity to sensitive areas, etc.

- Waste management

  A robust waste management plan should be included in the national contingency plan to achieve an efficient and effective oil spill response. Such a plan may contain: 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 oil spill wastes; and any waste management resources or services that can be provided by the government.

- Demobilization and termination of response

  The national contingency plan should describe the general process for the demobilization of response equipment and other resources and what, if any, government approvals may be required for demobilizing key response resources. The plan should also outline a process for establishing clean-up/response end-points.

- Restoration and post-spill monitoring

  Restoration and post-spill monitoring activities can be covered in the national contingency plan. In such a 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 in the plan.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- Pre-positioned oil spill response equipment (section 1.7);
- Oil spill response resource coordination (section 1.10);
- Tiered response (section 1.11);
- National oil spill response management system (section 1.12);
- Notification, reporting and alerting (section 2.3);
- Oil spill assessment (section 2.4);
- National oil spill response management organization (section 2.5);
- Response resources (section 2.7);

- Response strategies (section 2.8);
- Waste management (section 2.9);
- Demobilization and termination of response (section 2.10); and
- Restoration and post-spill monitoring (section 2.11).

4. Decide structure and layout

The structure and layout of the national contingency plan should be decided based on the key contents considered and established in Step 3 and the contents should include information on the designation of the Competent National Authority, national operational contact points and, as necessary, references to the relevant international conventions and national legislation.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- International conventions (section 1.1);
- National legislation and regulations (section 1.2);
- Designation of Competent National Authority (section 1.3);
- National operational contact point (section 1.4); and
- National Oil Spill Contingency Plan (section 1.6).

5. Procure appropriate equipment

It is important to ensure the availability of adequate response equipment in case of an oil spill and maintain them in a serviceable condition and, if necessary, procure additional or replacement equipment. It is a common practice for national authorities to require the oil industry or private oil spill response organizations to maintain adequate response equipment on their behalf (in such a case, the requirements for them should be described in the national contingency plan).

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- Pre-positioned oil spill response equipment (section 1.7);
- Oil spill response resource coordination (section 1.10); and
- Response resources (section 2.7).

6. Conduct training and exercise

The national contingency plan should outline a training and exercise programme in cooperation with the oil and shipping industries, port authorities and other relevant entities which should be designed to ensure a high level of oil spill preparedness, to build the national oil spill response capability, as well as strengthen bilateral or multilateral agreements on cooperation during an oil pollution incident.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- Exercises, training and health and safety (section 1.8). and
- Training, exercising, record keeping and plan updating requirements (section 2.12).

7. Update plan (section 2.12)

It is important to periodically assess the level of oil spill response preparedness to identify challenges, information needs and areas for improvement. In this connection, the national contingency plan should be regularly reviewed to incorporate lessons learned from training and exercises as well as actual incidents.

Regular updates of the contact points for notification and the inventory of available response equipment should also be made. In addition, any organizational or legislative changes that modify the response organizations or policies should be reflected in timely amendments to the affected contingency plan and communicated to all relevant parties.

References (*Manual on Oil Pollution – Section II: Contingency Planning*):

- Training, exercising, record keeping and plan updating requirements (section 2.12); and
- Assessing oil spill response preparedness (section 1.13).

Lesson length: 30 min.

Further reading:

- IMO. *International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC),* 1991 Edition, International Maritime Organization, London, 1991 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section I – Prevention,* 2011 Edition. International Maritime Organization, London, 2011 (Approved by IMO);
- IMO. *Manual on Oil Pollution, Section II – Contingency Planning,* 2017 Edition, International Maritime Organization, London, 2017 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section V – Administrative Aspects of Oil Pollution Response*, 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO)**;
- IMO. *Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness,* 2010 Edition, International Maritime Organization, London, 2010 **(Approved by IMO)**;
- IPIECA/IMO/IOGP. *Sensitivity Mapping for Oil Spill Response – Good Practice Guide Series,* 2012 (http://www.ipieca.org/resources/good-practice/sensitivity-mapping-for-oil-spill-response/) **(Approved by IMO)**;
- CEDRE. *Local Authorities' Guide – What to do in the Event of a Spill,* 2012 (For an extract please visit: wwz.cedre.fr/en/content/download/1769/131926/file/extract-local-authorities.pdf please send an email to documentation@cedre.fr to request full version);
- IPIECA/IOGP. *Oil Spill Risk Assessment and Response Planning for Offshore Instillations,* 2013 (http://www.ipieca.org/resources/awareness-briefing/oil-spill-risk-assessment-and-response-planning-for-offshore-installations/);
- IPIECA/IOGP. *Oil Spill Exercises - Good Practice Guide Series*, 2014 (http://www.ipieca.org/resources/good-practice/oil-spill-exercises/);
- IPIECA/IOGP. *Oil Spill Training – Good Practice Guide Series*, 2014 (http://www.ipieca.org/resources/good-practice/oil-spill-training/);
- ITOPF. TIP 15 – *Preparation and Submission of Claims from Oil Pollution*, 2012 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP15PreparationandSubmissionofClaimsfromOilPollution.pdf); and
- ITOPF. TIP 16 – *Contingency Planning for Marine Oil Spills*, 2011 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP16ContingencyPlanningforMarineOilSpills.pdf).

PARTICIPANT PRESENTATIONS

Objective:

The objective of this lesson is to enable participants to describe their own National Oil Spill Contingency Plan (NOSCP) and the incident command system currently in use in addition to their role within it. This will be used as a benchmark and revisited later in the course when participants will be asked to consider if they need to make any improvements to their incident command system and how these might be achieved.

At the end of this lesson, participants will have:

- consolidated the lessons they have learned from this module; and
- described how their NOSCP and incident command system works.

Instructions:

- participants will either be asked to work individually, or the class should be divided into a maximum of five groups;
- if using the group approach, nominate a representative to present on behalf of the group;
- each individual or group to present a short synopsis of their NOSCP and the incident command system they currently use;
- record the results; and
- discuss results in plenary.

Lesson length: 30 min.

LESSON 2.4: PRINCIPLES OF INCIDENT MANAGEMENT

Objective:

The objective of this lesson is for participants to understand that a properly implemented and coordinated management system will improve the efficiency and effectiveness of emergency response operations, regardless of the nature of the incident. In addition, it will provide strategic guidance on the development and implementation of a management system that meets their needs.

At the end of this lesson, participants will understand:

- the requirements for an incident management system; and
- how they may develop and implement such a system to meet their needs.

Rationale:

It is important that participants understand that a properly implemented and coordinated management system will improve the efficiency and effectiveness of emergency response operations, regardless of the nature of the incident. In addition, they will be able to develop and implement a management system that meets their needs.

Lesson length: 60 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section V – Administrative Aspects of Oil Pollution Response,* 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO)**;
- IMO. *Guidance Document on the Implementation of an Incident Management System (IMS)*, International Maritime Organization, London, 2012 **(Approved by IMO);**
- CEDRE. *Local Authorities' Guide – What to do in the Event of a Spill,* 2012 (For an extract please visit: wwz.cedre.fr/en/content/download/1769/131926/file/extract-local-authorities.pdf please send an email to documentation@cedre.fr to request full version);
- IPIECA/IOGP *Incident Management System for the Oil and Gas Industry – Good Practice Guide Series* 2016 (http://www.ipieca.org/resources/good-practice/incident-management-system-ims/);
- ITOPF. *TIP 10 – Leadership, Command & Management of Marine Oil Spills*, 2012 (www.itopf.com/knowledge-resources/documents-guides/document/tip-10-leadership-command-management-of-oil-spills/); and
- POSOW. *Oil Spill Volunteer Management Manual*, 2013, (www.posow.org/documentation/manual/volunteersmanual.pdf).

EXERCISE 2.1: INCIDENT MANAGEMENT SYSTEMS (IMS)

Objective:

The objective of this exercise is to consolidate the lessons from the Principles of Incident Management module, to enable the participants to become familiar with the current IMS structure within their country and use the knowledge gained to decide whether that structure is robust enough to cope with a multi-agency response to a major pollution incident.

At the end of this exercise, participants will:

- understand the IMS structure within their country at Tier 2 and Tier 3 levels;
- have considered the challenges of a multi-country response; and
- have considered how these challenges may be overcome.

Instructions:

- divide the class into a maximum of five groups;
- nominate a representative to present each group's results;
- each group to discuss the presented questions and prepare their response;
- the nominated representative will present their group's response to the remaining groups; and
- discuss results in plenary.

Exercise length: 30 min.

LESSON 2.5: RESPONSE TOOLS

Objective:

The objective of this lesson is for participants to understand the tools that enhance spill response activities, consider how to utilize such tools and identify the tools they currently have available. This will, in turn, help them identify any gaps they may have in their planning and response activities.

At the end of this lesson, participants will:

- understand the tools that could enhance their spill response activities;
- have considered how they may use such tools; and
- have identified any gaps in their planning and response preparedness.

Rationale:

It is important that participants understand that there are a number of tools and models available to assist them during their spill response. Once they understand the tools required, they can then identify which ones they have access to and, subsequently any gaps in their preparedness.

Lesson length: 30 min.

MODULE 2.2: OIL SPILL RESPONSE TECHNIQUES

MODULE OBJECTIVE

The overall objective of this module is to enable participants to understand in detail the existing oil spill response techniques. This will allow them to turn the incident response strategy into tactical instructions and exercise command and control over the response. It will also give each participant an understanding of the advantages and disadvantages of each oil spill response technique to facilitate their selection of the appropriate response tactics.

This module is composed of nine lessons, four videos and two exercises:

- L.2.6: Fate and Behaviour of Oil in Marine and Shoreline Environments
- V.2.2: Environmental Impacts
- L.2.7: Observation
- V.2.3: Aerial Surveillance
- Ex.2.2 Exercise: Aerial Observation exercise
- L.2.8: Containment, Recovery and Salvage Considerations
- L.2.9: Use of Dispersants
- L.2.10: In Situ Burning (optional)
- V.2.4: At-sea Response
- Ex.2.3: Exercise: Implementing Response Strategy (At-sea)
- L.2.11: Shoreline Assessment and Clean-up
- V.2.5: Shoreline Clean-up
- L.2.12: Oil Spill Response in Fast Water
- L.2.13: Oil Spill Response in Ice (Optional)

LESSON 2.6: FATE AND BEHAVIOUR OF OIL IN THE MARINE AND SHORELINE ENVIRONMENT

Objective:

The objective of this lesson is to understand the main processes affecting oil spilled in the marine and shoreline environment and to be able to recognize the importance of these processes on response techniques.

At the end of this lesson, participants will understand:

- the principal oil weathering processes for surface and sub-surface oil spills;
- the range of shoreline interactions according to shoreline types; and
- the impacts of these processes on response.

Rationale:

It is important for participants to have a good understanding of weathering processes that will modify oil characteristics and ultimately affect fate and behaviour. These changes in fate and behaviour will significantly affect clean-up and recovery operations. Following this lesson, participants will be able to identify these processes and adjust response strategies accordingly.

Lesson length: 30 min.

Further reading:

- IMO. *Field Guide for Oil Spill Response in Tropical Waters*, 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO)**;
- IMO. *IMO/UNEP Guidance Manual on the Assessment and Restoration of Environmental Damage Following Marine Oil Spills,* 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO)**;
- CEDRE. *Local Authorities' Guide – What to do in the Event of a Spill,* 2012 (For an extract please visit: wwz.cedre.fr/en/content/download/1769/131926/file/extract-local-authorities.pdf please send an email to documentation@cedre.fr to request full version);
- ITOPF. *TIP 2 Fate of Marine Oil Spills*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-2-fate-of-marine-oil-spills/);
- ITOPF. *TIP 11 Effects of Oil Pollution on Fisheries and Mariculture*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-11-effects-of-oil-pollution-on-fisheries-and-mariculture/);
- ITOPF. *TIP 12 Effects of Oil Pollution on Social and Economic Activities*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-12-effects-of-oil-pollution-on-social-and-economic-activities/); and
- ITOPF. *TIP 13 Effects of Oil Pollution on the Marine Environment*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-13-effects-of-oil-pollution-on-the-marine-environment/).

VIDEO 2.2: ENVIRONMENTAL IMPACTS

Objective:

The objective of this video is for participants to learn more about the potential impacts on various habitats and species following an oil spill.

At the end of this video, participants will have:

- a better appreciation of the potential impacts from an oil spill.

Rationale:

It is important that participants have a good appreciation of the potential impacts of an oil spill on habitats, species and human activities. By better understanding the factors determining the potential severity of impacts, participants will be in a better position to identify response strategies in order to minimize these impacts.

Lesson length: 30 min (20 min video, 10 min discussion)

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/6environmental-impacts/

Further reading:

- IMO. *Guideline for Oil Spill Response in Fast Currents*, 2013 Edition, International Maritime Organization, London, 2013 **(Approved by IMO)**;
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO)**;
- IMO. IMO/UNEP *Guidance Manual on the Assessment and Restoration of Environmental Damage Following Marine Oil Spills, 2009 Edition,* International Maritime Organization, London, 2009 **(Approved by IMO)**;
- IMO. *IMO/FAO Guidance on Managing Seafood Safety during and after Oil Spills, 2002 Editions*, International Maritime Organization, London, 2002 **(Approved by IMO)**;
- CEDRE. *Ecological Monitoring of Accidental Water Pollution*, 2007 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Ecological-Monitoring please send an email to documentation@cedre.fr to request full version);
- ITOPF. *TIP 11 Effects of Oil Pollution on Fisheries and Mariculture*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-11-effects-of-oil-pollution-on-fisheries-and-mariculture/);
- ITOPF. *TIP 12 Effects of Oil Pollution on Social and Economic Activities*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-12-effects-of-oil-pollution-on-social-and-economic-activities/); and
- ITOPF. *TIP 13 Effects of Oil Pollution on the Marine Environment*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-13-effects-of-oil-pollution-on-the-marine-environment/).

LESSON 2.7: OBSERVATION

Objective:

The objective of this lesson is to enable participants to understand why observation is an essential element of spill response, which platforms may be available to them, the requirements for flight planning, how to carry out visual observations and how to quantify oil observation reports.

At the end of this lesson, participants will be able to:

- understand why observation is an integral and essential element of oil spill response;
- recognize what observation platforms may be available to them;
- understand the requirements for flight planning;
- understand how to carry out visual observations; and
- quantify oil observation reports.

Rationale:

The ability to observe and quantify oil spills is an essential element of an oil spill response. This module will help the participants to understand the importance of aerial observation, the need for flight planning and the best method of carrying out visual observations. It will conclude with a short exercise on quantification.

Lesson length: 40 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- IMO. *Manual on Oil Pollution, Section VI – Guidelines for Sampling and Identification of Oil Spills,* 1998 Edition, International Maritime Organization, London, 1998 **(Approved by IMO)**;
- IPIECA/IMO/IOGP. *Aerial Observation of oil pollution at Sea – Good Practice Guide Series,* 2015 (http://www.ipieca.org/resources/good-practice/aerial-observation-of-oil-spills-at-sea/) **(Approved by IMO)**;
- IPIECA/IOGP. Guidelines on oil characterization to inform spill planning and decision making, 2013 (http://www.ipieca.org/resources/awareness-briefing/guidelines-on-oil-characterization-to-inform-spill-response-decisions/);
- ITOPF. *TIP 1 – Aerial Observation of Marine Oil Spills*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-1-aerial-observation-of-marine-oil-spills/);
- ITOPF. *TIP 14 – Sampling and Monitoring of Marine Oil Spills*, 2012 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP14SamplingandMonitoringofMarineOilSpills.pdf);
- OSRL. *Aerial Surveillance Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Aerial-Surveillance-Handbook.pdf); and
- POSOW. *Oiled Shoreline Assessment Manual*, 2013 (www.shorelinescat.com/Documents/Manuals/POSOW%20Oiled%20Shoreline%20Assessment%20Manual%20webversion.pdf).

VIDEO 2.3: AERIAL OBSERVATION

Objective:

The objective of this video is for participants to gain an understanding of aerial observation and the platforms, equipment and methodologies employed during surveillance flights.

At the end of this video, participants will understand:

- the principles of aerial observation;
- the platforms that can be used for conducting surveillance flights;
- some of the equipment used for conducting surveillance; and
- the methodologies employed during surveillance flights.

Rationale:

It is important that participants have an understanding of the benefits of aerial surveillance and how such operations are conducted.

Lesson length: 20 min.

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/2-aerial-surveillance/

EXERCISE 2.2: AERIAL OBSERVATION

Objective:

The objective of this exercise is to consolidate the lessons from the previous modules on aerial observation and for participants to become familiar with using an aerial observer quantification table. This will involve a worked example followed by a series of questions.

At the end of this exercise, participants will:

- be familiar with an aerial observation table;
- understand a worked example; and
- have worked through a series of calculations based on observed spill reports.

Instructions:

- divide the class into a maximum of five groups;
- nominate a representative;
- each group to discuss the presented questions, prepare and record their responses for presentation to the group; and
- discuss the results in plenary.

Exercise length: 30 min.

Lesson 2.8: Containment, Recovery and Salvage Considerations

Objective:

The objective of this lesson is to:

- provide an introduction to containment at sea and how it may be used as an operational tactic;
- provide an introduction to recovery at sea and how it may be used as an operational tactic;
- provide an introduction to salvage operations, some general salvage techniques and information about how salvage operations may be integrated within the incident management system; and
- provide an introduction to Places of Refuge and how these may be utilized in incident response operations.

At the end of this lesson, participants will understand:

- objectives of containment including boom selection, boom types, their limitations and failures and how to consider protection and containment plans;
- objectives of recovery operations, including recovery devices, recovery systems, safety issues and temporary storage;
- general salvage operations and techniques;
- how salvage operations may be integrated within the incident management system; and
- Place of Refuge considerations and how they may be applied within the incident response.

Rationale:

When facing an oil spill, responders have to select the most appropriate response options in order to minimize damages from oil on the environment and socio-economic activities. Containment and recovery of the lost pollutants is a key tactical consideration. However, no magic option exists and these methodologies all have operational limitations. Managers must have a basic knowledge about the available response options in order to make sound decisions, not only at the time of an incident but also during the contingency planning stage.

Salvage is a specialist subject but is often associated with the prevention or minimization of pollution from a damaged or grounded vessel. An understanding of salvage operations and some common salvage techniques is essential for operations staff in order that they may fully integrate salvage operations within the incident management system.

Lesson length: 70 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section III – Salvage,* 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO);**
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- IMO. *Field Guide for Oil Spill Response in Tropical Waters*, 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO);**
- CEDRE. *Custom Made Spill Response Barriers*, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Custom-Made-Barriers, please send an email to documentation@cedre.fr to request full version);
- CEDRE. *Involvement of Sea Professionals in Spill Response,* 2012 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Sea-Professionals, please send an email to documentation@cedre.fr to request full version);
- CEDRE. *Response to Small-Scale Pollution in Ports and Harbours*, 2007 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Pollution-in-Ports please send an email to documentation@cedre.fr to request full version);
- IPIECA/IOGP. *Mutual Aid Indemnification and Liability*, 2016 (http://www.ipieca.org/resources/awareness-briefing/mutual-aid-indemnification-and-liability-including-a-template-emergency-personnel-secondment-agreement/);
- IPIECA/IOGP. *The Use of Decanting during Offshore Oil Spill Recovery Operations*, 2016, (http://www.ipieca.org/resources/awareness-briefing/the-use-of-decanting-during-offshore-oil-spill-recovery-operations/);
- ITOPF. *TIP 3 – Use of Booms in Oil Pollution Response*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-3-use-of-booms-in-oil-pollution-response/);
- ITOPF. *TIP 5 – Use of Skimmers in Oil Pollution Response*, ITOPF, 2012, (www.itopf.com/knowledge-resources/documents-guides/document/tip-5-use-of-skimmers-in-oil-pollution-response/);
- ITOPF. *TIP 8 – Use of Sorbent Materials in Oil Spill Response*, 2012 (www.itopf.com/knowledge-resources/documents-guides/document/tip-8-use-of-sorbent-materials-in-oil-spill-response/); and
- OSRL. *Containment and Recovery Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Containment-and-Recovery-Handbook.pdf).

LESSON 2.9: USE OF DISPERSANTS

Objective:

The objective of this lesson is to ensure that participants understand the mechanism of dispersion, the tactical advantages and disadvantages of using dispersants and consider how dispersants can be used as a tactical response option.

At the end of this lesson, participants will understand:

- the principles of dispersion;
- how dispersants can be applied including the need for monitoring;
- the decision-making process that must be considered prior to using dispersants as tactical response option; and
- the advantages and disadvantages of applying dispersants.

Rationale:

When facing an oil spill, responders have to select the most appropriate response options in order to minimize damages from oil on the environment and socio-economic activities. The use of dispersants can, in the appropriate circumstances, help to minimize such damage and, as such, are key tactical considerations. However, no magic option exists and these methodologies all have operational limitations. Managers must have a basic knowledge about the available response options in order to make sound decisions, not only at the time of an incident but also during the contingency planning stage.

Lesson length: 30 min.

Further reading:

- IMO. *Field Guide for Oil Spill Response in Tropical Waters,* 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO)**;
- IMO. *Guidelines for the Use of Dispersants for Combating Oil Pollution at Sea* (to be published), International Maritime Organization, London **(Approved by IMO)***;
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO)**;
- CEDRE. *Using Dispersant to Treat Oil Slicks at Sea*, 2005 (wwz.cedre.fr/en/content/download/1779/138734/file/extract-using-dispersant.pdf);
- IPIECA/IOGP. *Dispersant Logistics and Supply Planning*, 2013 (http://www.ipieca.org/resources/good-practice/dispersant-logistics-and-supply-planning/);
- ITOPF. *TIP 4 – Use of Dispersants to Treat Oil Spills*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-4-use-of-dispersants-to-treat-oil-spills/);
- OSRL. *Dispersant Application Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Vessel-Dispersant-Application-Handbook.pdf);
- OSRL. *Dispersant Application Monitoring Field Guide, Tier I*, 2015 (www.oilspillresponse.com/technical-library/dispersant-application-monitoring-field-guide---tier-i-visual-observation/);

* Please note that Part IV of the IMO *Guidelines for the Use of Dispersants for Combating Oil Pollution at Sea* is currently under development.

- OSRL. Dispersant Application Monitoring Field Guide Tier II and III, 2015 (www.oilspillresponse.com/technical-library/dispersant-application-monitoring-field-guide---tier-ii-and-iii/); and
- OSRL. *Vessel Dispersant Application Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Vessel-Dispersant-Application-Handbook.pdf).

LESSON 2.10: IN SITU BURNING (OPTIONAL)

Objective:

The objective of this lesson is to ensure that participants understand the use of In Situ Burning (ISB) as a possible spill response technique, discussing how operations may be effective and which equipment monitoring and tactical considerations may be required. Please note that this is an optional module and if the topic is not appropriate, can be substituted by case histories, group discussion or an exercise.

At the end of this lesson, participants will understand:

- the principles of ISB;
- how ISB can be undertaken including the need for monitoring;
- the decision-making process that must be considered prior to using ISB as a tactical response option; and
- the advantages and disadvantages of undertaking ISB operations.

Rationale:

When facing an oil spill, responders must select the most appropriate response options in order to minimize damages from oil on the environment and socio-economic activities. In the appropriate circumstances, use of ISB may be a potential technique. In order to consider this, participants need to be aware of how to conduct ISB operations, the potential effectiveness and the tactical considerations. This methodology has operational limitations and managers must have a basic knowledge of the available response options in order to make sound decisions not only at the time of an incident but also during the contingency planning stage.

Lesson length: 30 min.

Further reading:

- IMO. *In-Situ Burning Guidelines*, 2017 Edition, International Maritime Organization, London, 2017 **(Approved by IMO);**
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- Fingas, M., Oil Spill Science and Technology, 2011 ;
- IPIECA/IOGP. *Guidelines for the Selection of In-Situ Burning Equipment*, 2016 (http://www.ipieca.org/resources/awareness-briefing/guidelines-for-the-selection-of-in-situ-burning-equipment/);
- ITOPF. *TIP 3 – Use of Booms in Oil Pollution Response*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-3-use-of-booms-in-oil-pollution-response/); and
- OSRL. *Offshore In-Situ Burn Operations Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/In-Situ-Burn-Handbook.pdf).

Video 2.4: At-sea Response

Objective:

The objective of this video is for participants to gain an understanding of at-sea response operations.

At the end of this video, participants will:

- understand the principles of at-sea response operations;
- be aware of the advantages and limitations of at-sea response; and
- understand the equipment and methodologies employed during at-sea response operations.

Rationale:

When facing an oil spill, responders have to select the most appropriate response options in order to minimize damages from oil on the environment and socio-economic activities. Containment and recovery of lost pollutants is a key tactical consideration. However, no magic option exists and these methodologies all have their operational limitations. Managers must have a basic knowledge of the available response options in order to make sound decisions not only at the time of an incident but also during the contingency planning stage.

Lesson length: 30 min.

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/3-at-sea-response/

Further reading:

- IMO. *Field Guide for Oil Spill Response in Tropical Waters*, 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO);**
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization , London, 2005 **(Approved by IMO);**
- CEDRE. *Involvement of Sea Professionals in Spill Response,* 2012 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Sea-Professionals, please send an email to documentation@cedre.fr to request full version); and
- CEDRE. *Response to Small-Scale Pollution in Ports and Harbours*, 2007 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Pollution-in-Ports).

Exercise 2.3: Implementing Response Strategy (At-sea)

Objective:

The objective of this exercise is to consolidate the lessons from the previous modules on operational response at sea, including aerial observation, salvage operations, at-sea recovery, dispersant operations and ISB operations, if appropriate. During the exercise, participants will be presented with various scenarios and asked to answer specific questions as the Incident Commander and his or her operational response team.

At the end of this exercise, participants will:

- have consolidated the lessons from the previous operational modules;
- understand the thought processes within the Incident Command; and
- understand what may be required in order to implement the chosen response strategies.

Instructions:

- divide the class into a maximum of five groups;
- nominate a representative from each;
- each group is to discuss the presented scenarios, prepare and record their responses for presentation to the group; and
- discuss results in plenary.

Exercise length: 30 min.

LESSON 2.11: SHORELINE ASSESSMENT AND CLEAN-UP

Objective:

The objective of this lesson is to ensure that participants understand the importance of shoreline assessment and the various clean-up techniques in order to reduce environmental damage.

At the end of this lesson, participants will understand:

- the phases and principles of shoreline assessment;
- the steps to be taken to conduct shoreline assessment;
- the phases in shoreline clean-up;
- the various shoreline treatment options; and
- the basis of shoreline treatment recommendations.

Rationale:

In order to make decisions about shoreline treatment and response operations, incident management requires real-time data on oiling conditions. By conducting shoreline assessments, this data is collected and provides the basis for shoreline treatment recommendations. The goal of shoreline treatment is to remove the oil and/or accelerate the natural recovery of the shoreline while ensuring that clean-up operations will not cause any additional damage. In order to achieve this goal, it is important to know the treatment options and where they are most effective.

Lesson length: 50 min.

Further reading:

- IMO. *Manual on Oil Pollution –Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- IMO. *Bioremediation in Marine Oil Spills*, 2004 Edition, International Maritime Organization, London, 2004 **(Approved by IMO);**
- CEDRE. *Local Authorities' Guide – What to do in the Event of a Spill,* 2012 (For an extract please visit: wwz.cedre.fr/en/content/download/1769/131926/file/extract-local-authorities.pdf please send an email to documentation@cedre.fr to request full version);

- CEDRE. *Response to Small-Scale Pollution in Ports and Harbours*, 2007 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Pollution-in-Ports);
- CEDRE. *Surveying Sites Polluted by Oil*, 2006 (wwz.cedre.fr/en/Our-resources/Documentation/Operational-guides/Surveying-Sites – please send an email to documentation@cedre.fr to request);
- IPIECA/IOGP. *A Guide to Oil Shoreline Assessment (SCAT) Surveys – Good Practice Guide Series*, 2014 (http://www.ipieca.org/resources/good-practice/a-guide-to-oiled-shoreline-assessment-scat-surveys/);
- IPIECA/IOGP. *Mutual Aid Indemnification and Liability Oil Spill Response*, 2016 (http://www.ipieca.org/resources/awareness-briefing/mutual-aid-indemnification-and-liability-including-a-template-emergency-personnel-secondment-agreement/);
- ITOPF. *TIP 3 – Use of Booms in Oil Pollution Response*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-3-use-of-booms-in-oil-pollution-response/);
- ITOPF. *TIP 5 – Use of Skimmers in Oil Pollution Response*, 2012 (www.itopf.com/knowledge-resources/documents-guides/document/tip-5-use-of-skimmers-in-oil-pollution-response/);
- ITOPF. *TIP 6 – Recognition of Oil on Shorelines*, 2011 (http://www.itopf.com/knowledge-resources/documents-guides/document/tip-6-recognition-of-oil-on-shorelines);
- ITOPF. *TIP 7 – Clean-up of Oil from Shorelines*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-7-clean-up-of-oil-from-shorelines/);
- ITOPF. *TIP 8 – Use of Sorbent Materials in Oil Spill Response*, 2012, (www.itopf.com/knowledge-resources/documents-guides/document/tip-8-use-of-sorbent-materials-in-oil-spill-response/);
- ITOPF. *TIP 14 – Sampling and Monitoring of Marine Oil Spills,* 2012, (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP14SamplingandMonitoringofMarineOilSpills.pdf);
- OSRL. *Containment and Recovery Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Containment-and-Recovery-Handbook.pdf);
- OSRL. *Shoreline Operations Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Shoreline-Operations-Handbook.pdf);
- POSOW. *Oiled Shoreline Assessment Manual*, 2013 (www.shorelinescat.com/Documents/Manuals/POSOW%20Oiled%20Shoreline%20Assessment%20Manual%20webversion.pdf) ; and
- POSOW. *Oiled Shoreline Clean-Up Manual*, 2013, (www.posow.org/documentation/manual/cleanupmanual.pdf).

VIDEO 2.5: SHORELINE CLEAN-UP

Objective:

The objective of this video is to illustrate issues related to shoreline clean-up such as planning, shoreline assessment and clean-up techniques.

At the end of this video, participants will understand:

- the importance of contingency planning with respect to shoreline clean-up;
- the importance and techniques for shoreline assessment; and
- the methods for shoreline clean-up and some of the associated issues.

Rationale:

If oil reaches the shoreline the impact can become much more significant, both economically and with respect to environmental damage. This video depicts the planning and survey techniques employed in oiled shoreline assessment, as well at the pros and cons of various shoreline clean-up techniques. This provides managers with an overview of shoreline treatment options and information on making decisions about which is most appropriate for the situation.

Lesson length: 30 min.

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/4shoreline-clean-up/

LESSON 2.12: OIL SPILL RESPONSE IN FAST WATER

Objective:

The objective of this lesson is to ensure that participants understand the basics of fast current response, and are able to develop fast water response strategies, consider how these strategies may be applied within the incident command system and are aware of the specific safety issues when working near fast water.

At the end of this lesson, participants will:

- understand the basics of fast current response;
- be able to develop fast water response strategies for both open water and fast water;
- understand the decision-making process that must be considered prior to responding in fast water and how these strategies may be applied within the incident command system; and
- be aware of the specific safety issues when working near fast water.

Rationale:

When facing an oil spill, responders must select the most appropriate response options in order to minimize damages from oil on the environment and socio-economic activities. At-sea or near-shore containment and recovery may be the preferred response option, but it could mean working in fast water.

In order to do this successfully, participants need to be aware of the basics of fast current response, how to develop these response strategies and the specific safety issues that need to be addressed. This methodology has operational limitations and managers must have a basic knowledge of the response option in order to make sound decisions, not only at the time of an incident but also during the contingency planning stage.

Lesson length: 30 min.

Further reading:

- IMO. *Guideline for Oil Spill Response in Fast Currents*, 2013 Edition, International Maritime Organization, London, 2013 **(Approved by IMO);**
- CEDRE. *Custom Made Spill Response Barriers*, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Custom-Made-Barriers);

- CEDRE. *Manufactured Spill Response Booms*, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Manufactured-Booms, please send an email to documentation@cedre.fr to request full version); and
- ITOPF. *TIP 3 – Use of Booms in Oil Pollution Response*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-3-use-of-booms-in-oil-pollution-response/).

LESSON 2.13: OIL SPILL RESPONSE IN ICE (OPTIONAL)

Objective:

The objective of this lesson is to give participants a detailed understanding of the unique aspects of oil spill response in ice so as to enable them to turn the incident response strategy into tactical instructions, command and control. It will also highlight the advantages and disadvantages of each oil spill response technique in order to facilitate the selection of appropriate response tactics at the time of an oil spill in ice conditions. Please note that this is an optional module and if the topic is not appropriate, can be substituted by case histories, group discussion or an exercise.

At the end of this lesson, participants will:

- understand the considerations for response activities in ice;
- have reviewed response strategies for responding to an oil spill in ice; and
- understand the limitations of response strategies in ice conditions.

Rationale:

Oil in ice presents unique challenges in terms of spill response. It is important for incident management to understand the safety issues, as safety is the first priority and there is a need for special consideration of personnel exposed to cold temperatures and working on/adjacent to ice-infested waters. In addition, conventional spill response equipment may be less effective due to the cold and presence of ice, so understanding the options for response strategies and their limitations is also critical.

Lesson length: 30 min.

Further reading:

- IMO. *Guide on oil spill response in ice and snow conditions*, 2017 Edition, International Maritime Organization, London, 2013 **(Approved by IMO);**
- CEDRE. *Manufactured Spill Response Booms*, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Manufactured-Booms, please send an email to documentation@cedre.fr to request full version); and
- ITOPF. *TIP 3 – Use of Booms in Oil Pollution Response*, 2011 (www.itopf.com/knowledge-resources/documents-guides/document/tip-3-use-of-booms-in-oil-pollution-response/).

MODULE 2.3: RESPONSE ISSUES

MODULE OBJECTIVE

The overall objective of this module is to enable participants to understand issues that need to be addressed during an oil spill. It focuses very much on overall considerations such as health and safety, logistics, decontamination, waste management and disposal. These are critical issues regardless of the response methods being considered.

This module is composed of six lessons, one video and one exercise:

- L.2.14: Oiled wildlife management
- L.2.15: Archaeological and cultural resources
- L.2.16: Health and safety considerations
- L.2.17: Logistical and decontamination issues
- Ex.2.4: Implementing Response Strategy (Shoreline)
- L.2.18: Waste management and disposal
- V.2.6: Waste management
- L.2.19: Communications and Media

LESSON 2.14: OILED WILDLIFE MANAGEMENT

Objective:

The objective of this lesson is to provide participants with an understanding of wildlife management techniques and wildlife response-related issues during an oil spill.

At the end of this lesson, participants will understand:

- the various elements involved in wildlife management from planning through to wildlife response activities;
- the importance of human health and safety; and
- the issues related to the use of volunteers in a wildlife response, wildlife waste management, cross border wildlife response, and media and public expectations.

Rationale:

Wildlife management is an important component within the overall response. Wildlife response can consist both of preventing impact to wildlife and wildlife habitat through proactive measures and minimizing impact through search and collection, treatment and release. Planning is a critical component of effective wildlife management, and includes assessing resources at risk, and identifying available expertise and response resources. It is necessary to understand local laws/legislation with respect to wildlife response, as well as the policies in neighbouring regions in the case of a cross-border incident. Wildlife impacts from an oil spill typically gain large amounts of both media and public attention and attract volunteers eager to assist. Protecting human health and safety is the priority while managing these issues.

Lesson length: 30 min.

Further reading:

- IMO. Field Guide for Oil Spill Response in Tropical Waters, 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO);**
- IMO. Manual on Oil Pollution, Section IV – Combating Oil Spills, 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- CEDRE. Management of Volunteers in Coastal Pollution Response, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Volunteers, please send an email to documentation@cedre.fr to request full version);
- POSOW. Oiled *Wildlife Response Manual*, 2013 (www.oiledwildlife.eu/sites/default/files/POSOW%20oiled%20wildlife%20manual.pdf); and
- IPIECA/IOGP. Key principles for the protection, care and rehabilitation of oiled wildlife, 2017. (http://www.ipieca.org/resources/awareness-briefing/key-principles-for-the-protection-care-and-rehabilitation-of-oiled-wildlife/).

LESSON 2.15: ARCHAEOLOGICAL AND CULTURAL RESOURCES

Objective:

The objective of this lesson is to ensure that participants understand the importance of adapting oil spill response techniques when in the presence of archeological and cultural resources.

At the end of this lesson, participants will understand:

- what may constitute archeological and cultural resources;
- the requirement for resource specialists;
- how oil can impact archaeological and cultural resources; and
- the importance of minimizing impact during clean-up operations.

Rationale:

Archaeological and cultural resources can be of major historical and cultural significance, so it is extremely important that incident management receives accurate and timely information regarding such resources in order to protect them where practicable. Clean-up activities may have to be modified or restricted to ensure resources are not adversely affected and NEBA* must be conducted. This includes engaging operations in any policies and procedures with respect to protecting these resources.

Lesson length: 30 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO).**

* For information, the concept of Spill Impact Mitigation Assessment (SIMA) is currently under development by the oil and gas industry and is a further development of the NEBA concept. Note that at the time of publishing this Model Course, SIMA has not been considered or reviewed by IMO.

LESSON 2.16: HEALTH AND SAFETY CONSIDERATIONS

Objective:

The objective of this lesson is for participants to understand the hazards associated with oil spill responses and the importance of related health and safety considerations during response operations.

At the end of this lesson, participants will understand:

- the hazards associated with oil spill response;
- the key elements of a safety plan; and
- how to implement essential safety requirements.

Rationale:

Ensuring the health and safety of both the public and response personnel is the utmost priority during any oil spill response. It is essential that management and field personnel are able to identify potential hazards and implement associated corrective actions to ensure everyone's safety. The importance of identifying hazards and implementing a safety plan tailored to the response is a key element of a successful response.

Lesson length: 30 min.

Further reading:

- IMO. *Field Guide for Oil Spill Response in Tropical Waters*, 1997 Edition, International Maritime Organization, London, 1997 **(Approved by IMO);**
- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- CEDRE. *Management of Volunteers in Coastal Pollution Response*, 2012 (www.cedre.fr/en/Our-resources/Documentation/Operational-guides/Volunteers, please send an email to documentation@cedre.fr to request full version);
- IPIECA/IOGP. *Oil Spill Responder Health & Safety – Good Practice Guide Series,* 2013 (http://www.ipieca.org/resources/good-practice/oil-spill-responder-health-safety/); and
- IPIECA/IOGP. *Mutual Aid Indemnification and Liability*, 2016 (http://www.ipieca.org/resources/awareness-briefing/mutual-aid-indemnification-and-liability-including-a-template-emergency-personnel-secondment-agreement/).

LESSON 2.17: LOGISTICAL AND DECONTAMINATION ISSUES

Objective:

The objective of this lesson is to ensure that participants understand the importance of the logistics supply chain, equipment staging and decontamination.

At the end of this lesson, participants will understand:

- the components of the logistics supply chain;
- the importance of this supply chain;

- the significance of an equipment staging area; and
- the importance and requirements of a decontamination area.

Rationale:

Logistics are critical to the response effort and it is important to maintain the supply chain in order to avoid "bottlenecks" in response operations; even small breakdowns in the supply chain can cause delays. It is important to establish staging and decontamination facilities early in the response and in a timely manner, since proper decontamination is required to enable personnel to safely leave the spill site for breaks, meals and shift changes.

Lesson length: 30 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills,* 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- IPIECA/IOGP. *The Use of Decanting during Offshore Oil Spill Recovery Operations*, 2016, (http://www.ipieca.org/resources/awareness-briefing/the-use-of-decanting-during-offshore-oil-spill-recovery-operations/);
- IPIECA/IOGP. *Dispersant Logistics and Supply Planning*, 2013 (http://www.ipieca.org/resources/good-practice/dispersant-logistics-and-supply-planning/);
- ITOPF. *TIP 8 – Use of Sorbent Materials in Oil Spill Response*, 2012 (www.itopf.com/knowledge-resources/documents-guides/document/tip-8-use-of-sorbent-materials-in-oil-spill-response/); and
- ITOPF. *TIP 9 – Disposal of Oil and Debris*, 2011 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP9DisposalofOilandDebris.pdf).

Exercise 2.4: Implementing Response Strategy (Shoreline)

Objective:

The objective of this exercise is to consolidate the lessons from the previous module on shoreline assessment and clean-up. During the exercise, participants will be presented with various oil spill response information and asked to develop appropriate response strategies.

At the end of this exercise, participants will:

- have consolidated the lessons from the previous operational modules;
- understand the thought processes within the Incident Command; and
- understand what may be required to implement the chosen response strategies.

Instructions:

- divide the class into a maximum of five groups;
- nominate a representative from each group;
- each group to discuss the presented scenarios, prepare and record their responses for presentation to the group; and
- discuss the results in plenary.

Exercise length: 60 min.

LESSON 2.18: WASTE MANAGEMENT AND DISPOSAL

Objective:

The objective of this lesson is to understand the importance of waste management during an oil spill response and identify best practices in order to minimize the amount of waste generated during an oil spill.

At the end of this lesson, participants will understand:

- the importance of planning for waste management prior to an oil spill;
- the types of waste generated during oil spill response;
- the importance of establishing an efficient waste stream; and
- the options for final disposal of wastes.

Rationale:

Waste management is a key aspect of an oil spill response. It is important for participants to be fully aware of the types of wastes that can be generated and how to manage these efficiently. Pre-planning is very important in order to minimize waste generation, ensure an efficient waste stream, as well as ensuring an environmentally sound solution for final disposal.

Lesson length: 25 min.

Further reading:

- IMO. Manual on Oil Pollution, Section IV – Combating Oil Spills, 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO);**
- IMO. Oil spill waste management decision support tool, 2010. http://www.imo.org/en/OurWork/Environment/PollutionResponse/Documents/Oil%20spill%20waste%20management%20decision%20support%20tool.pdf **(Approved by IMO);**
- CEDRE. Guidance on Waste Management during a Shoreline Pollution Incident, 2011 (wwz.cedre.fr/en/content/download/1780/138739/file/extract-waste-management.pdf, please send an email to documentation@cedre.fr to request full version);
- CEDRE. *Oil Spill Waste Management*, 2004 (www.wcmrc.com/wp-content/uploads/2012/06/Waste-Management-at-Oil-Spills.pdf);
- IPIECA/IOGP. Oil Spill Responder Health & Safety – Good Practice Guide series, 2013 (http://www.ipieca.org/resources/good-practice/oil-spill-responder-health-safety/);
- ITOPF. TIP 9 – Disposal of Oil and Debris, 2011 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP9DisposalofOilandDebris.pdf);
- OSRL. *Shoreline Operations Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Shoreline-Operations-Handbook.pdf); and
- OSRL. *Waste Management Field Guide*, 2011 (www.wcmrc.com/wp-content/uploads/2012/06/Waste-Management-Handbook.pdf).

VIDEO 2.6: WASTE MANAGEMENT

Objective:

The objective of this video is for participants to gain a better understanding of the type of wastes generated during an oil spill and the importance of pre-planning for waste management.

At the end of this video, participants will understand:

- the different types of wastes; and
- the importance of waste management to ensure a smooth response.

Rationale:

Waste management is a key aspect of an oil spill response. It is important for participants to be fully aware of the types of wastes that can be generated and how to manage these efficiently. Pre-planning is very important in order to minimize waste generation, ensure an efficient waste stream, as well as ensuring an environmentally sound solution for final disposal. This video will provide a great visual summary of the important considerations related to waste management.

Lesson length: 25 min (20 min video, 5 min discussion).

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/5waste-management/

LESSON 2.19: COMMUNICATIONS AND MEDIA

Objective:

The objective of this lesson is to ensure that participants understand the need for a communications plan and a media response plan to gather and disseminate information during an incident. In addition, participants will be given some basic guidance on how to conduct themselves during a media interview and will be asked to consider the contents of a press release.

At the end of this lesson, participants will:

- understand the need for a communications plan;
- understand the need for a media response plan;
- have received some basic guidance on being interviewed; and
- have considered the contents of a press release.

Rationale:

Communications, both internal and external, are common challenges during an oil spill response, but are also vital for an effective response. Considering these and understanding the need for an effective communications plan can allow many of these challenges to be addressed prior to an incident. This can be facilitated by developing a communications plan and a media response plan. Participants also require some basic guidance on how to conduct themselves during a media interview and the contents of a press release.

Lesson length: 45 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section IV – Combating Oil Spills*, 2005 Edition, International Maritime Organization, London, 2005 **(Approved by IMO).**

MODULE 2.4: INCIDENT TERMINATION

MODULE OBJECTIVE

The overall objective of this module is to enable participants to understand the termination process of a response and to consider the post-incident operations and administrative issues that need to be addressed. This module will also include a short reference to oil spill compensation which, whilst mainly covered in the Level 3 course, is also of importance to the incident command.

This module is composed of three lessons, one video and one exercise:

- L.2.20: Response Termination Criteria
- L.2.21: Post-incident Operations
- L.2.22: Post-incident Administrative Issues
- V.2.7: Video: Oil Spill Compensation
- Ex.2.5: Implementing Response Strategy (Ongoing and Post-incident Operations)

LESSON 2.20: RESPONSE TERMINATION CRITERIA

Objective:

The objective of this lesson is to ensure that participants understand the difficulties and challenges associated with the termination of a response. Participants will understand the issues related to response termination, as well as the selection and definition of appropriate termination criteria.

At the end of this lesson, participants will:

- understand the difficulties and issues associated with termination of response;
- understand termination consideration for at-sea response and shoreline clean-up; and
- be able to define termination criteria.

Rationale:

Termination of response is one of the most delicate stages of an oil spill response. As operations are typically winding down and remaining quantities of oil diminishing, without termination criteria agreed on at the beginning of the spill, it can be challenging to decide to end the response.

Lesson length: 20 min.

Further reading:

- IMO. *Manual on Oil Pollution Section II – Contingency Planning*, 2018 Edition, International Maritime Organization, London, 2018 **(Approved by IMO).**

LESSON 2.21: POST-INCIDENT OPERATIONS

Objective:

The objective of this lesson is for participants to understand the post-incident operations required after an oil spill as well as the importance of post-spill monitoring or studies.

At the end of this lesson, participants will understand:

- the tasks that must be completed at the end of a spill; and
- the steps involved in the development of post-spill studies.

Rationale:

Following an oil spill response, various tasks must be undertaken to bring the spill to a close. Various operational and administrative tasks are necessary to return the equipment to its pre-spill condition, ensuring that the incident is well documented, and lessons learned identified. Typically, post-spill studies initiated during a response will continue for a period of time, depending on study objectives and goals.

Lesson length: 25 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section V – Administrative Aspects of Oil Pollution Response,* 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO);**
- ITOPF. *TIP 15 – Preparation and Submission of Claims from Oil Pollution,* 2012 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP15PreparationandSubmissionofClaimsfromOilPollution.pdf); and
- Premiam. *Post-Incident Monitoring Guidelines*, 2018. (https://www.cefas.co.uk/premiam/guidelines/).

LESSON 2.22: POST-INCIDENT ADMINISTRATIVE ISSUES

Objective:

The objective of this lesson is for participants to understand the various administrative tasks that should take place following the response to an oil spill.

At the end of this lesson, participants will:

- understand the administrative tasks that should be undertaken following an oil spill;
- understand the importance of incident documentation and debriefing; and
- have an overview of the claim and compensation system.

Rationale:

Administrative tasks such as documenting an incident and conducting a debriefing session are important elements of the process that should be completed at the end of a spill response. The results of these will help identify important elements of the contingency plan that can be improved. The

presentation also provides an overview of the claims and compensation system in place at the international level in case of oil spills.

Lesson length: 30 min.

Further reading:

- IMO. *Manual on Oil Pollution, Section V – Administrative Aspects of Oil Pollution Response,* 2009 Edition, International Maritime Organization, London, 2009 **(Approved by IMO)**; and
- ITOPF. *TIP 15 – Preparation and Submission of Claims from Oil Pollution,* 2012 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP15PreparationandSubmissionofClaimsfromOilPollution.pdf).

VIDEO 2.7: OIL SPILL COMPENSATION

Objective:

The objective of this video is to enable participants to gain an understanding of the claims and compensation system in place at the international level. They will also be given a better understanding on the information that needs to be submitted in order to get compensation.

At the end of this video, participants will:

- be aware of the international system for claims and compensation from oil pollution; and
- understand the types of claims and the information needed to get compensation.

Rationale:

A claims and compensation system is in place at the international level to provide compensation for costs incurred by victims of an oil spill. Compensation can be received for a variety of claims, ranging from response costs to economic loss. This video provides a good overview of the different types of claims, as well as the process to follow in order to receive compensation.

Lesson length: 30 min. (25 min. video, 5 min. discussion)

Video link: http://www.itopf.org/knowledge-resources/library/video-library/video/7oil-spill-compensation/

Further reading:

- ITOPF. *TIP 15 – Preparation and Submission of Claims from Oil Pollution,* 2012 (www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP15PreparationandSubmissionofClaimsfromOilPollution.pdf); and
- IOPC Funds – Claims information pack. (http://www.iopcfunds.org/publications/).

EXERCISE 2.5: IMPLEMENTING RESPONSE STRATEGY (ONGOING AND POST-INCIDENT OPERATIONS)

Objective:

The objective of this exercise is to consolidate the lessons from the previous modules on waste management, termination of response and administration issues.

At the end of this exercise, participants will:

- have consolidated the lessons from the previous operational modules;
- understand the thought processes within the Incident Command; and
- understand what may be required to implement the chosen response strategies.

Instructions:

- divide the class into a maximum of five groups;
- nominate a representative from each group;
- each group is to discuss the presented scenarios, prepare and record their responses for presentation to the group; and
- discuss the results in plenary.

Exercise length: 60 min.