IPIECA

International Association of Oil & Gas Producers

Oil spill exercises

Good practice guidelines for the development of an effective exercise programme

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Preface

This publication is part of the IPIECA-IOGP Good Practice Guide Series which summarizes current views on good practice for a range of oil spill preparedness and response topics. The series aims to help align industry practices and activities, inform stakeholders, and serve as a communication tool to promote awareness and education.

The series updates and replaces the well-established IPIECA 'Oil Spill Report Series' published between 1990 and 2008. It covers topics that are broadly applicable both to exploration and production, as well as shipping and transportation activities.

The revisions are being undertaken by the IOGP-IPIECA Oil Spill Response Joint Industry Project (JIP). The JIP was established in 2011 to implement learning opportunities in respect of oil spill preparedness and response following the April 2010 well control incident in the Gulf of Mexico.

Note on good practice

'Good practice' in this context is a statement of internationally-recognized guidelines, practices and procedures that will enable the oil and gas industry to deliver acceptable health, safety and environmental performance.

Good practice for a particular subject will change over time in the light of advances in technology, practical experience and scientific understanding, as well as changes in the political and social environment.

Contents

Introduction

Effective oil spill preparedness and response are based on the systematic assessment of oil spill risks, considered within the appropriate operational setting and referencing the ecological and socio-economic resources which may be threatened. This assessment should lead to the establishment of capability commensurate with these risks in the form of emergency organization, procedures, trained personnel, oil spill combatting equipment and logistical support. Oil spill contingency plans are the primary tools to ensure that the established capability is managed and coordinated, within a framework for integrated response between all relevant organizations.

Oil spill exercises encompass those activities through which personnel can practise and check oil spill contingency plans and their incorporated procedures. This can encompass incident assessment and decision making, working together with external organizations, mobilization or deployment of equipment and the development of personnel competence through continual improvement. A programme of exercises for either an organization or facility is a fundamental tool to both verify and improve the effectiveness of oil spill preparedness and response capabilities.

The importance of oil spill exercises is recognized by both governments and industry. This is emphasized by the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC Convention). Under Article 6(2)(b) of this Convention, it is required that governments shall work with the oil and shipping industries, port authorities and other relevant entities to establish '… a programme of exercises for oil pollution response organizations and training of relevant personnel.' It is instructive and important to note in this Article the linkage between exercises and training. Reference to the IPIECA-IOGP publication *Oil spill training: Good practice guidelines on the development of training programmes for incident management and emergency response personnel* (IPIECA-IOGP, 2014) is encouraged when considering how exercises can provide an integrated element within a training programme.

These guidelines should benefit all persons who may be involved in oil spill response, particularly those with responsibility for planning and responding to oil spills within national and local government authorities, oil companies and shipping companies. These same persons should also be involved in the implementation of oil spill contingency plans—the last but ongoing activity of which is exercising.

The development and testing of crisis and incident management organizations and procedures through oil spill exercising has the additional benefit of enhancing preparedness for response to other emergencies.

Purpose and Scope

This document provides guidance on constructing an exercise programme that is suitable for meeting an organization's or facility's requirements. The organization or facility may be involved in oil exploration and production, oil transportation via land or water, or the operation of oil storage facilities and marine terminals. This guidance is aimed at those persons responsible for ensuring oil spill contingency plans are practised and verified. The principles laid out are also applicable to the oil and shipping industries, government organizations and oil spill service providers or contractors. An integrated approach to exercises across a wide range of organizations is encouraged, recognizing that oil spill response can involve many different entities.

The guidance broadly follows the approach recommended in the International Organization for Standardization (ISO) Standard on *Societal security—Guidelines for exercises* (ISO 22398:2013). These ISO *Guidelines* are applicable to all organizations regardless of type, size or nature, whether private or public; they have been adapted in this document to fit the specific context of oil spill preparedness and response. Overall, four main phases of a process for planning exercises are described, namely the design, development, conduct and review of activities included within an exercise programme. This guidance is not prescriptive and readers are encouraged to be flexible in their approach, taking into account the specifics of their oil spill contingency plans and procedures.

The benefits of exercises are many. They provide response teams with the opportunity to practise skills that will be required in an emergency, to work together closely and develop relationships, and to become accustomed to making complex decisions under realistic circumstances. Plans, equipment and systems can be tested and, with appropriate feedback, recommendations can be developed for continual improvement. Furthermore, by allowing the public, media and key local organizations to observe and perhaps participate, government and industry can demonstrate their commitment to managing the risk of oil spills and protecting the environment.

A well-designed and well-implemented exercise programme will enable response personnel to undertake simulated emergency response actions in a controlled, low-risk setting, and will provide the opportunity to:

- assess and validate oil spill contingency plans, procedures, training, equipment and logistics;
- clarify the roles and responsibilities of emergency response and incident management teams;
- improve response coordination, integration and communication within and between the varied organizations and stakeholders;
- identify gaps in response resources or capability;
- build individual and team confidence and competence;
- measure response team performance; and
- identify opportunities for improvements in preparedness and response.

It is strongly recommended that government representatives are encouraged to be involved in industry-led exercises and that industry representatives participate in government-initiated exercises. This will enable all parties to explore and fully understand their separate roles and responsibilities. Regular contact such as this also serves to develop, strengthen and integrate the personal and organizational relationships that are vital in times of emergency.

In all cases, however, a number of guiding principles should be observed when planning exercises; these are outlined in Box 1.

Box 1 *Guiding principles to be observed when planning oil spill exercises*

- Ensure that senior management support and endorse the exercise activity.
- Set clear, realistic and measurable objectives for an exercise.
- Recognize that the thrust of exercising is to improve—not to impress.
- Keep exercises simple and more frequent for faster improvements initially.
- Do not tackle complex exercises until personnel are experienced and competent.
- Do not overcomplicate an exercise with too many activities, locations and participants.
- Ensure successful exercise evaluation—this is as important as conducting it successfully.
- Recognize that planning and conducting a successful exercise is a significant accomplishment.

Exercise programming

Programme management

Overview

Management of an oil spill exercise programme involves the construction of a series of coordinated and integrated exercise activities over time. The exercise programme has its roots and genesis in the oil spill contingency planning process and its related oil spill risk assessment. Programmes should be matched to the needs determined within oil spill contingency plans and should be fit for purpose in both their content and the balance of exercise methods. Exercise activities should be closely linked to the training programme, recognizing the synergies between them.

The guiding principles listed in Box 1 should underpin the chosen exercise activities. The programme should adopt a progressive approach, building and sustaining the capabilities of participating organizations and individuals through the exercise planning process. The programme should address:

- identification of the entity responsible for programme implementation;
- the programme's objectives;
- a plan of exercise activities and their frequency;
- joint exercising and cooperation with other relevant organizations; and
- the resources and budget required to enable programme administration and coordination.

The entity responsible for programme implementation will vary according to organizational and management structures, but typically falls within an oil company's function or department covering either crisis and emergency management or health, safety, environment and security. In some organizations there may be a training department/function that will take an active and coordinating role for the integration of both training and exercise activities. It is important to highlight the importance of the first guiding principle, i.e. that appropriate senior management within the organization should support and endorse the exercise programme. Without the explicit and enthusiastically-expressed commitment from senior management, an exercise programme is unlikely to achieve its full potential. This could seriously undermine oil spill preparedness and response capability and overall emergency management preparedness.

USCG

Exercises provide the opportunity to implement oil spill contingency plans.

Programme objectives

An organization's crisis and emergency programme is likely to identify the overall or strategic goals, and the oil spill contingency planning should set these in the context of oil spill preparedness and response. This should enable a set of

specific exercise programme objectives to be developed, with a view to developing, verifying and improving oil spill response capability. There should be a close linkage with the training programme's objectives. Depending on the scope of the programme, there may also be opportunities to integrate exercise activities across an organization's operations. For example, an offshore installation may need to ensure that its exercise programme is coordinated with local onshore support capability, regional response mechanisms and even broader corporate crisis management functions. Liaison with other organizations such as key authorities or industry partners should also be accounted for in the objectives.

The exercise programme objectives are likely to address the range of themes described in Table 1. The specific objectives will be informed by the organization's crisis and emergency management policy.

Table 1 *Examples of programme objectives*

Theme	Examples
Regulatory	• Main licence to operate through mandated exercise activities. • Ensure that exercise activities provide opportunities to comply with all applicable health and safety laws and regulations and generally promote safe operations. • Participate in, or support, the required exercise activities in a manner that accurately portrays preparedness and response capabilities.
Organizational	• Design and develop exercise activities that present opportunities for improved preparedness and response. • Ensure that exercise activities: - provide opportunities to develop, maintain, validate and build capabilities described in crisis, emergency and oil spill contingency plans; - reflect an integrated approach across and between company organizations; and - provide opportunities to assess the full range of impacts and incidents that may be faced, and provide a framework for appropriate emergency decision making.
Communications	• Ensure that exercise activities: - provide opportunities to gather and coordinate information within an incident management team and with other relevant parts of an organization; and - provide opportunities for interaction, exchange and coordination of information with a variety of external audiences, including authorities, the local community, the media and other stakeholders.
Planning	• Ensure that exercise activities: - provide for the opportunity to evaluate and verify the completeness and value of existing oil spill contingency plans; - are scheduled at appropriate frequencies and are coordinated within and between organizational levels to obtain maximum efficiency; and - provide a consistent understanding among responders of oil spill response principles and organization.

Exercise activities and frequency

The proposed exercise activities and their frequency should be included in the exercise programme. The actual mix and frequency of the activities depends on the scope of the programme and will vary between operations and locations. There may be regulatory stipulations for exercise activities and frequency—see Table 2 for an example of the requirements placed on UK offshore operators.

Table 2 *Example requirements for offshore operators (adapted from DECC, 2012)*

Type of exercise	Frequency
Offshore Oil Pollution Emergency Plan activation and test	1 per shift per year
Offshore deployment of Tier 1 surface dispersant spraying equipment	Monthly
Offshore deployment of oil containment and recovery equipment	1 per year per installation
Onshore Emergency Response Centre (ERC) activation to at least Tier 2 level	1 per year per operator
Joint ERC and Secretary of State's Representative activity to include establishment of Operations Control Unit	1 per 5 years

When considering the scheduling of activities which may either go beyond regulatory requirements or where such regulation is absent, the relevant oil spill contingency plans should again be referenced. This should provide realistic planning scenarios which address an organization's or operation's risk within a tiered preparedness and response framework. The Tier 1, 2 and 3 planning scenarios provide the bedrock for a suite of relevant exercise activities to be considered and consolidated into an exercise programme. This may include a variety of alert and notification, spill assessment, incident management and equipment mobilization/deployment activities. Further information concerning exercise activities, including methods, is provided on pages 12–15.

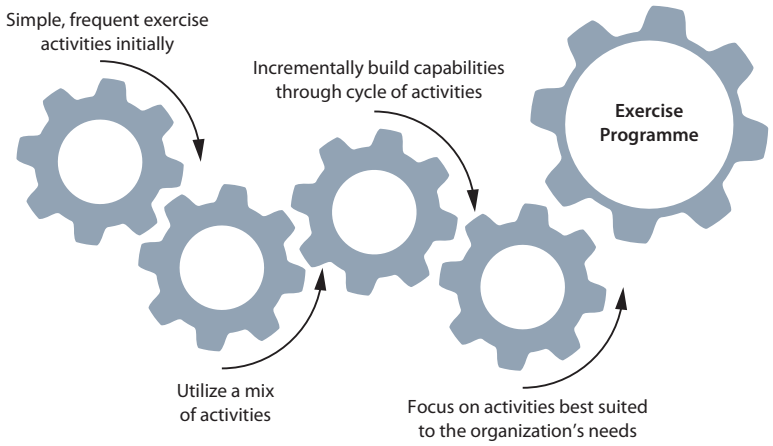
Paul Schuler

Spraying water as part of a Tier 2 aerial dispersant simulation activity.

The frequency of exercises should ensure that all personnel with allocated emergency or incident management roles have adequate opportunities to participate. Goals should be established within the exercise programme—for example, additional exercises should be conducted when more than 20% of a team's members have not participated in an exercise activity within a 12-month period.

The need to observe the guiding principles outlined in Box 1 on page 6 is again emphasized, particularly with regard to ensuring that an exercise programme encompasses simpler, more frequent activities, at least initially. Even within a well-established programme, caution should be taken to avoid making activities too complex. When considering the exercise activity scheduling, an integrated stepwise approach is recommended, as illustrated in Figure 1 on page 10.

Figure 1 *The integrated stepwise approach to exercise activity scheduling*



In practice, an organization may adjust the exercise activities and their frequency depending on various factors. For example, an organization should increase its exercise frequency when a new risk to their operations has been identified, or when personnel changes have a significant impact on the composition of emergency or incident management teams. Alterations to the exercise programme may also be necessary based on a feedback loop from either real incidents or previous exercise activities which might identify areas for improvements, measures to achieve the improvements and further exercise activity to verify them.

Joint exercising and cooperation

It is inevitable that oil spill incidents will involve the interaction between the response organization and a variety of other organizations. This may be limited to statutory notification requirements or may extend to the need to participate in an integrated response involving multiple entities from the authorities and private sectors, alongside media interest and concerned community bodies.

An exercise programme provides the opportunity to incorporate the interface with external organizations into the activities. Initially, the interface may be practised through the use of simulation (i.e. role play) which may then progress to inviting actual representatives from the external organizations to participate in joint activities. This approach should be an extension of an inclusive oil spill contingency planning process and should serve to strengthen understanding and cooperation between organizations.

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Joint exercises provide opportunities for building relationships, as in this USA-Canada deployment activity.

The guiding principles remain valid for joint exercising between organizations. It is important that all organizations are fully committed to the joint activities at a senior level and that initial activities are kept relatively simple.

Administration

Programme administration requires consideration of scheduling, budgeting, staffing, coordination and other factors. Scheduling of activities is addressed on pages 15–16, and Table 3 provides further details of the key factors. These factors are interdependent and may also overlap with similar considerations within a training programme.

Table 3 *Key factors to be considered for effective programme administration*

Factor	Considerations
Budget	• Annual budget cycles should include allocations to cover proposed activities within the exercise programme. • It may be advantageous to establish separate expense codes to classify and track exercise activity costs; this will also support more accurate future budgeting cycles. • The budget should incorporate estimates of the variety of internal and external costs involved in exercise activities.
Staffing	• There may be requirements for a significant allocation of staff and/or consultant time to support the coordination and delivery of exercise activities.
Coordination	• There may be opportunities for coordinating exercise activities across an organization, e.g. within different parts of a company. • The participation of multiple groups in one exercise can bring economies of scale. • The impact of staff turnover (possibly increasing the activities) or the occurrence of an actual incident (possibly decreasing activities) should be taken into account when coordinating the programme. • Coordinate with new operational activity that would benefit from testing (e.g. the arrival of a new drilling rig)
Management approvals	• The endorsement and oversight of top management should remain a continuing feature of the programme. • Management inputs to objectives and needs should be incorporated into the programme. • Achievement of exercise programme objectives should be documented and integrated into personnel performance appraisal processes, where applicable.
Tracking outcomes	• The programme should establish a systematic approach to documenting, assigning and tracking the implementation of improvement actions following exercises. • Agreed action items from exercises should be captured in the system, with persons responsible identified and deadlines set. • Where possible the actions items should incorporate specific, measurable, achievable, relevant and time-based (SMART) goals.

Exercise methods

Exercise activities may be undertaken using a variety of methods, as listed below. Examples of the durations of delivery for each method are indicated in brackets (these times exclude the planning and preparation, which may be significant):

- Discussion-based activities:
  - Seminar (1–2 hours)
  - Workshop (2–8 hours)
  - Tabletop (2–4 hours)
- Operations-based activities:
  - Drill (4–8 hours)
  - Functional exercise (4–8 hours)
  - Full-scale exercise (8–72 hours)

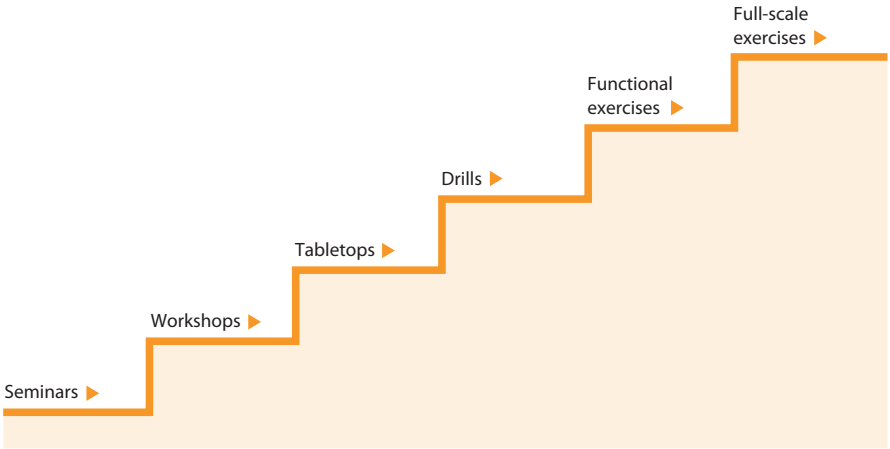
The methods described are based on ISO 22398:2013; they may be implemented flexibly and adapted to suit the specific needs of an organization.

Discussion-based exercises can be used to familiarize players with, or develop new, plans, policies, agreements and procedures. They typically focus on strategic, policy-oriented issues. Facilitators and/or presenters usually lead the discussion, keeping participants on track towards meeting the activity's objectives.

Operations-based exercises can be used to validate plans, policies, agreements and procedures, clarify roles and responsibilities, and identify resource gaps. Operations-based exercises are more action-oriented, characterized by an actual reaction to an exercise scenario, such as initiating communications or mobilizing personnel and resources.

An exercise programme is likely to encompass a mix of these methods, commensurate with the programme objectives and requirements of the oil spill contingency plan. The approach is likely to be progressive, with discussion-based exercise activities preceding operation-based activities within the programme.

Figure 2 *The progressive development of an exercise programme*



Seminars

Seminars are generally informal orientation events, typically providing an overview of oil spill contingency plans and their related policies and procedures. There are no constraints imposed by real-time simulation of events. They can be valuable for organizations that are developing or making major changes to existing plans or procedures. Attendees have the opportunity to discuss their individual roles and responsibilities with a team; the facilitator may use simple scenarios to build understanding. The success of seminars relies on the delivery of information by a knowledgeable and experienced person.

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Orientation seminar for a company response team.

Workshops

A workshop is a formal discussion-based activity led by a facilitator or presenter, used to build or achieve a product. The level of participant interaction is increased compared to seminars. Products produced from a workshop can include new or revised plans and procedures, mutual aid or cooperation agreements and improvement plans. Workshops are often employed during exercise development to write exercise performance objectives and scenarios. They can also be used to build deeper understanding of an individual's roles and responsibilities, and can include the use of either break-out or walk-through sessions.

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Workshops can assist with the development of scenarios.

Tabletop exercises

Tabletop exercises involve discussion of simulated scenarios by key personnel in an informal setting. They are facilitated activities, used to build competence and confidence in the implementation of oil spill contingency plans and procedures. Issues that result from the simulated events are discussed in depth by the participants who develop decisions through slow-paced problem solving.

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A group discussion during a tabletop exercise.

Tabletop exercises can range from basic to complex. In a basic tabletop exercise, the scenario is presented and remains constant. Players apply their knowledge and skills to a list of problems presented by the facilitator; problems are discussed as a group; and resolution is reached and documented for later analysis. In more advanced tabletop exercises, the scenario advances as players receive pre-scripted messages. A facilitator usually introduces problems one at a time in the form of a written message, simulated telephone call, multimedia presentation or other means. Players discuss the issues raised by each problem, referencing established authorities, plans and procedures for guidance. Player decisions are incorporated as the scenario continues to unfold.

During tabletop exercises, all participants should be encouraged to contribute to the discussion and be reminded that they are making decisions in a no-fault environment. Effective tabletop facilitation is critical to keeping participants focused on the exercise objectives.

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Testing protective boom deployment as part of a drill.

Drills

A drill is a coordinated, supervised activity usually employed to validate a specific function or capability in a single organization or agency. Drills are commonly used to provide training on new equipment, validate procedures, or practice and maintain current skills. For example, a drill may be used to test the notification and alert procedures within an oil spill contingency plan. A drill is useful as a stand-alone tool, such as to test or verify a tactical booming plan to protect a sensitive shoreline resource. However a series of drills can be used as building blocks to prepare several organizations to collaborate in a full-scale exercise.

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A functional exercise focusing on planning procedures.

Functional exercises

Functional exercises are designed to validate and evaluate capabilities, multiple functions and/or sub-functions, or interdependent groups of functions. They are typically focused on exercising plans, policies, procedures, and staff members involved in management, direction, command and control functions. An exercise scenario with event updates drives activity, typically at the management level. A functional exercise is conducted in a realistic, real-time environment; movement of personnel and equipment is usually simulated.

Functional exercise controllers typically ensure participant activity remains within predefined boundaries and that exercise objectives are accomplished. Simulators (i.e. role-players) can inject scenario updates and developments to mimic real events.

Full-scale exercises

Full-scale exercises are typically the most complex and resource-intensive type of exercise. They may involve many stakeholders including multiple agencies, organizations and jurisdictions, and can validate many facets of preparedness. These exercises may be held to test plans and procedures across the breadth of an organization's crisis, emergency response and oil spill contingency arrangements. They can involve national capability and regional or international support, i.e. transboundary response issues. They often include many players operating under cooperative incident management systems.

In a full-scale exercise, an exercise scenario with injects (event updates) drives activity at the operational level. Full-scale exercises are usually conducted in a real-time, stressful environment that is intended to mirror a real incident. Personnel and resources may be mobilized and deployed

to the scene, where actions are performed as if a real incident had occurred. The full-scale exercise simulates reality by presenting complex and realistic problems that require critical thinking, rapid problem solving and effective responses by trained personnel.

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A joint information centre, established as part of a full-scale exercise.

The level of support needed to prepare for, and conduct, a full-scale exercise is greater than that needed for other types of exercise. The exercise site is usually large and site logistics require close monitoring. Safety issues, particularly regarding the use of oil spill response equipment, must be monitored. Throughout the duration of the exercise, a number of activities can occur simultaneously. The guiding principles presented in Box 1 on page 6 of this document should be borne in mind when considering the inclusion of a full-scale exercise within an exercise programme. Care should be taken not to tackle complex exercises until personnel are sufficiently experienced and competent. Furthermore, too many activities, locations and participants can overcomplicate an exercise and may be detrimental. A full-scale exercise is usually considered as suitable for the culmination of an exercise programme's cycle or a tool for mature organizations to periodically verify overall response capability.

Constructing an exercise schedule

The exercise schedule should encompass the overall programme aims, incorporating the chosen exercise activities and their specific objectives and frequencies. It should cover at least an annual period but may extend to address ongoing or sustained activities and those exercise events which may occur less frequently than annually. Four steps are proposed to assist in constructing the schedule, as described below.

Step 1: Assess current status

Reference should be made to an organization's crisis and emergency management policies and the needs identified in relevant oil spill contingency plans. An assessment should be made of the current oil spill preparedness and response capabilities in relation to the needs. This should align with the exercise programme objectives, as previously identified.

Step 2: Identify exercise activities

Identify the types of exercise activities best suited to build and strengthen the necessary capabilities of the organization, aligned to the programme objectives.

Step 3: Determine activities' objectives

Determine the preliminary objective(s) that relate to each proposed exercise activity. This will focus on the capabilities that are being developed or validated during each activity. This step may identify the need for joint exercising with other internal or external organizations in order to satisfy the objectives.

Step 4: Allocate a schedule

A tentative schedule for developing and conducting exercise activities should be identified. The schedule should incorporate:

- the exercise activities identified;
- the required planning period for each activity;
- any training requirements that may be needed prior to the activity; and
- other planned activities within the organization which may affect scheduling.

Training may be required prior to undertaking exercises.

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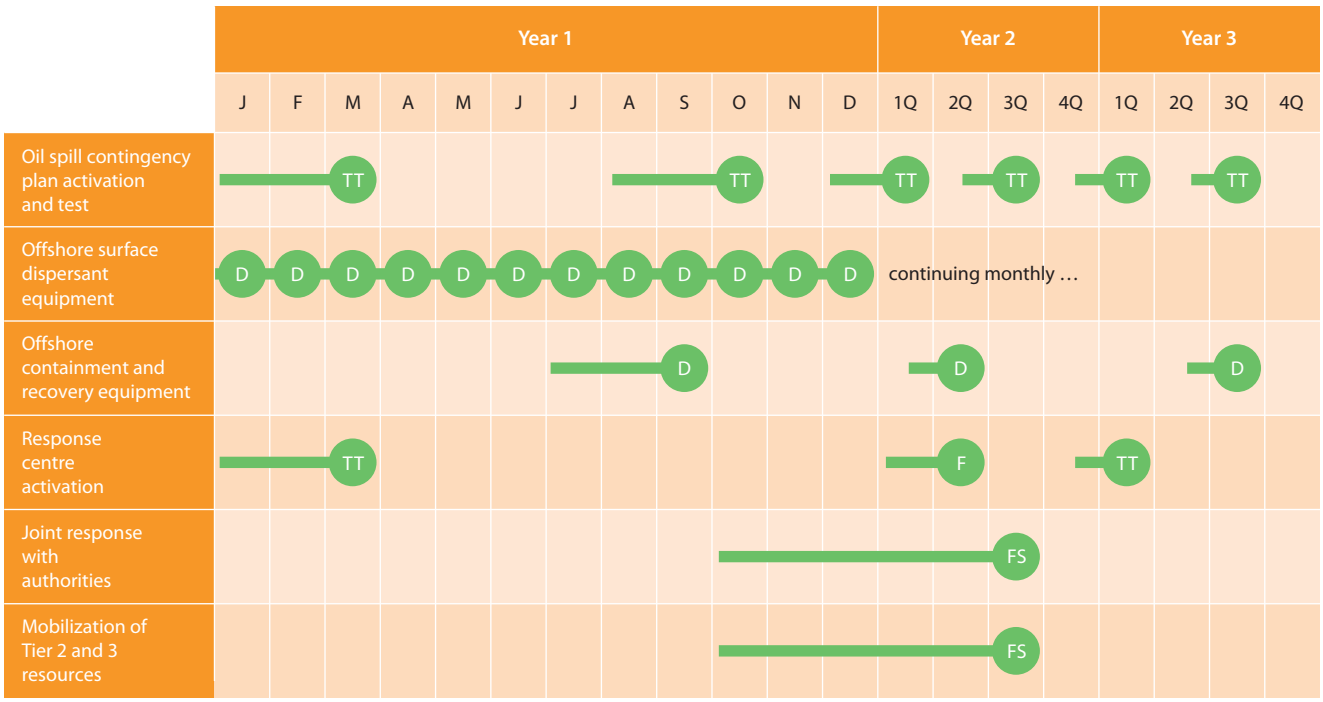
The schedule should be approved by senior management and circulated to all relevant personnel. Exercise activities are usefully indicated on annual or multi-year charts and published in shared electronic diaries where appropriate.

Figure 3 *Example exercise schedule for an offshore installation*



Notes: D = Drill; TT = Tabletop exercise; F = Functional exercise; and FS = Full-scale exercise. Lines indicate planning periods.

The exercise planning process

Once an exercise programme is developed, including the broad objectives and overall schedule, there is a requirement to plan each activity within the programme. This planning process consists of four separate phases—design, develop, conduct and evaluation/review. Collectively, these four phases describe the process for creating and running a realistic and successful exercise. Each exercise commences at the design phase and is completed at the review, pending follow-up actions. Example milestones for planning a full-scale exercise are given in Annex 1. In the context of an integrated exercise programme, the lessons captured and follow-up actions identified in the review phase will feed into the design of future exercises. The process may be viewed as cyclical, embedded within the overall exercise programme and linked to the oil spill contingency planning as illustrated in Figure 4. The four phases of the exercise planning process are defined as follows:

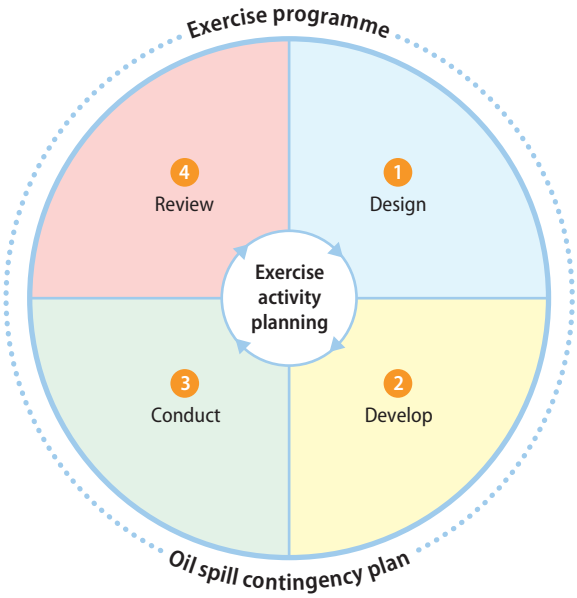
Design: the design phase sets the specific exercise objectives and scope and sets out the timetable necessary for completion of the event.

Develop: the development phase describes those steps that are taken to create the exercise, and to fully prepare for, and organize, the related activities. This phase must take into account any public affairs/media aspects of the exercise.

Conduct: the conduct of the exercise consists of the initiation of play and its maintenance by simulating, monitoring, controlling and facilitating activities to ensure that the exercise remains within the design parameters. It also involves documentation of the participants' activities and conclusion of the exercise.

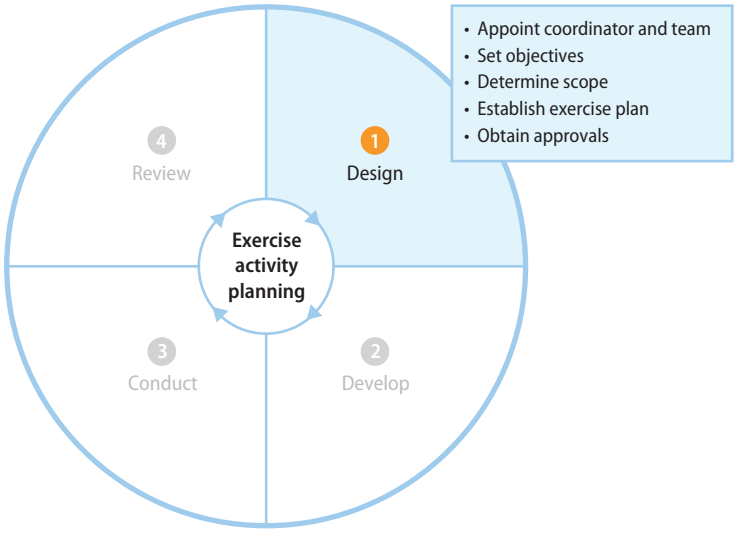
Evaluation/review: the review phase consists of collecting and analysing data, documenting findings and recommendations for improvement, and ensuring feedback to management. As the oil spill contingency plan is revised and updated, the exercise programme is similarly adjusted to take into account the lessons learned from prior exercises.

Figure 4 *The four phases of the exercise planning process*



Design phase

Figure 5 *Phase 1 of the exercise planning process—design*



The design phase lays the groundwork for development of the exercise and is described through five actions: appoint exercise coordinator and team; set objectives; determine scope; establish specific plans; and obtain management approval. As the first step in planning an exercise, it sets the parameters and tone for subsequent phases and is fundamental to the overall success.

Appoint a coordinator and planning team

The appointment of an Exercise Coordinator and supporting team of professionals assigns responsibility for the exercise. The Exercise Coordinator is charged with the overall management of the exercise activity across the whole process. Neither the coordinator nor the team involved in running the exercise should participate as players, if avoidable. In the design phase, the Exercise Coordinator makes the necessary contacts, develops broad proposals for the exercise and obtains management approval. In selecting the Exercise Coordinator and team, the following questions may be useful:

- What is the decision-making authority required for the anticipated exercise activities?
- What specific technical, managerial or operational expertise is likely to be needed during the exercise design and development phases? Is this expertise available in-house, or is external support needed?
- What time commitments are likely to be needed for the Coordinator and the supporting team members?

The size of the planning team will be dependent upon the scale of the exercise and method of delivery. In all cases the process should follow the same approach. For a simple discussion-based exercise or a notification drill, all the planning tasks may be addressed by one or two people. In a more complex full-scale exercise, the planning team may approach ten persons or more.

Set objectives

The ultimate test of an oil spill contingency plan occurs when an oil spill happens. The success of a response to an oil spill will be judged on the extent and efficiency with which specific aspects are managed, including: speed of response; competency of response team; adequacy of equipment and of its deployment; dissemination of information; effectiveness of clean-up; management of complaints and claims; handling media and public relations; and relations with external agencies.

USCG

Testing communications is frequently part of an exercise's objectives.

Recognizing the criteria by which a team's performance will be judged in the event of a real spill allows exercise objectives to be set to test specific aspects of a contingency plan. It is recommended that an exercise initially be kept simple with relatively few objectives to allow team members to become fully acquainted with the oil spill contingency plan and to gain experience. Similarly, it is wise to test internal elements first before involving external agencies and activities. Two or three primary objectives are better than a long list of secondary objectives, and will enable a specific scenario to be developed that gives realism to the exercise, stretches the participants and add to their knowledge and ability. At the conclusion of the exercise, performance can be judged against the set objectives. Failure to set appropriate objectives can lead to a poorly-designed exercise and overconfident or, alternatively, demoralized teams.

Table 4 *Example exercises and objectives*

Exercise and method	Objectives
Tier 1 equipment deployment drill	• Response team assembled within X minutes of call out. • Containment booms deployed in a specific manner within Y minutes of mobilization. • Oil recovery/storage systems in place and operational within Z minutes of mobilization.
Incident management team tabletop	• Establish, equip and staff the emergency centre within X minutes of call out. • Acquire information from different sources, assess and report the situation and prognosis. • Agree a realistic response strategy, and estimate equipment needed and deployment times. • Identify equipment availability and authorize mobilization. • Test the strategic decision making process, for example, for using dispersants.
Full-scale exercise	• Practice government and industry integrated response, including Tier 3 resources. • Analyse information, assess situations, establish an incident action plan. • Develop seven-day prognosis, estimate the extent of impacts and cost of clean-up. • Test ability to handle media and environmental enquiries. • Agree pollution damage assessment studies with authorized agencies. • Test the interaction between different teams, such as emergency response and crisis management.

The exercise programme defines the overall strategic objectives. Individual exercise activity objectives should therefore be integrated within these programme objectives. Consideration and focus should be given to identifying objectives covering areas where:

- there are regulatory requirements;
- previous exercises have identified potential for improvement;
- verification of particular capability is required; and
- senior management has identified specific needs.

Example objectives for sample exercise methods are given in Table 4 on page 19.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The media's interest in full-scale exercises can be intense, as demonstrated during this national exercise briefing in Turkey.

Handling the media can be a considerable challenge for response team managers in both actual emergencies and in exercises. Care should be taken when selecting public affairs objectives so that the response team can experience realistic situations without being pushed beyond its capabilities. A more detailed analysis of exercise planning in relation to public affairs and the role of the media is addressed in the exercise development phase (pages 27–28).

Determine the scope of the exercise

This step addresses the questions of how ambitious the exercise should be, for example how many people, parties and outside agencies should be involved, where it should be located and how long it should last. Other factors such as what advance information the team should receive and whether they are allowed to make preparations are also decided. Many of these items will depend upon the exercise objectives previously set. It is important to remember that the scope of the exercise is not necessarily a function of the size of the supposed spill.

Some questions that should be asked when considering the scope of an exercise are:

- What type of exercise method(s) will be used? For example, a full-scale exercise may incorporate workshop(s) and tabletop exercise(s) as part of the preparatory process.
- Which other organizations would be involved in the response and should they be omitted, included or role-played in the exercise?
- To what degree should external groups such as the media, stakeholders and members of the public be involved or role-played?
- Should both personnel and physical resources be mobilized?
- Will the exercise be announced or unannounced?
- How much time can be allowed for the exercise, including debriefing?

Establish the exercise plan

It is important to plan the exercise well in advance in order to ensure that the required personnel will be available and to make full use of the opportunities that the exercise will present. The following are considered typical planning periods for the different categories of exercise:

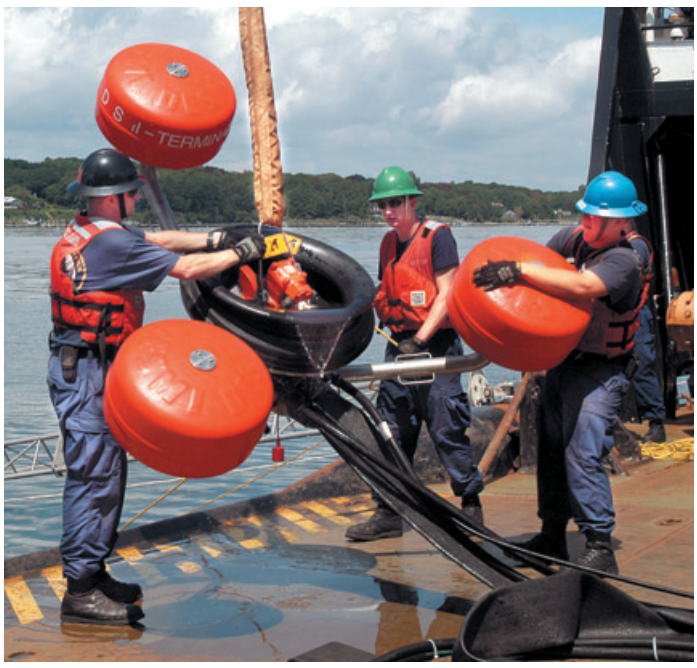
- Seminar: 1–3 months
- Workshop: 1–3 months
- Tabletop exercise: 2–6 months
- Drill: 2–4 months
- Functional exercise: 6–9 months
- Full-scale exercise: 6–12 months

The timing and duration of an exercise should be carefully considered. Although oil spills can occur at any time of the year, there is no reason to schedule an exercise in periods which would be inconvenient to the majority of the players (for example weekends, holidays or in the middle of the night) or when there might be specific dangers (for example in bad weather conditions) unless the exercise is specifically designed to test availabilities and capabilities under such circumstances.

An exercise should preferably be designed to last for one working day, even if the day is a long one. It may be difficult to maintain an atmosphere of crisis throughout a night and into a second day, although this may be necessary in the case of a major full-scale exercise. A schedule for such an extended exercise might be as follows:
Day 1: call-out, travel, assembly, pre-briefing, initiation of exercise.
Day 2: response, crisis management, deployment and recovery of equipment.
Day 3: completion of exercise, debriefing and travel home.

The objectives will determine the location for the exercise, i.e. whether it can be run adequately from the team's offices or whether the team needs to travel and set up a response centre elsewhere. In the latter instance, one should first consider areas of greatest oil spill risk or areas of particular environmental sensitivity.

An 'awareness policy' for the exercise should be determined. This means identifying who should be informed about the exercise and what information should be communicated to them in advance. This policy should recognize which internal and external audiences are likely to hear of the activity, and target the avoidance of confusion or misunderstandings. There should also be a clear policy on how to deal with a possible real emergency during exercise play i.e. the procedure and authority for either suspending or ending exercise activity under these circumstances.



USCG

Offshore equipment deployments can form a part of drills and full-scale exercises, requiring significant resources and planning.


USCG

Exercises cost money and the more extensive the exercise the higher the cost. A full-scale exercise, including equipment mobilization, might cost in the order of US$750,000 or higher. Exercise budgets should include, where appropriate, estimates for travel and accommodation, hire of facilities and equipment, and the services of external consultants and contractors. The time and cost of developing the exercise and supporting materials is usually significant and needs to be included. Forward budget allocation is a good reason for planning exercise programmes on annual cycles.

Logistics and personnel commitments can lead to high exercise costs requiring coordinated budgeting.

A list of exercise participants—agencies, organizations and individuals—should be agreed, and their availability and commitment to the process should be sought. A full-scale exercise might involve a wide variety of stakeholders ranging from government agencies, ship or facility-owner and cargo interests, through logistics and service providers, to local community stakeholders and environmental resource custodians.

An initial assessment of the resources needed to support the exercise activity should be carried out. This should consider the duration of the exercise, manpower, facilities and possible equipment needed, together with an estimation of budgetary implications. Costs of the exercise activity will need to be controlled within limits set by the overall exercise programme.

Finally, a date should be chosen that allows sufficient time for planning, and which facilitates maximum participation and minimum workplace disruption. For tabletop exercises and above it can be advantageous to give the event a name, for example in the form of 'Exercise ------ 20XX'. This brings clarity to an exercise programme, and helps to encourage participation and provide a sense of ownership for all those involved. In major exercises it may also be appropriate to design a specific logo for the event, or for a series of activities in a programme, to further enhance the development of an effective team.

Obtain management approval

It is essential that senior management approve the initial exercise proposal and design basis, including estimates of costs and manpower, to ensure that management at all levels understands, supports and where appropriate, participates in the exercise activity. Exercises need to be adequately resourced in terms of money and manpower, and a tracking system to monitor the exercise may be necessary to control costs.

Development phase

Figure 6 *Phase 2 of the exercise planning process—development*

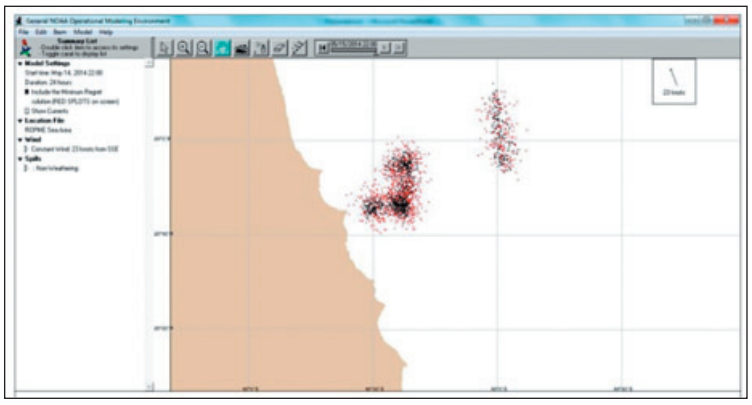
The development steps are those required to create, organize and prepare for the exercise activity. A variety of tasks are involved, which are interrelated and will be undertaken concurrently.

The Exercise Coordinator is responsible for developing detailed exercise plans. In the case of an exercise of limited scope, such as a notification exercise or an equipment deployment drill, the Exercise Coordinator will probably be able to make all the necessary arrangements and manage the process. However, in a full-scale exercise that involves several organizations, it will be necessary to establish a small exercise team, chaired by the Exercise Coordinator, typically representing the major participants. The team has the responsibility for developing the exercise, arranging for all facilities and services, and coordinating its various participants. To achieve this, it is important that the team communicates and meets regularly, keeping the exercise objectives and scope firmly in mind. Exercise objectives of participating groups may differ, as will budgets. Team members should ensure the objectives of their own organization are incorporated into the exercise and that their management approves the overall exercise proposal.

Major exercises can involve the mobilization of equipment, which will require extensive logistical planning.

Develop the scenario

The exercise scenario provides the details of the imagined incident and its development over time, e.g. the circumstances of the accident, the amount and type of oil spilled, and the fate and the potential ecological and socio-economic impact of the incident. Relevant oil spill contingency plans should provide guidance on realistic oil spill risks and potential scenarios. Computer simulation models can offer useful support and fidelity to the scenario development, particularly with respect to the spilled oil's fate and trajectory under realistic weather conditions. Oil spill environmental sensitivity mapping can provide insights into potential ecological or socio-economic resources which may be threatened under scenario conditions. Various options may be considered but the scenario choice should have direct relevance to the agreed exercise objectives.



NOAA

Oil spill simulation models can assist with incorporating realistic fate and trajectory aspects of a scenario.

A master list of events (or injects) and their expected timeline should be developed. The detail contained in this list will vary, depending on the scale and scope of the exercise. Annex 2 provides examples of inject types and possible format. Access to this list should be restricted to those persons involved in the exercise coordination and control. The following considerations will assist the exercise planners in drafting the scenario:

- What key events would players observe or be informed about and when would such information be available? This is likely to include initial pollution reporting notification and subsequent situation reports.
- What level of technical detail is required in the scenario? For example, will the scenario include detailed engineering aspects of a facility, and source control or stability and salvage aspects of a vessel?
- What are the actions that exercise players are expected to take? What are the messages, information updates or simulated actions needed to prompt these actions? The scenario tells a story and thus must follow a logical time line.
- Are potential key reminders needed for the exercise participants, when specific actions are to be completed and/or performed? These reminders are normally used when failure to perform an action could have significant effects on other exercise objectives.
- What implications do the planned or expected events have for simulation and role play? It is the regular input of information that drives the exercise to a conclusion, keeps the players alert and raises in a proper sequence the issues that have to be faced, based on the objectives.

Exercise facilitators will have an important role in ensuring that scenario information is made available in a timely and realistic manner. Information should be visually descriptive—for example photographs can be shaded to give the appearance of oil pollution and maps can be produced to simulate aircraft reconnaissance reports on the position and extent of oil slicks. Some of the inputs can be made indirectly by personnel role-playing third parties, causing the response team not only to consider the dependability of the information but to manage relationships with the characters.

It should be noted that there may be significant pressure on exercise coordinators to share details of the exercise scenario in advance. This pressure should be resisted; the scenario should not be made known in advance to those who will be participating in the exercise as responders. If players have prior knowledge of the scenario and associated events, the elements of emergency decision making will be largely removed. This could lead to the exercise becoming more of a demonstration or a show, rather than a true learning experience.

The desire of players to see details of the scenario in advance may derive from lack of confidence coupled to a fear of embarrassment stemming from a perceived inability to perform their role. A well-designed exercise programme should avoid this by ensuring that exercise players have undertaken suitable training and previous exercise activities to build their capability and confidence. In the case of a full-scale exercise this might include a series of discussion-based exercises as part of the preparatory activities. Participants should be reassured that, as long as activities remain safe, the only 'wrong' action or decision an exercise player can make is to take absolutely NO action or decision. Organizations with limited staff and resources may face a situation where the same person is required to develop the scenario and also participate as an exercise player. If this situation is unavoidable, any person acting as both an exercise planner and player should be particularly careful not to divulge privileged exercise scenario information to the other players.

The scenario should be realistic and the details accurate to the extent that local conditions allow. For instance, it is more realistic to use actual weather and tidal conditions, but if these are not conducive to achieving certain exercise objectives it is better that these details are provided as injects to the exercise, for example through a role-played meteorological service. For operations-based exercises, it will be necessary for the Exercise Coordinator and the development team to visit the chosen location before the exercise to ensure that the information provided in the briefing packages is accurate.

In the more complex exercises there is plenty of scope for increasing the confusion and stress of the initial situation, for example by injecting misleading reports, through aggressive role-playing media, and through political and local interest interventions. Such inputs need to be carefully controlled so that they neither overwhelm the exercise players nor prevent the primary objectives of the exercise from being achieved.

Training and related activities

An organization's training and exercising programme should be integrated, with one element supporting the other in a constructive cycle. For all exercise players to be comfortable with their participation, they should have received suitable training or possess experience relevant to their role. In addition, there may be a need for exercise-specific training, including seminars or briefings, to clarify the exercise objectives and scope.

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Training and exercise activities should be integrated, with one supporting the other in a constructive cycle.

Administration, materials and approval

The Exercise Coordinator is responsible for undertaking or overseeing the administration of the exercise. This may involve a significant amount of communication, and the identification and checking of a wide range of facilities and logistics. The resources needed for this administration should not be underestimated, and should be clearly identified in exercise plans and budgets.

Certain facilities and services, such as operation centre(s), communications, meals, accommodation and transport, are critical to the success of an exercise. It is recommended that the exercise planning team identifies and reserves such items in advance to ensure that they will be available when required, rather than leaving this to the response teams as would be the case in a real incident. In addition, certain materials will need to be developed to brief the participants on the scope of the exercise, to input and update incident information (the scenario injects) and to facilitate review of the exercise (evaluation forms).

USCG

A hotel facility being prepared for a tabletop exercise.

In some locations, there will be an obvious choice of venue for the spill response centre—for example the local authorities' emergency centre or the dedicated emergency room of an industry operation. Where no such specific facility exists, hotels can often provide rooms and reasonable communication facilities. The oil spill contingency plan should stipulate the requirements of an incident command centre in terms of size and number of rooms, communication facilities, etc. and should also have identified suitable facilities within the geographical area covered by the plan. The response team should bring with them the necessary sensitivity maps, lists and reference material which should be an integral part of the oil spill contingency plan. Safety assessments should be carried out for all locations and physical activities or equipment deployments planned during the exercise. The security of facilities should be considered, including the need for badging exercise participants and controlling access to exercise areas.

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Paul Schuler

Use of perlite (below) and popcorn (below right) to simulate oil during exercises in the Barents Sea and Amazon River, respectively.

Operations-based exercises involving the deployment of equipment can benefit from the use of floating substances to mimic or simulate oil. Such simulants can provide a target for offshore operations or to test the ability of containment and protection booms in riverine or coastal locations. A wide variety of simulants have been used ranging from foams and dyes to popcorn, oranges and perlite. The choice of a simulant will be determined by availability, cost, local regulations and practical considerations.

All participants will require an exercise briefing which describes the scope of the exercise, lists the locations and players who will be involved, and advises procedures for concluding the exercise and debriefing participants. A briefing should be given immediately before the exercise starts, either verbally or via a handout, and should be limited to the essential information required for the good running of the exercise. The atmosphere of uncertainty and tension should be allowed to build. The scenario 'master events list' should remain a privileged document for the exercise planning team only, and should not be distributed.

As the development phase nears completion, appropriate management approval should again be sought, with a view to endorsing the exercise plan prior to conducting the event. This step keeps management engaged and ensures that they understand how the exercise has been developed within the framework of their initial approval during the design phase. Annex 3 provides a simple checklist to assist the development of exercises.

Public affairs

Handling the media during an oil spill is often crucial to the public perception of the performance and attitude of those responding. In major oil spill incidents, handling the media and managing the crisis consumes much of the time of response team managers and, in turn, the time of senior personnel in government and industry. An important part of the exercise development phase is, therefore, to determine the extent to which public affairs aspects will be played. Exercise planners should take care to choose public affairs objectives that create realistic situations and provide public affairs personnel with opportunities to manage oil spill issues.

Selecting public affairs objectives

Public affairs objectives may include the response group's ability to:

- handle enquiries, assemble facts, draft responses and obtain requisite management approvals;
- prepare public statements;
- establish an incident website or social media site to disseminate information;
- maintain government/industry liaison;
- interact directly with the media in interviews or press conferences;
- monitor news reports from a variety of outlets and react to them;
- organize a meeting with concerned community representatives/officials; and
- coordinate the flow of information.

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Equipment drills or deployments at public locations require good on-site control.

Experience has shown that response groups can be overwhelmed quickly by repeated organizational and public affairs challenges, both in actual emergencies and in exercises. Exercise planners should therefore choose objectives carefully so as to stretch but not overtax the response teams' capabilities. As those capabilities are developed through an exercise programme, more difficult situations and more complex organizational interactions can be set.

Media relations

Where exercise planners wish to test the capability of the response organization to handle the media, it is preferable to employ company personnel or outside consultants to simulate media interjections. Simulations can range from questions raised via the telephone, to one-on-one interviews, to social media postings and full press conferences. Video camera recordings can be used to increase realism and to provide a learning tool for interviewed personnel. Questions and requests posed by the simulation group should be realistic and demanding in the context of the drill.

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Simulated press conferences can generate significant pressure for incident managers.

It is usually better not to involve real media in exercises unless it is believed that exercise results will promote public confidence in local or national preparedness. At other times, the involvement of the media may be unavoidable, for example when they are invited to observe by other parties or when the exercise involves equipment deployments in public places. In such cases it is better to have the media play a particular role in the exercise and provide them with sufficient information for them to play that role constructively.

Individuals should be designated to brief media representatives prior to the exercise, and to accompany them during the exercise. When involving outsiders, special care should be taken to ensure that the boundaries of the exercise play are understood and maintained so that the incident is not inadvertently mistaken for a real emergency by the general public.

Special badges or passes should identify personnel engaged in the exercise, and every telephone call or written message should begin and end with the word 'exercise'.

External community relations

In any oil spill situation, the cooperation of the local community is essential for an effective response. Not only will the responders need to hire local personnel, equipment and facilities, they will also require assistance and information from many local authorities, organizations and individuals. Relationships with the community should therefore be established at an early stage and may be practised in an extended exercise by simulating contacts with local officials, environmental groups, hoteliers and members of the general public. Company personnel or consultants may be used to simulate these roles. If other government officials and industry representatives are invited to observe the exercise, personnel should be assigned and an appropriate itinerary organized so that they are properly briefed and can view the main exercise activities without interrupting the players.

Paul Schuler

Fishing boats from the local community engaged in a boom deployment drill.

Equipment needed for successful public affairs exercises is modest but essential to create an atmosphere of crisis. This should include telephone lines or mobile telephones made available to role-players playing third-party interventions, suitable internet connectivity to receive written enquiries and to send press statements, and possibly video and audio recording equipment to add realism to interviews and press conferences.

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Consideration may be given to producing a short film covering the exercise activities.

For a full-scale exercise or series of exercises within a programme, consideration may be given to producing a short (usually no more than 10–15 minutes long) professional film covering the activities. The film may include narration of the purpose and objectives of the event, interviews with key participants, deployment of equipment and the main lessons learned. This invariably involves significant planning, and the cost can be relatively high. However it can support an organization's public relations efforts as means to capture the essence of the event's key aims, activities and outcomes for communication to a wide group of stakeholders. A film can also benefit the organization internally as a training tool for those not able to participate on the day, and can help to promote the importance of crisis management within the organization.

Paul Schuler

Paul Schuler

A full-scale exercise in the Caribbean generating high-level media interest, providing an opportunity for industry and government to demonstrate cooperative capabilities to the public.

Conducting the exercise

Figure 7 *Phase 3 of the exercise planning process—conduct the exercise*

The conduct of an exercise consists of briefing participants, initiating play, maintaining the exercise to ensure it remains within the design parameters, documentation and evaluation of activities and, finally, concluding play.

Briefing participants

All participants will require an exercise briefing, preferably verbally, supported by a prepared handout. The briefing should ensure that all exercise participants understand the following:

- category and scope of the exercise;
- aim and performance objectives;
- value and purpose of participation in the exercise;
- the main participating organizations;
- the rule of role-play and injects;
- use of communications and contact details (e.g. exercise telephone directory);
- outline of scenario; and
- conclusion and evaluation process.

The briefing is typically performed by the Exercise Coordinator or their delegate and is best done by gathering the players together immediately before the start of the exercise. The Exercise Coordinator can provide copies of a briefing note and answer any questions the players may have. If several locations are to be involved in the exercise, facilitators should provide the briefing simultaneously at each location. In the case of a notification exercise, when one of

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Briefing a group of observers during a regional exercise.

the objectives is to test team members' availability and response times, any briefing should be given a couple of weeks in advance but the exact time and day of the exercise should not be disclosed. Boundaries of the exercise play should be carefully defined and instructions given to preface initiating communications and all contacts with outside parties with the words 'this is an exercise', or similar.

Initiating play

For discussion-based exercises such as workshops or certain tabletop exercises, the play may be initiated and controlled by verbal injects, handouts, a multimedia presentation or combination of these. The pace of the discussion is then set by the facilitator(s), who may pose questions, provide information updates and set tasks for the participants.

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Deciding how operations-based exercises or more complex tabletop exercises should be initiated is important for establishing realism and urgency. Clear responsibility for initiating play at a predetermined time and in a pre-scripted manner should be established. Typically this would be by a telephone or radio call, from a facilitator playing the role of the captain of the ship or the operator of a facility, to an established notification point such as the local emergency centre, coast guard or company offices, according to the relevant oil spill contingency plan. This information can be delivered as a written message using mandated or other reporting forms but a telephone call is more realistic and more demanding. It is important that such information is communicated quickly to the other participating parties. While this should be by established procedures as described in the relevant oil spill contingency plans, it is often worthwhile for the exercise coordinators to check that lines of communication have been established at an early stage, rather than risk delays in starting the exercise.

Maintaining the exercise

The pace and direction of the exercise scenario is set by the series of scripted and timed interjections used by the exercise coordinators to provide updated information on the imagined incident, making different demands on the teams being exercised. It is important to have prepared sufficient interjections, both in number and scope, to drive the exercise to a conclusion and to allow the objectives to be met. The Exercise Coordinator and supporting staff should carefully monitor the flow of information and the activities of each

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Observers obtain maximum benefit and understanding of an event from a clear explanation of activities.

responding party to troubleshoot problems and keep play within the design parameters. If necessary, a temporary halt should be called to clarify rules or to correct misunderstandings, rather than allow a confused situation to develop to the detriment of the exercise and to individual reputations and relationships. At other times it may be necessary to pause, regroup and review current activities and objectives, make appropriate adjustments and then resume the exercise.

Evaluating activities

Evaluation of exercise activities begins during the exercise as the designated evaluators observe team members' responses and compare them with the expectations of exercise objectives and expected behaviours. Evaluators should be selected carefully and provided with a thorough briefing to enable them to perform effectively. They should not be assigned other tasks but should remain independent from participation in the exercise play. The manner in which evaluators are to measure the performance of individuals and of the teams in general should also be described in advance, and some form of assessment sheet should be developed to record the timeliness, quantity and quality of response activities in relation to the exercise objectives.

Evaluators may interact with exercise players to understand better how they are addressing their roles.

OSRL

Documentation of key aspects of the response is a very important part of the incident management team's performance and is likely to be a feature of many exercise activities and objectives. The documentation produced during the exercise play should be kept for reference during the review phase. This may include physical logs, meeting decisions and electronic documents as well as photographs of status boards, or maps and charts utilized to capture and consolidate incident details.

One of the key guiding principles states that evaluating the exercise successfully is as important as conducting it successfully. It is imperative that sufficient personnel resources are allocated to the evaluation role.

After deployment exercises equipment used must be returned to a state of response readiness.

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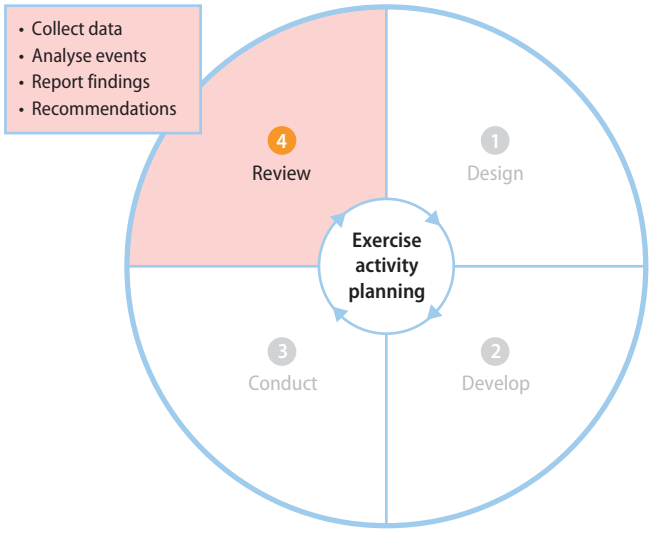
Concluding play

Orderly conclusion of exercise activities is critical to ensuring that play ends positively and tidily. An exercise should not end at a prescribed time but rather when the Exercise Coordinator, in conjunction with supporting staff, determines that exercise objectives have been achieved to the extent possible and that there is little further benefit to be gained. The announcement that the exercise is over should then be passed quickly between all participants.

During exercise development the means to end or suspend the exercise in the case of the real emergency should have been identified and this should be highlighted during the briefing for all participants.

Review phase

Figure 8 *Phase 4 of the exercise planning process—review*



Evaluation of exercise activities is critical to the continual improvement of emergency and crisis response capabilities. This phase of an exercise consists of collecting and analysing data, documenting the findings, and reporting. Recommendations for improvements to the plan, to the equipment or to the training of individuals or groups should be included in the report. Summaries of the findings and recommendations should be copied to exercise participants and management, to provide feedback.

Collect data

The primary sources of information from an exercise are the reports from the coordinating staff and designated evaluators, and the feedback received from the participants and role-players who contributed to the exercise. It is recommended that feedback be provided by the participants in two stages. The first stage involves an exercise critique (or wash-up) held immediately after the exercise has concluded, and when the memory of the exercise remains fresh; this can be viewed as part of the *Conduct* phase of the activity, acting as a bridge into the *Review* phase. Secondly, a more formal session may be held, for example in the form of a structured debrief, during which more considered opinions are shared; this session may take place as early as the day following the exercise play. In the case of discussion-based exercises or limited scale operations-based exercises, the collection of data may be possible through a single combined critique and debrief.

Debriefs should be structured and managed to ensure focused feedback.

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It is important that both critiques and debriefs are effectively managed by the exercise coordination team. There is a danger that vocal individuals or groups may dominate the sessions, either providing unnecessary detail or focusing on areas away from the exercise's objectives.

It is recommended that techniques are used to encourage thoughtful and focused feedback. The exercise objectives should be reiterated and designated representatives given allocated time to provide summaries from evaluators and appropriate participating functional teams or groups. For the immediate critique, each group can be asked to state the top two or three things that went well and the two or three areas where improvements are possible, in relation to the exercise objectives. This critique should usually remain fairly short and must be facilitated to be constructive; a free-for-all open-ended discussion is unlikely to be productive. Logistical practicalities may demand that each functional team or response centre holds its own critique. Outcomes can then be consolidated at a combined debriefing with representatives from each group or centre present. Structured evaluation forms for the exercise players can assist in maintaining focused feedback; an example form is provided in Annex 4. Consideration should be given to providing a conduit for anonymous written feedback and the use of online or email surveys of participants.

Finally, the senior members of each participating group should meet to develop an overview of the lessons learnt and any implications for the oil spill contingency planning process. The format for reporting the exercise and debriefing the staff and players should have been established in advance, during the development phase.

Analyse events and facilities

A thorough analysis of the performance and effectiveness of personnel, facilities and procedures is critical. The analysis should be based on the extent to which the identified objectives of the exercise were met, and on the performance of teams and individuals in their allotted roles. Working relationships between the various parties and the perceptions of the performance of one party by the others also need to be assessed and cross-referenced. More difficult, but equally important, is the extrapolation of individual and team performances and inter-party relationships from exercise conditions to actual spill conditions. The analysis should include positive and negative contributions to the achievement of established objectives and comparison of self-assessment of performance with the assessment by others. It is important to seek to explain differences between parties in their perception of important issues and to resolve misunderstandings.

The suitability of facilities or equipment and the effectiveness of procedures should also be analysed. This may lead to specific recommendations to adapt or change dedicated emergency

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facilities or find alternative venues within an area or region. It may also lead to recommendations for different equipment or amendments to operating procedures.

Report the findings

An after-action report should provide an overview of the exercise (e.g. scope, objectives, method, participants, relevant documentation or photographs and scenario) and include the outcomes from the evaluation process.

This reporting of evaluation involves preparing the findings in a suitable format and ensuring fair representation of the consensus of the evaluation and coordination teams. There may be up to three levels of evaluation reporting:

1. A broad feedback report may be prepared for wide circulation to all participants, listing the main achievements, areas for improvement and learning points of the exercise, and indicating changes that will be made to the oil spill contingency plans and possibly the future exercising schedule.
2. More specific reports may be issued to key individuals concerning the performance and interaction of the various parties and commenting on the practicality of the overall structure for oil spill response as described in the relevant contingency plan.
3. A report may be issued to the management of the authority or company sponsoring the exercise, describing the status of local oil spill preparedness and repeating the recommendations.

A schedule should be set for reporting and discussing the findings from an exercise to ensure details and opinions are not forgotten. A target of two to four weeks for completion of the process might be appropriate.

Make recommendations

Once the exercise reports have been discussed and conclusions drawn and accepted, recommendations for the continual improvement of overall oil spill preparedness can be made. Recommendations might include: revisions to the oil spill contingency plan; more training, and possibly even amendments to the membership of response and incident management teams; better maintained or differently located equipment; and improved communications facilities. All recommendations should have proposed timelines for implementation and, where possible, an indication of resource implications and potential ownership for actions.

However, monetary and manpower constraints will always limit what can be achieved. Priority should be given to those options that can be implemented quickly and most easily, at least cost and with greatest benefit, though sometimes more substantial commitments will be required. It is important that management is fully involved in the review process and supports the exercise conclusions and recommendations so that the necessary resources are made available. When follow-up actions and their scheduling are agreed and approved, a system of tracking their implementation should be established.

Having gained the lessons and recommendations from each exercise activity, they should be consolidated within the wider exercise programme. This will ensure that all follow-up actions are coordinated and aligned across an organization.

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Spraying water to practise and test the large-scale application of dispersant during an exercise.

The cycle of the exercise planning process is nearly complete. The effort has been made and the budget has been expended. The main outputs are the individual lessons learnt and the collective recommendations made for improvement to the contingency plan, to equipment and systems and to the training and exercise programmes. Now is the time to effect those changes and achieve the improvements. Having been responsible for managing the exercise planning process, it is perhaps most appropriate that the Exercise Coordinator be made responsible for implementing and communicating the changes. Alternatively, the individual or group with overall responsibility for the contingency planning process should effect the changes.

Exercising oil spill contingency plans, however, is a reiterative process. Any adaptation of the plan will need further testing; different equipment and systems will need deploying; and personnel will need more training. The process continues by returning to the design phase to commence planning the next exercise in the programme.

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Terms and definitions

The following terms and definitions are used in this document. These are adapted from ISO (2012), 22300:2012, Societal security - Terminology.

Competence	The ability to perform a particular job in compliance with performance standards. This encompasses the technical requirements and skill to perform the job as well as having the relevant knowledge and understanding to enable the job to be carried out successfully under different and changing conditions.
Drill	An activity which practises a particular skill and often involves repeating the same thing several times.
Evaluation	A systematic process that compares the result of exercise assessment to criteria used to determine the discrepancies between intended and actual performance during an exercise, enabling continuous improvement.
Exercise	The activities variously encompassing training, assessment and practice in order to develop and improve oil spill preparedness and response.
Inject	An 'interjection' usually comprising piece of written or spoken information inserted into an exercise and designed to elicit a response and facilitate the flow of an exercise; may be also called an 'event card' or similar.
Observer	Person who witnesses aspects of the exercise while remaining separate from the exercise activities. Some, though not all, observers may be allocated evaluation tasks and be named evaluators.
Participant or player	Person or organization who performs a function related to an exercise.
Scenario	Pre-planned master events list that drives an exercise, as well as the stimuli (such as injects) used to achieve performance objectives.
Script	Story of the exercise as it develops, which allows exercise coordinating staff to understand how the scenario should develop during the exercise play, as the various elements of the master events list are introduced.
Simulator	An individual assigned to artificially simulate (role-play) the response activities of persons or organizations not participating in the exercise.

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Annex 1: Exercise activity milestones

The simplified milestones illustrated below provide an indication of the scheduling required for a full-scale exercise.

Design	Weeks 24–26	✓ Appoint exercise coordinator and team • Size of team • Allocate individual and allocate responsibilities ✓ Set objectives ✓ Determine scope • Number and level of participants • Involvement of external groups or role-players • Physical resources to be mobilized ✓ Establish specific plans • Duration • Date • Awareness policy • Budget ✓ Obtain management approval
Develop	Weeks 22-23	✓ Scenario development • Reference contingency plans and existing risk assessments, including planning scenarios • Select type, severity and location of incident
	Weeks 19–21	• Create scenario outline and events timeline • Review and revise outline • Obtain exercise coordinator approval
	Weeks 14–18	• Begin scenario content development and first draft of injects and events • Review revised events timeline and first draft of narrative • Revise narrative based on team discussions
	Weeks 7-13	• Review second draft of narrative and discuss issues to be addressed • Complete development of events timeline and injects • Internal run-through of scenario and injects
	Weeks 0-24	✓ Administration • Space requirements for exercise facilities • Refreshment needs • Security considerations
	Weeks 10-15	✓ Materials • Equipment requirements • Communications systems • Briefing notes and handouts
	Weeks 10-24	✓ Public affairs • Public affairs objectives selected • Extent of media involvement and role play • Strategy for reporting of the exercise • Involvement of local community • Decision concerning exercise filming

continued …

Conduct	Due day 0	✓ Brief participants ✓ Initiate play ✓ Maintain exercise through injects ✓ Evaluate activities
Review	+1-2 days	✓ Collect data • Immediate critique • Structured debrief • Feedback forms • Overview of lessons learned
	+1 week	✓ Analyse events • Performance against objectives • Individuals and team performance
	+2–4 weeks	✓ Report findings • Overview of the exercise • Outcomes from analyses of events • Levels of evaluation reports
	+5–8 weeks	✓ Make recommendations • Continual improvement • Revisions to oil spill contingency plans • Additional training • Response or incident management team membership

Annex 2: Scenario injects

The exercise scenario is typically comprised of a master list of injects, addressing information inputs, events and activities designed to facilitate achievement of the stated exercise objectives. This master list is a tool for the exercise controllers; it should have restricted circulation and not be available to exercise players in advance.

The initial scenario report is usually the first event for any exercise. It typically contains basic information concerning what has happened or is being observed, when the incident was discovered and where it is located.

After the first event, subsequent injects fall into one of three categories designed to ensure that levels of suitable exercise activity are maintained and remain aligned with the exercise objectives. The three categories are: **action injects** which provide challenges for the response team to react to in order to meet the exercise goals and objectives; **information injects** which provide additional information at appropriate times; and **reminder injects** which provide reminders, from the exercise controllers to the exercise players, of when specific actions are to be completed and/or performed.

The master list may comprise a summary supported by specific event cards for each inject. A sample master list is given in Table A1.

Table A1 *Sample master list of injects to facilitate achievement of the stated exercise objectives*

Event	Category	Summary
One	Action #1	Begin the drill. Test initial reaction of personnel; test internal notification procedures.
Two	Action #2	Damage to the loading arm … spill to the pier. Also possible injury.
Three	Information #1	T/V (*Ship Name*) backs away.
Four	Information #2	Spill from loading arm and piping stopped.
Five	Reminder #1	Activation of the facility oil spill contingency plan. Call out response team. Site Safety Plan drafted.
Six	Information #3	(*Vessel Name*) reports large amount of cargo is spilling from hole that is about 1 metre below the waterline. Spillage increased significantly once the (*Ship Name*) backed away.
Seven	Reminder #2	Notification reminder.
Eight	Information #4	Spillage from (*Vessel Name*) slowing. Master assumes tank or tanks are equalizing pressure. All tanks are being sounded.
Nine	Action #3	Third-party damage claim. Field personnel report three fishermen have approached them claiming their boat is heavily oiled (this is confirmed) and they want to know who they need to see to get it cleaned.
Etc…		

Example event cards for each of the three categories are illustrated below. Each card contains a prompt for evaluators, ensuring a linkage back to the exercise objectives.

Event #	One	**Action #1** (Incident occurs—begin drill)	
Scheduled time	T+ 00 minutes	**Actual**	
Objective	Begin the drill. Test initial reaction of personnel; test internal notification procedures.		
Event details	At 1400, July 22, the (*Vessel Name*) is moored port side to the (Company Name) Marine Terminal pier and has just begun discharging 165,000 barrels (bbls) of low sulphur heavy fuel oil to the Terminal. The vessel is under time charter to (Name) and the product is owned by (Name). There is an additional 60,000 bbls of high-sulphur heavy fuel oil in cargo tanks 2P, 3P and 3S for another customer. A few minutes past 1400, the T/V (*Ship Name*), while inbound in the Port of (Name of City) channel, loses steerage causing the vessel to veer into the (*Vessel Name*), striking it below the waterline. Both hulls of the (*Vessel Name*) are holed and product immediately begins to spill onto the water where it quickly spreads.		
Evaluation prompts	What are the initial actions of the Terminal personnel? Are safety concerns considered before response actions are initiated? Is communication quickly established between the pier and the Terminal offices/command post? How long does it take to recognize that this incident is a major one and outside assistance is needed? Are notifications initiated? Requests for assistance?		

Event #	Six	**Information #3**	
Scheduled time	T+ 30 minutes	**Actual**	
Objective	Additional information from the incident site		
Event details	Personnel on the (Vessel Name) report via Company personnel at the pier that the vessel has a hole about 1 metre below on the waterline very close to the bulkhead separating the #2S and #3S cargo tanks. At this time they cannot tell the dimensions of the hole. Large amounts of heavy fuel oil are pouring out of the hole. It is apparent that at least the #2S cargo tank is breached … it is unknown whether the #3S cargo tank is also breached. Because the product in the #3S cargo tank is high sulphur heavy fuel oil, the vessel recommends proper precautions be taken … although there is only a very light sulphur smell in the area.		
Evaluation prompts	Is this information documented? Passed to the appropriate personnel? What actions does the Safety Officer recommend?		

Event #	Seven	**Reminder #2**	
Scheduled time	T+ 45 minutes	**Actual**	
Objective	Notification reminder		
Event details	By this time, if things are going well, the facility should have commenced all of their required internal and external notifications. If they have not, remind the Incident Manager.		
Evaluation prompts	What are the initial actions of the terminal personnel? Are safety concerns considered before response actions are initiated? Is communication quickly established between the pier and the Terminal offices/command post? How long does it take to recognize that this incident is a major one and outside assistance is needed? Are notifications initiated? Requests for assistance?		

Annex 3:
Exercise development checklist

Facility	
Location/address	
Exercise Coordinator	
Exercise planning team	
Contact details	
Goals and objectives	
Exercise plan	
Exercise type	
Exercise date	
Awareness policy	
Budget	
Management approval	
Scenario	
Personnel/Teams involved	
Ground rules	
Training/exercise agenda	
Administration and materials	
Public affairs	
Controllers	
Evaluators	
Third Party involvement	
Inject cards	

Annex 4:
Example participant's feedback form

Specific written feedback would be appreciated and this form should facilitate this. Please assess and comment on the following elements based on your experiences during the exercise.

If you had no involvement with the element, please leave blank.

☹ = **Poor**: there were problems with this element (constructive written comments in the spaces provided would be especially useful to help improve matters).

😐 = **Average**: the performance of the team was acceptable.

🙂 = **Good**: the team did well in dealing with the element.

🙂🙂 = **Very good**: the team handled the element extremely well.

	☹	😐	🙂	🙂🙂
Establish, equip and staff emergency response centre Tick here >				
Comment:				
Understanding of your individual role and responsibilities				
Comment:				
Integration of emergency response and crisis management				
Comment:				
Acquire information, make assessments and develop action plan				
Comment:				
Integration between company and authorities				
Comment:				
Overall value of the simulation				
Comment:				

continued …

Please use the following to list the TWO most successful aspects of the exercise for you and the TWO areas where you felt improvements could be made. General comments would also be welcome.

Most successful aspects:

One

Two

Areas for Improvement:

One

Two

OTHER COMMENTS:

NOTE: Any comments made may be included or consolidated in the overall Exercise Evaluation Report but these WILL NOT be attributed to individuals.

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International Association of Oil & Gas Producers

IOGP represents the upstream oil and gas industry before international organizations including the International Maritime Organization, the United Nations Environment Programme (UNEP) Regional Seas Conventions and other groups under the UN umbrella. At the regional level, IOGP is the industry representative to the European Commission and Parliament and the OSPAR Commission for the North East Atlantic. Equally important is IOGP's role in promulgating best practices, particularly in the areas of health, safety, the environment and social responsibility.

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