





IMO

The International Maritime Organization (IMO) is the United Nations' specialized agency responsible for the improvement of maritime safety and the prevention and control of marine pollution. There are currently 153 member states and more than 50 non-governmental organizations (NGOs) participating in its work which has led to the adoption of some 30 conventions and protocols, and numerous codes and recommendations concerning maritime safety and marine pollution. One of the most important goals of IMO's Strategy for the Protection of the Marine Environment is to strengthen the capacity for national and regional action to prevent, control, combat and mitigate marine pollution and to promote technical cooperation to this end.

IPIECA

The International Petroleum Industry Environmental Conservation Association (IPIECA) is comprised of oil and gas companies and associations from around the world. Founded in 1974 following the establishment of the United Nations Environment Programme (UNEP), IPIECA provides one of the industry's principal channels of communication with the United Nations. IPIECA is the single global association representing both the upstream and downstream oil and gas industry on key global environmental and social issues including: oil spill preparedness and response; global climate change; health; fuel quality; biodiversity; social responsibility; and sustainability reporting.





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The International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC Convention), which entered into force in May 1995, provides the framework for international cooperation in combating major oil pollution incidents. An underlying premise of the OPRC Convention is the understanding that prompt and effective action is essential in order to minimize the damage which may result from such an incident. The Convention specifically recognizes and emphasizes the important role which the oil and shipping industries have in this regard.

Thus the partnership with IMO and industry is both logical and called for by international convention. In 1993, a working group of the IMO Marine Environment Protection Committee (MEPC) charged with promoting the implementation of the OPRC and its resolutions agreed that it would be useful for IMO and industry organizations to produce joint publications where appropriate, to avoid duplication and to ensure wider acceptance and common use by government and industry of the advice contained therein. As a result, collaboration between IMO and IPIECA has led to the development of a series of joint publications. This report, entitled *Guide to Oil Spill Exercise Planning*, is the second in the series and will be shortly followed by others in this joint publication series.

These publications represent a consensus of industry and government viewpoints tested through the parallel review process of IMO's Marine Environment Protection Committee and the IPIECA Oil Spill Working Group. The information provided by these publications should be useful to governments and concerned organizations, particularly those of developing countries, desiring to improve capability to deal with oil spillage. IMO and IPIECA have separately published other manuals and reports on various aspects of oil spill preparedness and response (see *Further Reading* on page 32) and the reader is encouraged to review *Guide to Oil Spill Exercise Planning* in conjunction with these publications.

INTRODUCTION

The International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC Convention) foresees a future in which all at risk states have national oil spill preparedness and response plans. The Convention also encourages the idea that national plans be developed in cooperation with oil and shipping industries. The ultimate test of any contingency plan is measured by performance in a real emergency. It is vital, therefore, that any programme for developing a national contingency plan must include an ongoing programme to test the plan through realistic exercises. An exercise programme must progressively prepare the Oil Spill Energy Response Team to perform effectively in realistic representations of all the risks that the contingency plan has been designed to meet.

This report has been designed to guide all those in government or industry who are faced with the responsibility of developing and managing oil spill response exercises at all levels. It carries with it the authority that derives from peer review by many centres of oil spill response excellence around the world. It is wellillustrated with brief case histories of exercises that have been carried out by many IPIECA member companies. Each of those companies has indicated its preparedness to share more information by providing contact name and address details within this report.

The partnership between IMO and IPIECA reflected in this new joint report series, of which this is a second volume, is committed to fulfilling the goals of the OPRC Convention under a project known as the Global Initiative. Within that project, IMO and industry is committed to facilitating capacity building and the sharing of experience with and between developing nations. Oil spill training programmes and exercises provide excellent opportunities to support these goals. We encourage all government agencies and company crisis management teams to recognize their exercises and training programmes as opportunities for sharing experience within the framework of the Global Initiative.

PURPOSE AND SCOPE

The purpose of this *Guide to Oil Spill Exercise Planning* is to provide guidance on the planning and conducting of exercises designed to evaluate a wide range of oil spill contingency plans and to train the personnel involved. The *Guide* first identifies and describes four categories of oil spill exercise and then establishes an exercise planning process that involves four steps—designing, developing, conducting and reviewing.

The benefits of exercises are many. Response teams are provided with the opportunity to practice skills that will be required in an emergency, to work together closely and develop relationships, and to make complex decisions under stressful circumstances. Plans, equipment and systems will be tested and, with proper feedback, recommendations made for their improvement. And, 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.

The IPIECA report *A Guide to Contingency Planning for Oil Spills on Water* advocates close cooperation between government and industry in developing oil spill preparedness and proposes that contingency planning should be a stepwise process that has an ongoing need for training, exercising and improvement of plans. The report also advocates the 'tiered response' approach to contingency planning, which recommends a series of integrated plans be developed at different levels or tiers (see below).



Right: the Tiered Response

Tier 1: for small spills, often caused during ship loading, unloading or bunkering, the response to which should involve local resources immediately available to the terminal.

Tier 2: for moderate spills, often caused by a minor marine accident or a tank farm or pipeline accident, the response to which should involve local and, if necessary, national resources.

Tier 3: for large spills, usually caused by major marine accidents or well blowouts, the response to which should involve local, national and, if necessary, international resources. Spill response regulations and practices vary considerably from country to country. It is essential, for each plan and at each tier, that the roles and responsibilities of the different parties involved-local and national government agencies, the ship/facility owner, the cargo owner and the local oil industry in general-are defined at the contingency planning stage, and that these relationships are properly reflected in the exercising of the plan. The final authority, however, will almost always lie with government and, in an emergency, governments should be expected to take whatever



The roles and responsibilities of all parties involved in the plan are defined by the response team at this contingency planning seminar in Manila.

course of action they feel necessary—especially if the plans and capabilities of others are proving inadequate. Those engaged in contingency planning and exercise design should always remember this.

It is thus important that government representatives are involved in industryparticipated exercises and that industry representatives participate in government-initiated exercises. Only by doing so will all parties be able to explore and understand fully the separate roles and responsibilities. Regular contact such as this also serves to develop and strengthen the personal relationships that are so important in times of emergency.

The purpose of conducting exercises is to test the plan, the equipment, and the capabilities of the response team and the resources that are available to them. No exercise is therefore complete without assessment and review leading to recommendations for improvements to the plan, to the availability of resources or to the training of personnel.

Exercises can be designed to test different aspects of a plan and to achieve different objectives. By developing a series of exercises for Tier 1, 2 and 3 plans, the whole

oil spill contingency system of a country can be systematically tested and reviewed as an integrated programme. In all cases, however, there are certain guiding principles that should be observed when designing and conducting exercises, as shown in the box below.



This *Guide* is written for the benefit of all those who would 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. All those who would be involved in responding to oil spills should be involved in the contingency planning process—the last, but ongoing activity of which is exercising.

EXERCISE CATEGORIES

A well-coordinated programme of oil spill exercises includes activities of varying degrees of interaction and complexity. Separating the exercises into categories allows different aspects of a plan to be exercised separately and promotes understanding of the purpose and scope of the whole plan. Four exercise categories are identified, i.e. notification exercises, tabletop exercises, equipment deployment exercises and incident management exercises.

Notification exercise

Notification exercises test the procedures to alert and call out the response teams and are conducted through telephone and other means of communication, as stipulated in the response plan. They can be used to test communications systems, check availability of personnel, evaluate travel options and the speed at which travel arrangements can be made, and assess the ability to transmit information quickly and accurately. Such an exercise will typically last one to two hours and may be held at any time, day or night, announced or unannounced.

Tabletop exercises

Tabletop exercises normally consist of interactive discussions of a simulated scenario among members of a response team but do not involve the mobilization of personnel or equipment. They are usually conducted in a conference room or series of rooms connected by telephone lines, and focus on the roles and actions of the individuals, the interactions between the various parties and the development of information and response strategies. A simple and early form of *tabletop exercise* would be a response team going through the contingency plan, page by page, testing each other's activities in response to an imaginary situation. A more complex *tabletop exercise* might involve several groups, including outside parties, playing their roles. A *tabletop exercise* exercise might typically last two to eight hours and should be announced well ahead of time to ensure availability of personnel.

Equipment deployment exercise

Equipment deployment exercises involve the deployment of oil spill response equipment at particular locations in response to an oil spill scenario and in accordance with strategies laid down in the plan for a particular spill scenario. These exercises test the capability of a local team to respond to a Tier 1 or 2 type spill, provide experience of local conditions and of spill scenarios and enhance individual skills and teamwork. It is important that other parties who would



This notification exercise taking place in Oman was designed to test alert and response procedures in the event of a spill.



A tabletop exercise under way in Nigeria focuses on the roles and actions of the individuals likely to be involved in a real spill scenario.



An exercise in equipment deployment taking place in Brazil



The deployment of booms is the focus of this equipment deployment exercise in the Philippines.



An incident management exercise might only involve own personnel, or be extended to involve external parties to give greater authenticity to the different aspects of a simulated incident.

normally be part of such a response, such as providers of boats, barges and trucks, be involved so that their availabilities and capabilities can be assessed; other organizations might also be invited to observe. Such an exercise would typically last four to eight hours and should be repeated frequently until teams are acquainted with the equipment. In some instances, an *equipment deployment exercise* might be run in conjunction with a *tabletop exercise* or *incident management exercise*. This can enhance the reality of the exercises but can be more complicated to oversee.

Incident management exercises

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Incident management exercises are often more complex in that they simulate several different aspects of an oil spill incident and involve third parties. Such an exercise may be of limited scope, for example, using own personnel to role-play the main external parties, or of full scope, when outside agencies and organizations are invited to provide personnel to play their own roles within the exercise. Whilst internal exercises are beneficial in the early stages of team development, it is only by exercising with the actual people who would be involved in a real emergency that a response team can be properly tested and trained.

Incident management exercises require significant planning in terms of availability of personnel, development of an adequate scenario and the physical arrangements for staging such events. Normally, an Exercise Steering Committee is formed to develop and run the exercise. Although not as realistic, it is most convenient from the point of view of controlling the exercise and debriefing participants at the end if the main players are accommodated in the same building. In the case of a major tanker spill, this might, in some countries, include the incident management team, field operations team, tanker owner, cargo owner, government/industry liaison and press/media. If players are dispersed over several locations, maintaining control of external communications becomes difficult and care must be taken to ensure the exercise does not spread beyond its defined boundaries.

Often, *incident management exercises* last one long day, typically 10–14 hours, followed by debriefing sessions on the second day. If the exercise is to be extended into a second day, efforts must be made to maintain the atmosphere of emergency overnight and to plan specific events for the following day. Debriefing might then be scheduled for the third day.

PLANNING PROCESS

Exercise planning consists of four separate activities—design, develop, conduct and review—that collectively describe the process for creating and running realistic and successful exercises. The process cycle is illustrated in the figure below and defined as follows:

- **Design:** The design phase sets the objectives and scope and sets out the timetable necessary for completion.
- **Develop:** The development phase describes those steps that are taken to create the exercise and prepare and organize fully for exercise activities. This phase must take into account the public affairs/media aspects of any exercise.
- **Conduct:** The actual conduct of the exercise activity consists of initiating and maintaining the exercise 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 termination of the exercise.
- **Review:** The review phase consists of collecting and analysing data, documenting findings and recommendations for improvement, and ensuring information is fed back to management. As the contingency plan is revised and updated, the exercise programme is similarly adjusted to take into account the lessons learned from prior exercises.



Case study

Chevron Corporation

Equipment deployment and incident management exercise at the Chevron Overseas Petroleum Inc. (COPI) Kutubu production site, Papua New Guinea

Exercise description

Chevron Niugini Pty. Ltd. and Chevron Emergency Response Staff jointly sponsored an equipment deployment and incident management exercise at the Chevron Overseas Petroleum Inc. (COPI) Kutubu production site in Papua New Guinea (PNG). This exercise involved more than 100 people from Chevron, joint venture partners and government representatives from Papua New Guinea and Australia. Responders participated at four locations (three in Papua New Guinea and one in the United States).

Exercise scenario

On the morning of 12 October 1993, a barge strayed from the marked ship channel in the Kikori River and ran into the submerged pipeline two kilometres north of Kikori. Approximately 3,500 bbls of Kutubu light crude was spilled (simulated) into the Kikori River.

Key drill objectives

- To exercise deployment of Level 1 response equipment.
- To exercise the following contingency plan particulars: notification, crisis communication, incident command and pipeline repair.
- To test Chevron's company-wide resources in responding to an international spill incident.
- To demonstrate response readiness and familiarize key PNG and Australian government staff.

Recommendations

- To improve management of communication system during the early stages of a response.
- To prepare pre-event information packages (facility details, safety statistics, spill records and easy-to-read maps) for media and government inquiries.
- To continue to use standardized Incident Command and Response Management Systems worldwide.
- To continue Chevron's company-wide drill programme.





Exercise activities are coordinated from the Command Centre at Iagifu.



Equipment deployment at Kopi Camp



Response team arriving at airport—about one hour's drive from the Command Centre

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DESIGN PHASE

The design phase lays the groundwork for development of the exercise and is described in six activities: appoint exercise coordinator; set objectives; determine scope; establish specific plans; propose date; and obtain management approval.

Appoint Exercise Coordinator

Appointment of an Exercise Coordinator assigns responsibility for the exercise. The Exercise Coordinator is charged with the overall management of the exercise activity, including the design, development, conduct and review phases. Neither the coordinator nor those who may later assist him in running the exercise should participate as a player. In the design phase, the Exercise Coordinator makes the necessary contacts, develops broad proposals for the exercise and obtains management approval.

Set objectives

The ultimate test of a 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.

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 exercises initially be kept simple with relatively few objectives to allow team members to become acquainted with the 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 team and adds 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 poorly-designed exercises and overconfident or, alternatively, demoralized teams.

Typical objectives for a Tier 1 *equipment deployment exercise* could cover speed of response, equipment familiarity and correct equipment positioning and, for example, could be described as:



An oil spill response team makes ready their equipment after being called out to an equipment deployment exercise.

- response team assembled within 15 minutes of call out;
- booms deployed in a specific manner within 30 minutes of assembly; and
- oil recovery/storage systems in place and operational within 45 minutes of assembly.

Objectives for Tier 2 or 3 *tabletop exercises* could emphasize the team's ability to set up the emergency centre, gather relevant information, establish a response strategy and order the mobilization of resources, and might be described as:

- establish, equip and staff the emergency centre within 30 minutes of call out;
- acquire information from different sources, assess and report the situation and prognosis;
- agree a realistic response strategy, estimate equipment needed and deployment times;
- identify equipment availability and authorize mobilization; and
- test the strategic decision-making process, for example, for using dispersants.

Full scope Tier 2 or 3 *incident management exercises* require broader sets of objectives agreed in advance with all involved parties, and a well-developed scenario with regular detailed inputs of information and problems to fully engage the many players. Some examples of exercise objectives might be:

- practice the interconnected roles of government and industry players;
- analyse information, assess situations, establish response strategies;
- develop seven-day prognosis, estimate extent of impact and cost of clean up;
- test ability to handle aggressive media and environmental enquiries; and
- agree pollution damage assessment studies with authorized agencies.

Determine exercise scope

This step addresses the questions of how ambitious the exercise should be—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 a given exercise are:

- Which other parties 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, interest groups and members of the public be involved or role-played?
- Should both personnel and physical resources be mobilized?
- What time could be allowed for the exercise, including debriefing?

Establish exercise plan

It is important to plan exercises well in advance in order to ensure the availability of personnel and to make full use of the opportunity the exercise presents. The following are considered typical planning periods for the different categories of exercise:

2–6 months

- Notification exercise: 1–4 months
- Tabletop exercise:
- Equipment deployment exercise: 2–4 months
- Incident management exercise: 6–10 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 full exercises 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 in these periods.

Exercises should preferably be designed to last 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 probably necessary in the case of a full-scope *incident management exercise*. A schedule for such an extended exercise might be:

- 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.



A pre-brief initiation takes place before the team embarks on their response.

Exercise participants likely to be involved in a full-scope incident management exercise involving a tanker spill national authorities local authorities harbour authorities . emergency services local environmental groups oil spill response contractors shipping company (tanker owner) oil company (cargo owner) local oil company association regional oil spill centres insurance interests (ITOPF, P&I Club)

salvage companies

The objectives will determine the location for the exercise—whether it can be run adequately from the team's own 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. The greater the variety of exercise, the greater the training benefit.

Exercises cost money and the more extensive the exercise the higher the cost. A full *incident management exercise*, including equipment mobilization, might cost in the order of US\$500,000. Exercise budgets should include, where appropriate, estimates for travel and accommodation, hire of facilities and equipment, and the services of external advisers 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.

Finally, a list of exercise participants—agencies, organizations and individuals should be agreed and their availability and commitment to the process sought. For a full-scope *incident management exercise* involving a tanker spill, such a list might include those detailed in the box on the left.

Set the date

A date should be chosen that allows sufficient time for planning and facilitates maximum participation and minimum work-place disruption.

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.



Chevron Corporation

Response team training at the Chevron Niugini Pty. Ltd. Kutubu production site, Papua New Guinea (PNG)

Exercise description

Response team training at the Kutubu production site included incident command training followed by a tabletop drill to exercise the facility's plan. The exercise provided responders with the opportunity to become familiar with their plan and with the Incident Command System.

Exercise scenario

On the morning of 24 April 1994 a production field gathering pipeline was damaged, releasing 5,300 bbls of Kutubu light crude into the Arakoya River and, subsequently, into the Hegigio River.

Key drill objectives

- To ensure that PNG spill response team members are familiar with, and make efficient use of, their contingency plan.
- To ensure that the PNG spill response organization understands the Incident Command System.
- To provide the spill response team with practice in the use of the daily planning cycle.

Recommendations

- To continue to use a standardized Incident Command System (ICS) and Response Management System (RMS).
- To provide periodic training to maintain proficiency in using the ICS, RMS and contingency plan.
- To prepare pre-event information packages (facility details, safety statistics, spill records, and easy-to-read maps) for outside inquiries.



Team briefs are an important element of response team training.



Status boards provide an effective way to track the overall response effort.

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Case study

Esso Thailand Ltd.

'Operation Tapex'—Esso Thailand Ltd. National Oil Spill Response Plan exercise, Sattabip, Thailand

Exercise Description

'Operation Tapex' was held in September 1995 at Sattahip, Thailand and involved the following activities:

- activation of the National Plan by the Harbour Department;
- establishment of Coordination and Operation Command Centres;
- mobilization of local equipment and response teams;
- mobilization of oil spill response (OSR) equipment from East Asia Response Ltd. (Singapore) by the Royal Thai Airforce;
- trial deployment of both containment/recovery and dispersant spraying equipment at Sattahip Navy Base;
- involvement of Esso Thailand, Exxon Regional Core Team, IESG and government agencies in the activities of the Coordination and Operation Command Centres.

The exercise involved several government agencies (Royal Thai Navy, Royal Thai Airforce, Harbour Department, Pollution Control Department etc.), Esso Thailand, personnel from regional Esso affiliates and the Oil Industry Environmental Safety Group (IESG); and a total of 300 government and industry personnel.

Exercise Scenario

Early on 4 September 1995, the Esso tanker *Esso Tapex* and a cargo vessel *MV September* collided in the Gulf of Thailand some 12 km off Sattahip. The tanker was damaged both above and below the waterline on the starboard side and some 5,000 tonnes of crude oil were spilled. The slick drifted to the north-east, threatening sensitive fishing and tourist areas.

Key drill objectives

- To exercise the National Oil Spill Response Plan in conjunction with Esso Thailand.
- To mobilize national and regional resources.
- To mobilize the Exxon Regional Core Team.
- To exercise joint management of a major oil spill incident.

Recommendations

- To improve communications between Centres and the field; existing arrangements were found to be inadequate.
- To review procedures and improve equipment availability; roles and responsibilities were not always well defined.
- To review the procedures of different parties for smooth interfacing; there could have been better coordination of information and expertise.
- To consider the establishment of a National Oil Spill Advisory Team; delays were experienced in agreeing dispersant spraying strategies.
- To establish clear guidelines for the spraying of dispersants in Thai waters.

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Response team deploying booms offshore



Beach boom deployment



The Minister of Transport visits the OSR equipment display



Working together—representatives from different participating agencies coordinate exercise activities from a central location

DEVELOPMENT PHASE

The development steps covered here—establish coordination, develop scenario, finalize plans and select public affairs objectives—are common and may be applied to exercises of different categories, scope and objectives.

Establish coordination/initiate Steering Group

In the development phase, 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* exercise, the Exercise Coordinator is probably able to make the necessary arrangements and manage the process himself. However, in a fuller scope exercise that has many objectives and involves several parties, it will be necessary to establish a small exercise Steering Group, chaired by the Exercise Coordinator and comprising four to six people representing the major participating organizations. The Steering Group has the responsibility of developing the exercise, arranging for all facilities and services, and coordinating its various parts and parties. To achieve this, it is important that the group meet regularly and keep the exercise objectives and scope firmly in mind. Exercise objectives of participating groups may differ, as will budgets. Steering Group members should ensure the objectives of their own organization are incorporated into the exercise and that their management approves the overall exercise proposal.

Develop scenario

The exercise scenario provides the details of the imagined incident and its development over time, i.e. the circumstances of the accident, the amount and type of oil spilled and the fate and impact of the oil. The scenario should not be made known in advance to response team(s) and situation updates and other information should periodically be made available and circulated amongst the players, much as it would in an actual incident. It is this 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.

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 then it is better that these details are inputs to the exercise. It will be necessary for the Exercise Coordinator or the Steering Group to visit the chosen location before the exercise to ensure the information in the briefing packages is accurate.



Building in realism; in this oil spill exercise, the application of dispersants is simulated using vegetable colouring as a substitute for the real thing.

> 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, aggressive role-playing media, and political and local interest interventions. Such inputs need to be carefully controlled so that they do not prevent the primary objectives of the exercise being achieved.

Finalize plans

Certain facilities and services are critical to the success of an exercise and it is better to ensure their availability by identifying and reserving them in advance, rather than making these items part of the response teams' activities, as would be the case in a real incident. Included in such items are operation centre(s), communications, meals, accommodation and transport. 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 and to facilitate reporting and assessment of the exercise.

In some locations, there will be an obvious choice of location for the spill response centre—for example, the local authorities' emergency centre or the emergency room of a refinery. Where no such specific facility exists, hotels can often provide rooms and reasonable communication facilities. The contingency plan should stipulate the requirements of a spill response 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 maps, lists and reference material which should be an integral part of the contingency plan.

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. The briefing should be given immediately before the exercise starts, either verbally or via a handout, and limited to the essentials for the good running of the exercise. The atmosphere of uncertainty and tension should be allowed to build.

Situation updates and the method and timing of their injection into the exercise need to be agreed and worked out in detail. Facilitators have an important role in ensuring that this 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 is important to ensure that exercise results are captured, analysed, presented, and utilized effectively and efficiently. It is useful for the debriefing of participants and reporting of the exercise to record the general atmosphere and specific events by taking photographs and using audio/video equipment. The exercise coordinator and the steering group should agree what formal outputs from the exercise are required, how performances will be assessed and what follow-up activities there should be.

Select public affairs objectives

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 public affairs and the role of the media is presented in the following section.

Case study

Mobil Oil Corporation

Mobil Regional Response Team (MRRT) exercise, Crete, Greece

Exercise description

On 23–26 January 1995, 55 personnel from the Europe/Africa/Middle East (EAME) MRRT were mobilized to a remote location for an exercise that included notification and callout, emergency travel and establishment of a command centre. The team worked with local and international (OSRL) resources and coordinated with the local affiliate (Mobil Oil Hellas) and government agencies, principally the Hellenic Coast Guard. The exercise did not include equipment deployment.

Exercise scenario

A Mobil VLCC *en route* from Sidi Kerir, Egypt to Fos, France is diverted to go to the aid of a vessel in distress about 60 km off the southern coast of Crete. While involved in rescue operations, the VLCC is struck by another vessel resulting in the release of 31,500 bbls (4,500 tonnes) of Arabian crude oil.

Key drill objectives

- To exercise activation/callout/mobilization procedures of EAME MRRT to a remote location, and to test the preparedness of the local affiliate Crisis Management Team (CMT).
- To exercise cooperation with the local authorities, ITOPF, OSRL and local contractors.
- To test the capability of MRRT to integrate with the local affiliate CMT and to undertake the transition from an 'emergency' phase to a 'project' phase for spill response.

Recommendations

- To prioritize Mobil's Tier 2/3 risks in the EAME region and, in conjunction with affiliate pre-planning activities, to assess the ability of a country to respond effectively to major spills, thereby adapting MRRT response strategies accordingly.
- To continue pre-planning efforts involving Mobil affiliates to address key issues more quickly and to enhance the operational effectiveness of the local affiliate CMT and the MRRT.
- To ensure that key MRRT members receive periodic media training.
- To design the next exercise scenario to test EAME MRRT under increasingly realistic conditions, and to include some equipment deployment.





The response team holding discussions with the Hellenic Coast Guard



Incident Commanders meet with the affiliate Crisis Management Team

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PUBLIC AFFAIRS

Handling the media in an oil spill crisis 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 decide 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 practice of managing 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;
- maintain government/industry liaison;
- interact directly with the media in interviews or press conferences;
- monitor news reports and react to them;
- organize a meeting with concerned citizens/officials; and
- coordinate information flow.

Experience has shown that response groups can be overwhelmed quickly by repeated organizational and public affairs challenges, both in actual emergencies and in exercises. Therefore, exercise planners should choose objectives carefully so as to stretch but not over-stretch the response team capabilities. As those capabilities are developed, 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 phoned questions, to one-on-one interviews, to 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.



Briefing the media: if the media are involved in an exercise they should be encouraged to play a particular role and should be provided with sufficient information in advance to enable them to play that role constructively.



The involvement of the media may be unavoidable; personnel should be designated to accompany them at all times to ensure that no part of the exercise is at any time mistaken for a real emergency.

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 is on an open beach. Then 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 them prior to the exercise and accompany them during the exercise. When involving outsiders, special care should be taken to ensure the boundaries of the exercise 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 be prefixed by 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 but will require assistance and information from many local authorities, organizations and individuals. Relationships with the community, therefore, should 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 programme organized so that they are properly briefed and can view the main exercise activities without interrupting the players.

Equipment

Equipment for successful public affairs exercises is modest but essential to create an atmosphere of crisis. This should include two or three phone lines available to role-players playing third party interventions, fax machines to receive written enquiries and to send press statements and possibly video and audio recording equipment to add realism to interviews and press conferences.



Mobil Oil Corporation

Mobil Regional Response Team (MRRT) exercise, Kuala Lumpur, Malaysia

Exercise description

The Mobil Regional Response Team (MRRT) exercise, Kuala Lumpur, Malaysia, was held over two half days from 8–9 May 1995. The exercise involved 25 members of the central sub-team of the Pacrim MRRT. As outlined in the Malaysian National Contingency Plan, this exercise emphasized the 'transition' issues involved with the local affiliate (Mobil Oil Malaysia) and the MRRT, and also involved government agencies (Departments of Marine and Environment) and PIMMAG to establish the validity of Mobil's contingency plans and to promote good working relationships. The MRRT also tested their coordination abilities with EARL and PAJ—the major response organizations in the region.

Exercise scenario

A Mobil VLCC *en route* through the Malacca Straits to Japan is struck by a cargo vessel resulting in the release of 40,000 bbls (5,700 tonnes) of crude oil. The incident occurs near Kuala Lumpur, and the spill threatens the Malaysian coastline. The exercise did not include equipment deployment.

Key drill objectives

- To test the preparedness of the local affiliate Crisis Management Team (CMT) in being Mobil's 'first responders' to the scene.
- To work with Malaysian authorities and regional (EARL and PAJ) and local cooperatives to develop and implement response strategies.
- To simulate activation of response equipment from EARL and the PAJ stockpile in Port Klang.

Recommendations

- To improve communications and information flow, both within and outside the MRRT and the affiliate CMT.
- To identify the need for expert advise on marine legal issues pertaining to cargo ownership and liability implications.
- To establish arrangements with regional public affairs consultants to assist and supplement affiliate staff with PA support.
- To increase the number and effectiveness of MRRT notification drills for MRRT members.
- To continue to improve MRRT 'Functional Action Plans'.



Press conference for local Kuala Lumpur media



Exercise debriefing session

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Case study

Petroleos de Venezuela

National Contingency Plan (NCP) oil spill drill, El Palito, Venezuela

Exercise description

Organizations participating in the El Palito exercise included PDVSA, PDV-Marina, Ministry of Environment, Ministry of Transport and Communications, Coast Guard, Ministry of Internal Affairs, Ministry of Energy and Mines, CIED. A total of 700 people were involved. It was the responsibility of the response team to ensure that all communications began and ended with the phrase 'this is a simulation'. All actions were carried out in chronological time during the daylight and personal safety was held as the first priority. The exercise was evaluated by expert groups within the oil industry.

Exercise scenario



PDVSA Regional Committee Working Meeting for the oil spill drill

The tanker *Caripe* raises anchor from loading at terminal Cardon with a load of 364,000 bbls of oil 30° API. It crashes heavily into *Dolphin 2* during manoeuvre whilst mooring astern in El Palito terminal. Side tankers four and five suffer damage causing an oil spill of 30,000 bbls. Eight marines are injured and one crew member dies. Wind/current conditions cause the oil spill to spread to the national park of Morrocoy. The spill will affect benches, a power plant and the national park if no control measures are taken.

Key drill objectives

- To evaluate the response capability of the plan.
- To identify weaknesses and to build on strengths within the NCP.
- To develop activities which were key to controlling the spill, including:
 - the elimination of the source of the oil spill;
 - actions to control and collect oil from water;
 - the application of dispersing agent (vegetable colouring was used in the exercise) using helicopter, aeroplane and tug boat;
 - monitoring the trajectory of the oil spill using SIMAP, a mathematical simulation program capable of projecting the theoretical pattern of the behaviour of the spill;
 - restoration procedures (clean-up) of coastline;
 - activation and review of the insurance process; and
 - activation and evaluation of the mass media communication process.

Recommendations

Twenty-one processes were evaluated during the exercise and the following recommendations were made:

- to reinforce the cooperation between the coastguard and the oil industry;
- to continue with the training programme practices, both practical and theory, in order to reinforce the overall organization of the plan; and
- to increase the capacity of the equipment to cope with the collection of an oil spill of 15,000 bbls in the area according to the guidelines of the plan.



Equipment deployment exercise at El Palito



Rescue operations during the oil spill drill at El Palito.

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CONDUCTING THE EXERCISE

The conduct of an exercise consists of briefing participants, initiating play, maintaining the exercise, evaluating activities and, finally, terminating play.

Briefing participants

All participants will require an exercise briefing, preferably verbally with a prepared handout, that describes the category, scope and objectives of the exercise and introduces the main players. This is best done by gathering the players together immediately before the start of the exercise when the Exercise Coordinator can pass out 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 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 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

Deciding how the exercise should be initiated is important for establishing realism and urgency. Clear responsibility for initiating play at a predetermined time and in a prescripted manner should be established. Normally this would be by a telephone call, from a facilitator playing the role of the captain of the ship or the operator of the terminal, to an established notification point such as the local emergency centre, coastguard or company offices, according to the plan. This information can be delivered as a written message or by fax but a telephone call is more realistic and more demanding. It is important that such information is communicated quickly to the other participating parties. Whilst this should be by established procedures as described in the relevant contingency plans, it is often worthwhile 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 is set by the series of scripted and timed interjections that provides and updates information on the imagined incident and makes 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



All participants will require an exercise briefing to define the category, scope and objectives of the exercise. This is best carried out immediately before the start of the exercise and should also serve to introduce the main players and to emphasize the care needed when communicating with outside parties in order that the boundaries of the exercise are not misunderstood.

termination and to allow the objectives to be met. The Exercise Coordinator and directing staff should monitor the flow of information and the activities of each responding party carefully in order 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. Evaluators should be elected carefully and provided with some training to allow them to perform their tasks well. 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 score sheet developed to record the timeliness, quantity and quality of response activities.

Terminating play

Orderly termination 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 other directing 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.



Texaco Ltd.

Exercise 'Dimitri'—Texaco Greek Petroleum Co. emergency response exercise, Gulf of Elefsis, Greece

Exercise description

The 'Dimitri' oil spill drill was the first 'live' marine emergency response exercise carried out by an oil company in Greece in conjunction with government authorities and contractors. A Joint Response Centre was established close to the scene of the incident, and the Texaco National Response Team, the Greek Coastguard and participating contractors worked well together, establishing priorities and ensuring that decisions were reached quickly and implemented effectively. The exercise attracted considerable media attention as well as visitors from government ministries, state and local communities, environmental groups and other petroleum companies.

Exercise scenario

A collision due to steerage failure took place between a coastal vessel and a Texaco time-chartered coastal tanker more than one mile offshore in the Gulf of Elefsis. The tanker was loaded with 1,350 tonnes of marine bunker fuel *en route* to the Rien terminal. The collision breached two wing tanks with an immediate release of 25 tonnes of bunker fuel into the sea.

Key drill objectives

- To test the Texaco Greek Petroleum Co. emergency response procedures for handling a major marine incident.
- To activate the Texaco National Response Team and exercise their coordination with Texaco Europe, external Greek agencies and Government Departments.
- To produce the planning and physical response to a marine oil spill in conjunction with Ministry of Merchant Marine, Marine Environmental Protection Division and Environmental Protection Engineering Ltd., the spill response contractor.

Recommendations

- To cooperate fully with government agencies and coastguard in developing plans.
- To be prepared to cope with considerable media interest and provide separate accommodation for briefing visitors, seminar management and the press.
- To plan for the unexpected—it inevitably happens.



The oil spill exercise begins on the shoreline of the Gulf of Elefsis, Greece



Emergency communications equipment in action



Shipping in the Gulf of Elefsis



Exercise operation room in action

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Case study

Texaco Ltd.

Exercise 'First Responder'—testing the Saudi Arabian Texaco Oil Spill Contingency Plan, Mina Sound, Kuwait

Exercise description

Exercise 'First Responder' was designed to test the Saudi Arabian Texaco Oil Spill Contingency Plan. Priority was given to the protection of areas of economic and environmental sensitivity, including a lagoon, vacation homes and marina within 10 km of the tanker berth, and a nearby holiday resort with recreational beaches and water sports. It was also noted that a power and desalination plant was situated within 7 km of the loading terminal.

Exercise scenario

At 11:00 hours, the pumpman on the 100,000 DWT tanker, whilst loading at Mina Sound outer berth, noticed oil in the water in the region of the ship's port sea valve. On investigation he discovered that this was due to a creeping sea valve, and that repairs would take approximately one hour. During this time an estimated 50 bbls of Ratawi crude oil was released into the sea.

Key drill objectives

- To test the Saudi Arabian Texaco Oil Spill Contingency Plan at Mina Sound, Kuwait.
- To commission new Tier 1 response equipment.
- To exercise the notification cascade to a Tier 2/3 response and test times of communication to relevant local government and agency level.
- To seek assistance from the GAOCMAO Mutual Aid Organization.
- To cooperate fully with the Kuwait Environment Protection Council and Kuwait Oil Company.
- To provide immediate protection by pre-positioning response equipment.
- To practice tracking and surveillance techniques.

Recommendations

- To plan for a major exercise with KEPC, KOC and GAOCMAO.
- To carry out regular deployment drills.
- To standardize response equipment.
- To review the Contingency Plan regularly and make necessary adjustments.





Exercise coordination centre



Boom deployment at sea off Mina Sound

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REVIEW PHASE

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 and reports, documenting the findings and making recommendations for improvements to the plan, to the equipment or to the training of individuals or groups. Summaries of the findings and recommendations should be copied to exercise participants and to management, as feedback.

Collect data

The primary sources of information from an exercise are the reports from the directing staff and designated evaluators and feedback from all the participants and role-players who contributed to the exercise. It is recommended that feedback be taken from the participants in two stages. Firstly, in a so-called 'hot wash-up' immediately after the exercise has been terminated when adrenalin levels are still high and details still seem very important. Secondly, in a more formal session, or as a structured report, when more considered opinions are given. Finally, the senior members of each participating group should meet to develop an overview of the lessons learnt and their implications to the contingency planning process. The format for reporting the exercise and debriefing the staff and players should be established in advance.

Analyse events

Thorough analysis of performance and effectiveness 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 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.

Report findings

This part of the evaluation process involves preparing the findings in a suitable format and ensuring that the report represents fairly the consensus of the



Collecting and evaluating information gained from exercise activities is crucial to the continued development of emergency response capabilities.

evaluation and coordination teams. There may be up to three levels of exercise reporting. Firstly, a broad feedback report may be prepared for wide circulation to all participants, listing the main achievements, failures and learning points of the exercise and indicating changes that will be made to the contingency plans and exercising schedule. Secondly, 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. Finally, a report may be issued to the

The purpose and scope of each of the notification, tabletop, equipment deployment and incident management exercises are defined in the box below.

	Notification Exercise	Tabletop Exercise	Equipment Deployment Exercise	Incident Management Exercise
Purpose	 demonstrate availability to respond ascertain travel options verify communications systems confirm accuracy of information 	 test emergency management knowledge and capability provide individual and team training acquaint personnel with roles and responsibilities 	 test equipment deployment procedures and strategies practice individual skills and team interaction focus on teamwork and organization test communications 	 demonstrate spill response management capabilities integration of roles of different parties focus on overall incident management aspects
Coordination	• exercise coordinator	exercise coordinatorrole playersevaluators	exercise coordinatortechnical advisersevaluators	 exercise coordinator facilitators, role players evaluators, controllers
Location	• offices, homes	 office, crisis centre, hotel command post 	 simulated response location 	 crisis room and single or several response facilities
Personnel	● all team members	response team membersother parties	local spill response teamcontractorsobservers	 local/central response teams other parties
Duration	● 1–2 hours	• 4–8 hours	• 4–8 hours	• 1-2 days
Objectives	 personnel notified and ready to respond 	 response strategies agreed resources identified implementation complete 	 equipment mobilized and working 	 personnel mobilized response strategy agreed crisis being managed
Evaluation	 reports on efficiency and speed of communications recommendations 	 reports from facilitators and evaluators feedback from players recommendations 	 reports of individual and team performances team member feedback recommendations 	 reports of individual and team performances team member feedback external party feedback recommendations

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 of 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 improvement of overall oil spill preparedness can be made. Recommendations might include revisions to the contingency plan, more training, or even replacement of personnel, better maintained or differently located equipment and more or faster communications facilities. However, there are always monetary and manpower constraints that will limit what can be achieved. Priority should, of course, 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 are fully involved in the review process and support the exercise conclusions and recommendations so that the necessary resources are made available.

Effect improvements

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, 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 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 start the planning of another exercise.



Debriefing participants and role players following an exercise is crucial to establish the lessons learnt and to assess their implications to the contingency planning process.

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Further Reading

National Preparedness for Response Exercise Program (PREP) Guidelines (1994). Published by the United States Coastguard.

The National Marine Spill Response Exercise Program of the Canadian Coastguard. Produced by Transport Canada Department; available from Canada Communication Group (telephone: 1 819 956 4800/4802)



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