Incident management system for the oil and gas industry

Good practice guidelines for incident management and emergency response personnel

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Incident management system for the oil and gas industry

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Preface

This publication is part of the IPIECA-OGP 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 OGP-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.

The original IPIECA Report Series will be progressively withdrawn upon publication of the various titles in this new Good Practice Guide Series during 2014–2015.

Note on good practice

'Good practice' in the context of the JIP 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.

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About this guide

This guidance document addresses incident response management and is intended to supplement the International Maritime Organization's *Guidance Document on the Implementation of an Incident Management System* (IMO, 2012) which provides a high-level overview of the subject. It is also designed to be fully compatible with Oil Spill Response Limited's *Incident Management Handbook* (OSRL, 2012) and other equivalent incident management handbooks which provide detailed material and tools for the application of the Incident Management System (IMS). While the emphasis of this document is on incident management, it is important to acknowledge the broader concept of crisis management which focuses on the impact of external influences on incident management. For further reading on crisis management as it pertains to this guidance, see BSI Standard Number 11200:2014, *Crisis Management. Guidance and good practice* (BSI, 2014).

This document is based on the Incident Command System (ICS), a version of IMS that is widely used by industry, response contractors and professional emergency services organizations. An IMS includes a set of proven organizational and management principles including common organizational elements (e.g. sections, branches, divisions, etc.), management structure, terminology and operating procedures.

Small incidents can usually be managed effectively with a simplified IMS approach to both the organizational structure and the planning process. Experience has shown that management of a major response, which may involve hundreds or even thousands of responders, requires the use of a more structured IMS and a defined, scheduled planning process that produces a coordinated, written incident action plan. The adoption of a common approach to incident management by industry, governments, response organizations, contractors and experts will allow for the integration of the incident management team participants under a single IMS, together with the coordinated, efficient use of resources critical to an effective response.

In certain locations, industry and other response organizations must adapt to, and follow, the incident management system used in that country. An IMS can be used effectively by an industry operator: in single command, to directly manage an incident; in coordinated command where response actions are undertaken in parallel with government actions; and in unified command where the operator and government work together as a single response organization.

Emergency incidents require timely action and 'prudent over-response' to ensure the protection of people and the environment, and to prevent unnecessary escalation of the incident. An IMS enables response organizations to rapidly establish command and control, integrate resources, and plan coordinated response actions to achieve objectives.

The successful introduction of an IMS into a response organization requires a commitment by senior leaders to a sustained competency-based training and exercise programme. This should include ongoing basic and role-specific IMS training to acquire the necessary process and technical skills, and periodic simulations or exercises to provide robust experiential learning and competency development.

Overview

Effective incident management requires the ability to establish command and control—i.e. to move the management of the response from the initial reactive mode to one where the scope of the incident is understood, appropriate response actions are being taken in alignment with response strategies, and where the outcome of the incident is being driven by a clear set of objectives to protect people and the environment. Experience has shown that the use of a structured IMS is critical to establishing command and control in response to a major incident. An IMS facilitates command and control of an incident by organizing leaders, functions, response teams and other resources through a scalable, fit-for-purpose organizational structure with pre-identified roles, responsibilities, reporting relationships and authorities necessary to manage an incident. An IMS also facilitates implementation of the planning process necessary to ensure a direct link between the incident management objectives and response actions being taken in the field.

The vast majority of incidents are small, and the IMS process used to manage the response is typically simplified and objective driven, and uses an iterative process to assess the progress of the incident and the response. Industry experience has shown that major incidents, where hundreds or even thousands of responders may be involved, requires a robust and structured planning process and a coordinated, written incident action plan to manage the response.

Source: David Weydert

While the vast majority of incidents are small, and the IMS process is typically simplified and objective driven, an IMS is a scalable, systematic approach that can be easily adapted regardless of the size of an incident.

This document introduces the common elements of an IMS to stakeholders who may be called upon to work together to provide specific expertise, assistance or response resources during an emergency incident. These stakeholders can include the industry operator, response organizations and government entities. Each stakeholder and group needs to have a clear understanding of its function under an established IMS to ensure an effective, timely and coordinated response.

Background

Incidents typically happen with little or no advance warning, and require an immediate response by the industry operator and supporting response organizations. Major incidents, which are rare, may require a response involving many organizations, including governmental entities across multiple jurisdictions and experts from many disciplines. Such incidents may also involve numerous parallel activities such as search and rescue, ensuring the safety of the public and responders, source control, fire suppression, protecting the environment, securing property and infrastructure from damage, and providing timely communications.

A wide range of response organizations and contractors, governmental entities and resources may be called on to respond to incidents, and their missions and procedures may vary. The coordination of, and collaboration between, these organizations is critical to an effective response operation. These groups and individuals must be able to work together at short notice, and may

have little or no prior experience of collaborating with each other to manage stressful, dangerous and evolving problems in what may be a hazardous working environment. Responders will need to cultivate a working trust with one another, have clear roles, responsibilities and authorities, and ensure that sufficient on-scene resources are available at all times.

Incident responders face many other potential challenges in responding effectively to major incidents. Factors such as weather, site access, resource constraints, poor coordination, lack of pre-approvals for response strategies, or poor communications can delay response times or hinder incident response efficiency. A delayed or ineffective response can result in unnecessary impacts which may present risks to people, the environment and property.

An IMS is an essential tool for overcoming many of these challenges; it provides clarity in command and control, improves resource coordination and communications, and facilitates the cooperation and integration of responding organizations. An IMS is a scalable, systematic method for coordinating and controlling the wide variety of important activities, resources and response organizations from a central command post.

The size and complexity of every incident is different and will vary as the incident response progresses. An IMS provides the organizational structure for response teams to expand or contract to meet the needs of the required response. It defines responders' roles and responsibilities, requires the use of common titles and terminology, and can be used to establish a clear decision-making process, regardless of the size of the response organization. An IMS can be integrated into any properly trained responding organization, and minimizes redundancy, thereby optimizing the deployment of resources. An IMS also provides effective two-way communication, facilitating improved coordination between responding organizations while reducing the overall communications load associated with a response.

Source: Casey Ware

Experience has shown that the use of a structured IMS is critical to establishing effective command and control in response to a major incident.

Organizational principles

The principles of IMS organization were developed in the 1970s by the fire services as a management method for clarifying command relationships and making effective use of mutual aid for large-scale incidents involving multiple authorities. Although originally developed to address fires, the IMS concept is now applied to many other types of emergency events or incidents, including oil spill response.

Experience has demonstrated the value of integrating incident response functions and resources into a single operational organization, managed and supported by one command structure and supporting processes. Experience has also shown that the incident response organization is most successful when the following key organizational concepts and principles are applied:

- Use of a single, integrated organization to manage the response.
- Organization by function, i.e. Command, Operations, Planning, Logistics, Finance.
- Establishment of clear, hierarchical reporting relationships.
- Maintaining a modular and scalable organization, and ensuring that it is appropriately sized to achieve the response objectives.

Command structure

An IMS requires that one or more individuals maintain authority over all incident activities. This position is known as the Command function. For small incidents a single person, called the Incident Commander, can typically perform the Command function. For large incidents, the positions of Deputy Incident Commander and Command Staff Officers may be assigned to support the Incident Commander.

Once command has been established, the IMS provides clear rules for the transfer of command to another individual or individuals. The IMS organization is characterized by an orderly line of authority, termed the *chain of command*. The IMS is also characterized by the concept of *unity of command* which means that every individual has one and only one designated supervisor to whom that individual reports at the incident scene. These principles clarify reporting relationships and eliminate the confusion that might otherwise be caused by multiple, conflicting directives.

Scalability

A key feature of an IMS is its modular organization. Organizational elements (termed Sections, Branches, Divisions, Groups, Units, etc.) are added to the IMS structure as additional personnel and new functions and capabilities are brought into the incident response and assigned to the various organizational elements. A modular approach allows the response organization to be structured in a way that is appropriate for the size and complexity of the incident. It also allows the organization to expand as the complexity of the incident increases, and as functional responsibilities are delegated throughout the organization by the Incident Commander.

The IMS structure always begins with establishing the Command function. For the management of major incidents, four functional sections are established under the Incident Commander as appropriate, i.e. Operations, Planning, Logistics, and Finance/Administration. Span-of-control

recommendations are followed closely as the response organization expands or contracts, so that the organizational structure is never larger than required.

Management principles

IMS management principles provide Command with guidelines to coordinate the efforts of the organization so that response objectives and priorities can be accomplished through the efficient and effective use of the available resources. Management includes operational planning and organization, staffing, and leading, directing and controlling the organization.

An IMS is based on the following management principles:

- Ensuring an objectives-driven response.
- Formulation of an Incident Action Plan.
- Use of common and consistent terminology.
- Maintaining a manageable span of control.
- Coordination of equipment, personnel resources and communication.

Objectives-driven response

An effective and successful response requires a clear set of objectives. These objectives are established by the centralized Command and cascaded throughout the organization. The objectives drive the development of response strategies, which are then implemented through the tactical decisions and actions taken in the field. The objectives, strategies and tactics evolve as the response progresses.

Objectives are succinct statements of Command's overall goals and intents for the response. The objectives describe the intended outcomes and should encompass the totality of the response. For example, an objective may be: '*Minimize impacts on environmentally sensitive areas*.' Objectives should be based on the 'SMART' principle, i.e. they should be:

- **S**pecific;
- **M**easurable;
- **A**ction oriented;
- **R**ealistic; and
- **T**imely.

Strategies describe the response methodologies to be employed to achieve the objectives of the response. Each objective should be matched with at least one specific strategy. An example strategy may be: '*Prevent oil from reaching Pristine Bay*.'

Tactics are specific actions and activities required to implement the response strategies. Work assignments are developed for the various tactics, and are assigned to individuals or teams. An example tactic may be: '*Offshore Mechanical Recovery Group to use vessel* Clean Responder *to set 500 m of ocean boom between land points A and B at 0600 GMT*.'

Incident action plan

An Incident Action Plan (IAP) controlling all response activities for a specified period of time ensures that all responders and response organizations work in coordination and towards the same goal. Small, short-duration incidents may be managed with a simplified IAP and direction may be given orally by the Incident Commander. Major or complex incidents require the use of a written IAP. An Incident Action Plan describes the overall objectives and strategies for managing the response, as well as response tactics, for a set length of time known as the operational period. A written IAP includes the identification of operational resources, and provides a documented record of work assignments, priorities, safety and environmental considerations and other important management information.

Common and consistent terminology

An IMS employs common terminology used to prevent misunderstandings when responding to an event. Common terms allow diverse organizations to work together effectively, and to communicate clearly with each other on essential components such as:

- Organizational functions: all major functions and functional organizational elements are named and defined. The terminology used for each organizational element is standard and consistent.
- Resource descriptions: major resources (personnel, equipment and supply items) are given common names and are listed according to capabilities.
- Incident facilities: facilities used during the response are named according to common terminology.
- Position titles: all IMS managers and supervisors are referred to by standardized titles, such as Officer, Chief, Director, Supervisor or Leader.

Manageable span of control

Span of control refers to the number of individuals or resources than can be effectively managed by a supervisor during an incident. A recommended span of control should range from three to seven individuals, with five representing the optimal level. There may be exceptions to this range, e.g. in cases of lower-risk assignments, assignments where resources work in proximity to each other, or assignments requiring minimal direct supervision.

Coordination of equipment, personnel resources and communications

Comprehensive and centralized resource coordination helps to maintain an accurate and up-to-date picture of the personnel, teams, equipment, supplies and facilities in use, available or potentially available for assignment. Integrated communications requires the use of a common plan to coordinate the communications processes of the responding organizations. This approach strengthens the links between the operational and support personnel within the various parties involved in the response, and helps to maintain communications, coordination and discipline.

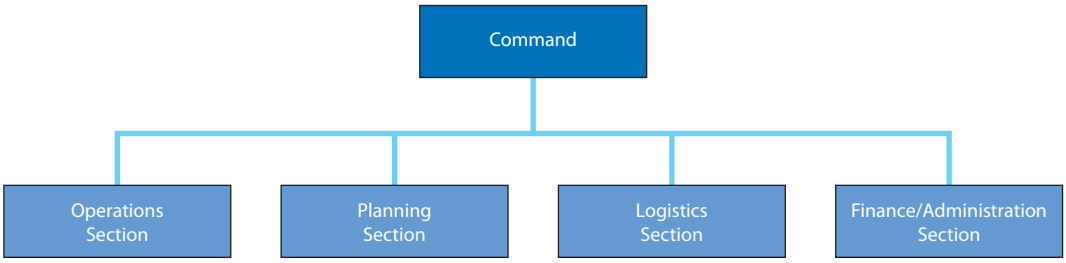
Organizational structure

This section provides an overview of the organizational structure of an IMS, and its major positions and organizational elements throughout the life cycle of an incident. It describes the organizational levels of the IMS, focusing on their functional definition, distinguishing characteristics and relationship to other elements in the structure. For more details about the roles, responsibilities and functional elements within the IMS structure see OSRL, 2012.

Functional structure

The organizational structure of an IMS includes four major sections under the Command function: Operations, Planning, Logistics and Finance/Administration (Figure 1).

Figure 1 *Organizational structure of an IMS*



The responsibilities of each section can be summarized as follows:

- Command: provides overall management and authority.
- Operations: directs the tactical operations throughout the incident.
- Planning: prepares the Incident Action Plan and maintains information on the status of resources and the overall status of the incident.
- Logistics: provides resources, services and support required by the incident.
- Finance/Administration: responsible for financial controls, contracting and claims management.

The complexity of the incident will influence the number of sections established and the organizational structure within each section. Command represents the first organizational element established for any incident. The size of the IMS organization that develops under the Command function depends on the number, type and scope of operations being conducted, and the types of support functions required.

The vast majority of incidents require only a small IMS organization, often consisting of an Incident Commander supervising a few resources. For small incidents, a simplified IMS structure is typically used, without establishing sections. Full deployment of the IMS functional structure is rare and generally reserved for large, complex incidents that require a large IMS organization to meet span-of-control guidelines.

The IMS organizational structure can be expanded as needed in a modular fashion. Command initially has full responsibility for managing the incident, including safety of the responders and the public, and also performs the duties normally carried out by the various Sections unless or until those Sections are formed. As additional organizational elements are added, the newly appointed Chiefs or Directors are assigned management responsibilities by Command. In a major or complex incident being managed under a large IMS organization, 'Deputies' or 'Assistants' may be appointed to support key leadership roles. Deputies generally have the same qualifications as the leaders they support. The various organizational elements and the titles used for the leaders of those elements are shown in Table 1.

Table 1 *Organizational elements and corresponding leadership titles*

Organizational element	Leadership title
Command	Incident Commander (and Deputy)
Command Staff	Officer (and Assistant)
General Staff (Section)	Chief (and Deputy)
Branch	Director (and Deputy)
Division/Group	Supervisor
Unit	Leader
Strike Team/Task Force	Leader

The Command function

Command represents a function, not a person. The Command function is carried out by an Incident Commander who performs the duties exclusive to the Incident Command. The Incident Commander is granted full authority to manage the response by the industry operator or the government agency with appropriate authority. For large-scale incidents, the Incident Commander is supported by Command Staff. Command Staff positions may include a Public Information Officer, Safety Officer and Liaison Officer. If required, the Incident Commander will add the IMS Sections, which are led by Chiefs. All Section staff, including the Officers and Chiefs, report directly to the Incident Commander and are known collectively as the Command and General Staff.

Command follows the principle of 'prudently over-responding' to ensure that the response can be safely and effectively managed. Throughout an incident, Command determines the size of the IMS organization needed to respond to, and mitigate, the impacts of the incident. Command will consider the following three major priorities when identifying the required resources and structuring the IMS organization:

- Safety: protecting emergency responders, incident victims and the public.
- Incident control: minimizing the impacts of the incident on the area surrounding the scene, and maximizing the response effort while using resources efficiently.
- Protecting the environment and property: minimizing damage to the environment and property while achieving the objectives established for the incident.

Near right: the Incident Commander has full authority to manage the response, and, in the case of a large-scale incident, will be supported by the Command Staff. Far right: a briefing on oil spill response operations under way at an Incident Command post.

Source: ©Shutterstock.com

Source: Seth Johnson

The Incident Commander should maintain a strategic perspective, or command awareness, to determine the potential impacts that may result from the incident, and should establish the overall incident strategy and provide clear direction for the response. Command establishes the objectives of the response, and ensures that all functional areas work to accomplish these objectives through the Incident Action Plan.

In some instances, the Incident Commander may designate a Deputy Incident Commander to perform tasks assigned by the Incident Commander, to provide relief for the Incident Commander (working in shifts), or to represent an organization providing significant assistance in the response. Personnel considered for the position of Deputy Incident Commander should have qualifications equivalent to those of the Incident Commander, and should be ready to assume the position of Incident Commander at any time. Box 1 provides an example of the typical responsibilities of the Incident Commander.

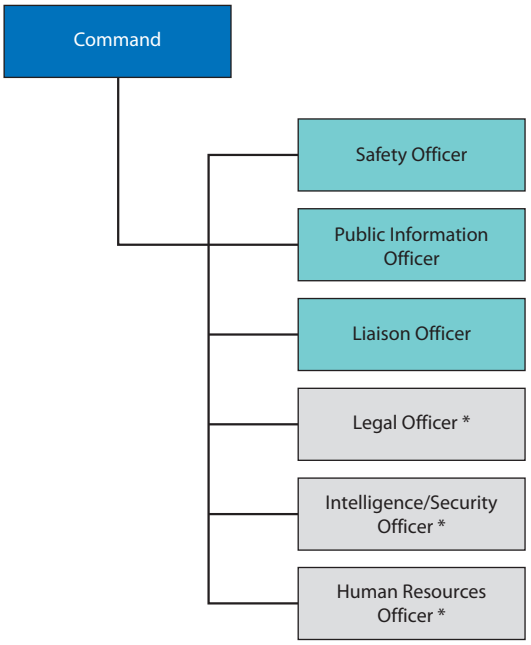
Box 1 *Typical responsibilities of the Incident Commander*

- Assume and announce Command
- Possess clear authority to manage the response
- Ensure incident safety
- Establish an Incident Command Post
- Establish incident response objectives and strategies to be followed
- Establish immediate priorities
- Initiate, maintain and control the communications process within the IMS organization
- Establish the size of the IMS organization needed and monitor the its effectiveness
- Assess the status of the response
- Approve, implement, and evaluate the Incident Action Plan
- Coordinate activity for all Command and General Staff
- Approve requests for additional resources or for the release of resources
- Approve the use of volunteer and auxiliary personnel
- Authorize the release of information through the Public Information Officer
- Order demobilization of the incident when appropriate
- Ensure completion of incident after-action reports

Command Staff

The Command Staff perform or support the duties and responsibilities of the Command function. In less complex incidents, the Incident Commander may have sufficient time to single-handedly carry out tasks such as information dissemination, safety monitoring, coordination of participating organizations, and resource monitoring. However, as the complexity of an incident increases, the role of the Incident Commander evolves from hands-on activities to overall incident management and command. As a result, the Incident Commander may designate one or more Command Staff positions to perform various management activities; such positions may include the Public Information Officer, Safety Officer and Liaison Officer. Depending on the nature and complexity of the incident, the Incident Commander may also assign positions such as the Legal Officer, Intelligence/Security Officer and Human Resources Officer.

Figure 2 *An example of Command Staff organization*



* Optional positions that may be assigned by the Incident Commander depending on the nature and complexity of the incident.

Safety Officer

Safety is the first priority for all members of the response organization, and all members are accountable for conducting their work in a safe manner. The Safety Officer has overall responsibility for monitoring on-scene safety conditions and developing measures to ensure the safety of all response personnel. The Safety Officer also anticipates hazardous and unsafe situations and has the authority to alter activities in an emergency in order to stop or prevent unsafe acts or conditions. The Safety Officer is responsible for the development of the Safety Plan and the review of the Medical Plan. The Safety Officer reviews the Incident Action Plan for safety implications, and can recommend changes to the Incident Commander as necessary. There is only one Safety Officer in the IMS organization, but the Safety Officer may designate assistants as needed.

Public Information Officer

The Public Information Officer is responsible for all interaction between Command, the news media and the public, and develops and coordinates the release of information on the situation and response efforts. While this function will mostly involve interaction with the news media, the Public Information Officer may also provide information to governmental agencies and other organizations if the Liaison Officer position is not activated. Commonly requested information includes:

- key instructions for the public, including safety warnings;
- geographic location of the incident;
- estimated duration of the response; and
- description of specific incident characteristics (e.g. injuries/fatalities, personnel unaccounted for, spill volume, oil type, organizations involved in the response, current situation, environmental impacts and wildlife impacts).

There is only one Public Information Officer in the IMS organization. However, a Public Information Officer can designate assistants who may represent other assisting organizations or stakeholders.

Liaison Officer

The Liaison Officer is the primary contact person for representatives of stakeholder organizations, typically government or community representatives. The Liaison Officer assists in establishing and coordinating inter-organizational contacts, and maintains a list of assisting organizations and corresponding representatives. There is only one Liaison Officer in the IMS organization, but the Liaison Officer may designate assistants as needed.

Operations Section

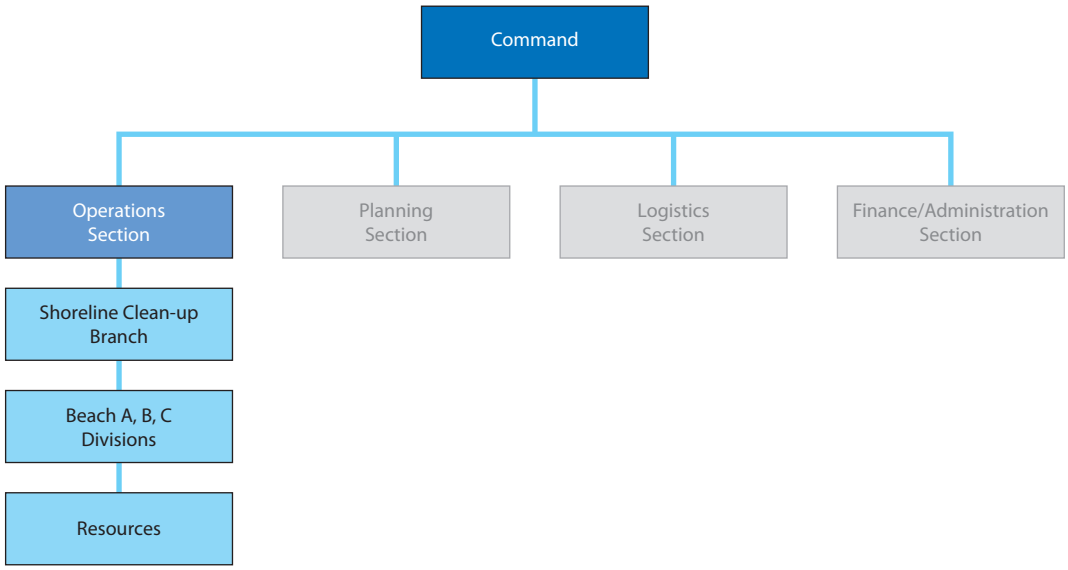
The Operations Section performs all tactical response operations to achieve key priorities such as safety, source control, oil spill response, fire containment and the protection of the environment and property.

Figure 3 provides an example of an organizational structure within the Operations Section hierarchy. The Section can be divided into Branches, Divisions and Groups which are collectively known as Areas of Operation. Branches can be geographic and have distinct operational boundaries, or functional (as shown in Figure 3) and able to operate anywhere. The Branches can be further divided into Divisions (geographical) or Groups (functional) such as an Aerial Surveillance Group. Resources are assigned to each Branch, Division or Group to implement the response activities. For very large incidents, multiple Divisions/Groups can be organized under multiple Branches (see Figure 4).

The Operations Section and its organizational elements develop as required to accomplish the response objectives. Incident complexity and span-of-control considerations guide whether the Incident Commander:

1. directly manages Divisions/Groups or Resources;
2. establishes Branches to consolidate Divisions and/or Groups for sub-management when span-of-control limits are exceeded; or
3. establishes an Operations Section and delegates an Operations Section Chief (see Box 2) who, in turn, establishes organizational elements within the section when the number of resources exceed the span of control of the Chief.

Figure 3 *Example of Operations Section organization*



Box 2 *Responsibilities of the Operations Section Chief*

- Manage tactical operations
- Ensure safety of Operations Section personnel
- Assist in developing the operations response strategies and tactics of the Incident Action Plan
- Supervise the execution of the operations portion of the Incident Action Plan
- Maintain close contact with subordinate positions
- Request resources to support tactical operations through the Logistics Section
- Coordination of simultaneous operations (SimOps)
- Approve release of resources from active assignments
- Make or approve expedient changes to the Incident Action Plan as necessary
- Ensure the Operations Section operates effectively and within span-of-control limits
- Assess progress of the response
- Provide the Incident Commander with situation and resource status reports within the Operations Section

Divisions and Groups

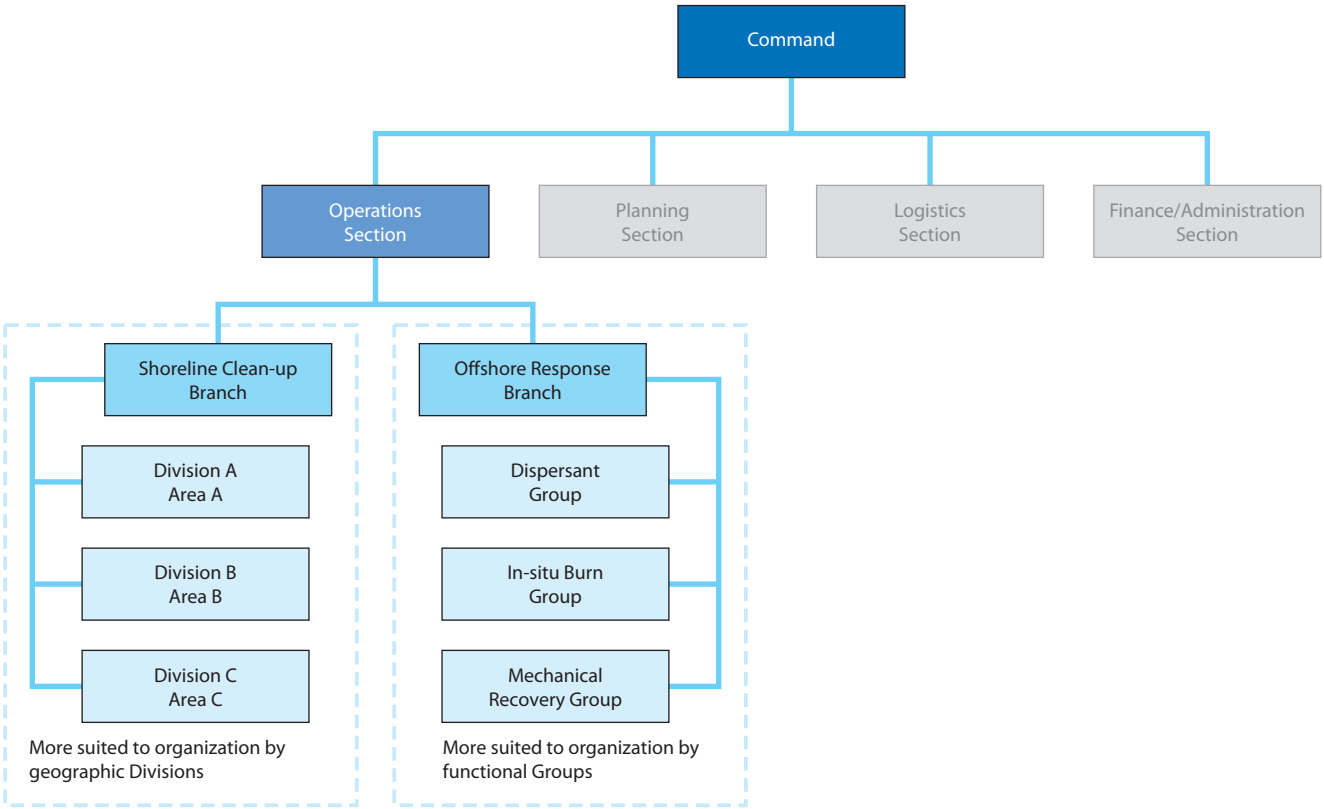
Divisions and Groups are organizational elements that divide the response organization into geographic areas and functional areas of operation, respectively. As illustrated in Figure 4, Divisions organize response activities geographically, while Groups organize response activities based on major operations functions performed by a Group's collective resources, such as search and rescue. An Incident Commander, Operations Section Chief or Branch Director may supervise any combination of Divisions and Groups as these organizational elements coexist on the same level within the IMS chain of command. A single Division or Group Supervisor must be assigned to manage each established division or group, and each supervisor reports directly to the next higher level supervisor in the organizational chain of command of the IMS.

Key responsibilities of a Division or Group Supervisor include:

- implementing the portion of the Incident Action Plan applicable to the Division or Group;
- assigning resources within the division or group; and
- monitoring the progress of operational activities and resource status within the Division or Group.

Divisions and Groups are appropriate organizational elements that perform specific tasks or work in specific areas at an incident. A Division manages response activities within a well-defined geographical area, for example to clean up oil that has arrived ashore on a beach. Multiple Divisions might exist to support clean-up efforts where a large shoreline has been impacted. Alternatively, a specialized service, such as the application of dispersants, can be consolidated under a single Group within the IMS structure.

Figure 4 *Example of Operations Section organization including Divisions and Groups*



Branches

The Incident Commander or Operations Section Chief may establish Branches when the number of Divisions and Groups exceeds the span-of-control limit. The Chief or Incident Commander might also establish Branches as a response to an increasingly complex incident (e.g. changing incident strategies) to facilitate efficient management of resources required for multiple operations activities. Branches are commonly organized according to geography or function, and are managed by a designated Director responsible for implementing the portion of the Incident Action Plan

applicable to the Branch. An example of a situation that commonly warrants the use of IMS Branches is an incident with concurrent response activities in two or more distinct types of operations.

Resources

Resources include personnel and equipment assigned to perform tactical operations or response support functions (e.g. facilities, IT, consumables, etc.). Equipment resources also include the personnel required for equipment operation and maintenance.

Resource tracking requires that each responding resource has an assigned status condition. Standard resource status conditions include:

- assigned: performing active operational function;
- available: ready for immediate assignment; and
- out of service: not ready for assigned or available status because of mechanical, personnel rest, or other operational issues

Other Sections

As many as three other sections can be established within the IMS organization: Planning, Logistics, and Finance/Administration. In many incidents, the responsibilities of these Sections may be combined under the Command function. Many small and medium incidents don't expand beyond the creation of an Operations Section. Industry experience shows that response operations of longer duration often also require establishment of the Planning Section. Major incidents generally require the establishment of all four IMS Sections.

Planning Section

The Planning Section functions to maintain resource status and situation status, address environmental issues, assist in the development of the Incident Action Plan (see *Managing an incident response using an IMS* on page 24 for details) and provide technical specialists. A central function of the Planning Section involves the collection and evaluation of operational information about the incident, including the current and forecasted situation and the status of assigned resources. This information is needed to understand the current situation, predict a probable course of incident events, and prepare alternative strategies for mitigating incident effects.

During an incident, the Planning Section maintains an ongoing assessment of situation status and factors that can affect the response, e.g. weather, oil spill trajectory, air quality, ecological and socio-economic features at risk, and other factors. For major incidents, the Planning Section may establish a common operating picture (COP) in the form of status boards or digital information displays to provide current validated information on the response.

Below: a weather briefing takes place at a Unified Command centre prior to commencement of response activities.

Source: DVIDS

Box 3 *Responsibilities of the Planning Section Chief*

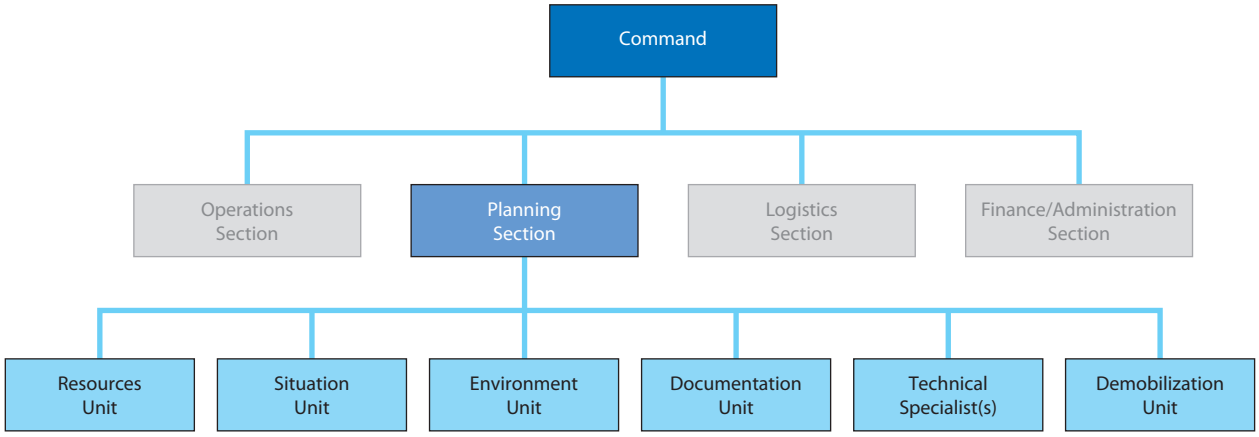
- Collect and evaluate all operational data about the incident
- Provide input to the Incident Commander and Operations Section Chief in preparing the Incident Action Plan
- Supervise preparation and documentation of the Incident Action Plan
- Conduct and facilitate planning meetings
- Assign available on-scene personnel to IMS organizational positions as necessary
- Evaluate span of control within the IMS organization
- Evaluate the performance of the Incident Action Plan with the Incident Commander
- Establish information requirements and reporting schedules for resources
- Determine the need for any specialized resources in support of incident operations
- Provide the Resources Unit within the organizational structure of the Planning Section to maintain status of all assigned resources
- Assemble information on alternative strategies
- Provide periodic assessments of incident potential
- Report any significant changes in incident status
- Compile and disseminate incident status information
- Incorporate fire plans, oil spill plans, hurricane plans (etc.), medical plans, communications plans, waste management plans and other supporting material into the Incident Action Plan
- Supervise the preparation of an incident demobilization plan

The Planning Section organization may include as many as five primary Units and various technical specialists. Specifically, these organizational elements are:

- Resources Unit: tracks all response resources including personnel, teams, equipment, and facilities and maintains an accurate and up-to-date status of each to provide a complete picture for planning purposes.
- Situation Unit: collects and evaluates situation information for the response. This includes both current information on actions being taken, and forecasts of future incident management activities and information (weather, tides, oil trajectories, shoreline oiling reports, etc.).
- Environment Unit: assesses potential environmental impacts of the incident, establishes environmental priorities, identifies ecological and socio-economic features at risk, advises on oiled wildlife management and sampling activities, advises the SCAT (shoreline clean-up assessment technique) team leader, formulates appropriate protection and mitigation strategies and clean-up techniques, Net Environmental Benefit Analysis (NEBA) evaluation, and development of clean-up end points.
- Documentation Unit: manages the overall documentation for the response and develops a complete overall administrative record, including logs, files, plans, maps and records for the response. Also provides support to the Incident Command Post in generation and preservation of response documents.
- Demobilization Unit: provides planning for the demobilization of personnel and response assets consistent with the needs of the overall response.

Technical specialists may provide support to response teams anywhere within the IMS organization depending on where their services are required. These specialists provide technical

Figure 5 *Example of Planning Section organization*



advice and support to address specific aspects of an incident response. Examples of technical specialists' expertise include safety, industrial hygiene, air monitoring, response techniques such as dispersant use and in-situ burning, modelling and geospatial/geomatics information. Technical specialists are typically assigned to support the Unit related to their area of specialization.

Aside from technical specialists, each identified Unit has a Leader, and that person may supervise more than one Unit.

Logistics Section

The Logistics Section provides services and support to the incident response effort in the form of personnel, facilities and materials. It serves as the support mechanism for the IMS organization. The Incident Commander may establish a Logistics Section and delegate a Logistics Section Chief during complex, large-scale incidents. In addition to managing all incident logistics, the Logistics Section Chief might provide logistics input to the Incident Action Plan. Box 4 on page 20 provides a list of the major responsibilities typically assigned to the Logistics Section Chief.

The Logistics Section organization can include as many as six primary Units, typically organized under a Service Branch and a Support Branch.

Source: Michael Owens

The Logistics Section supports the IMS organization in a variety of ways, including assessing response needs and ensuring the supply of appropriate resources.

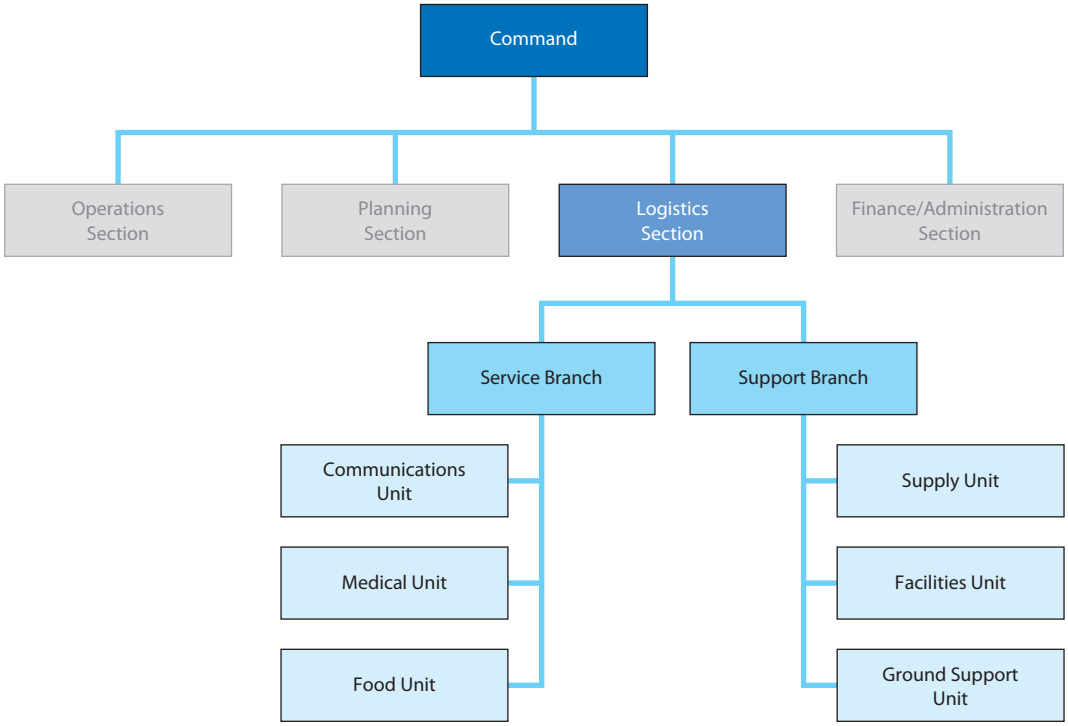
Box 4 *Responsibilities of the Logistics Section Chief*

- Plan the organization of the Logistics Section
- Ensure the general welfare and safety of the Logistics Section
- Participate in the development of the Incident Action Plan
- Activate and supervise Branches and Units within the Logistics Section
- Assign and brief Logistics Branch Directors and Unit Leaders
- Assign work locations and preliminary work tasks to Section personnel
- Determine and supply immediate incident resource and facility needs
- Ensure that a record is maintained of all equipment, materials and supplies purchased, rented, borrowed or otherwise obtained during emergency response operations
- Work with the Staging Area Manager(s) to establish and maintain the supply network
- Develop and advise all Sections of the resource approval and requesting process
- Coordinate and process requests for additional resources
- Track resource effectiveness and make necessary adjustments
- Advise on current service and support capabilities
- Review tactics for the next operational period to provide resources and logistical support
- Identify long-term service and support requirements
- Advise Command and other Section Chiefs on resource availability to support incident needs
- Provide input to and review the Communications Plan, Medical Plan and Traffic Plan.
- Identify resource needs for incident contingencies
- Recommend resources to be demobilized, and release when appropriate
- Receive and implement applicable portions of the incident Demobilization Plan

Source: DVIDS

Right: an operation to remove more than 1,700 gallons of oil and water from a grounded freighter required significant logistical support, including the supply of necessary equipment and resources such as containment booms, pumps, hazardous waste containers, transfer vessels, as well as cargo removal facilities.

Figure 6 *Example of Logistics Section organization*



The Service Branch of the Logistics Section provides all service activities at the incident and contains the following organizational elements:

- Communications Unit: develops plans governing all communications protocols and equipment. Unit activities include installing, testing, distributing and maintaining communications equipment.
- Medical Unit: develops the medical plan, and provides on-scene medical services and transportation to medical care for incident responders.
- Food Unit: supplies food and hydration to meet the needs of incident responders throughout the incident life cycle.

The Support Branch of the Logistics Section provides personnel, equipment, facilities and supplies to support incident operations. This branch contains the following organizational elements, each of which may be supported by assisting organizations:

- Supply Unit: requests resources (personnel, equipment and supplies) to support incident operations. Unit activities also include receiving, storing and distribution of incident supplies, maintaining a supply inventory, and servicing supplies and equipment.
- Facilities Unit: identifies required facilities (e.g. equipment staging, food service, sanitation, sleeping) and provides facility management, including set-up, maintenance, security services and facility demobilization.
- Ground Support Unit: implements the traffic plan, provides ground transportation in support of incident operations (e.g. transporting personnel and supplies), and services all mobile vehicles and tactical equipment.

Finance and Administration Section

The Finance and Administration Section provides financial controls for the response, supports contracting and procurement, tracks incident costs, manages claims, and accounts for reimbursements. This Section provides tracking of all expenditures and recording of costs for response personnel, equipment and assets. Incidents often involve claims for damage to property, business disruption or other issues such as health or medical claims, which are all managed by this Section.

Box 5 provides a list of the major responsibilities typically assigned to the Finance/Administration Section Chief.

Box 5 *Responsibilities of the Finance/Administration Section Chief*

- Manage all financial aspects of an incident
- Plan the organization of the Finance and Administration Section
- Ensure the general welfare and safety of the Finance/Administration Section
- Establish proper financial controls for the incident
- Provide incident financial and cost analysis information
- Ensure appropriate delegations of financial authority are in place
- Participate in development of the Incident Action Plan and briefings as required.
- Ensure that all personnel time records are accurately completed
- Review operational plans and provide alternatives where financially appropriate
- Oversee administration of vendor contracts, and service and equipment rental agreements
- Work with the Legal Officer on insurance coverage and exclusions, claims management processing, and approach to settlements
- Review all relevant insurance programmes and ensure notification of insurers and appointment of loss adjusters
- Provide financial input to demobilization planning

The Finance/ Administration Section manages the financial aspects of an operation, participates in the development of the Incident Action Plan, maintains personnel and equipment records, and works with the Legal Officer to process insurance and claims matters.

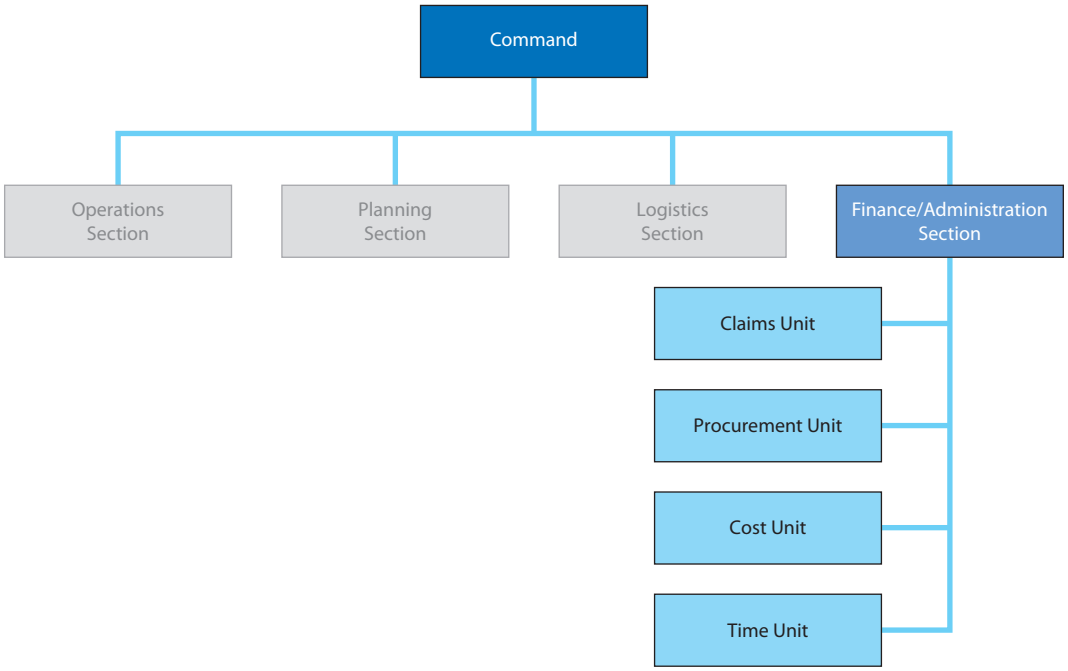
Source: ©Shutterstock.com

Source: DVIDS

The Finance/Administration Section organization may include as many as four primary Units (see Figure 7):

- Claims Unit: collects and evaluates all claims associated with the incident.
- Procurement Unit: manages all financial matters related to vendors, including contracts, leases and purchase agreements.
- Cost Unit: collects all cost data, performs cost-effectiveness analyses, and provides cost estimates and recommendations for reducing incident costs.
- Time Unit: ensures preparation of daily personnel and equipment time recording documents and compliance with the time policy.

Figure 7 *Example of Finance/Administration Section organization*



Managing an incident response using an IMS

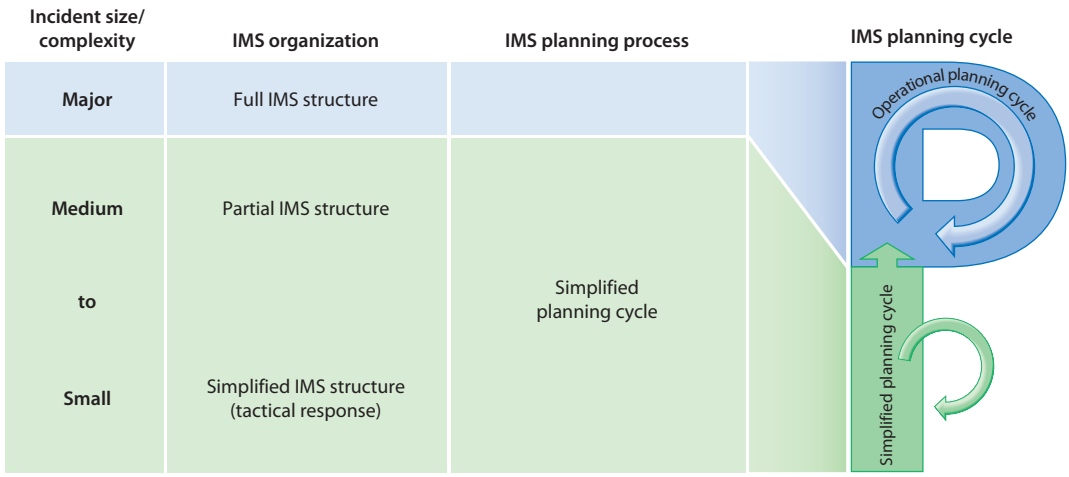
This section describes how to implement a response to an incident using an IMS for small to medium incidents, and also for major incidents. Regardless of the size of the incident, the response process begins with incident detection, notification and activation of response personnel and other resources, and establishment of the incident command. As the response develops, the IMS organizational structure and cyclical planning process are established. The IMS planning cycle and organizational structure may be relatively simple for small incidents. The simplified planning cycle may occur every hour, or even more frequently, and the organizational structure may only include an Incident Commander and tactical operations personnel, for example a spill response team.

For larger, more complex incidents, the response organization will be more structured and the planning cycle more defined. The IMS drives larger incident response activities through a written Incident Action Plan which includes tactics and resource assignments to accomplish the response objectives established by the Incident Commander. The response is typically divided into operational periods, and the Incident Action Plan is reviewed and revised during each operational period to reflect current objectives, strategies and response tactics to meet evolving incident conditions.

Figure 8 shows how an IMS is applied for major incidents, which are rare, and also for more common, smaller incidents.

Figure 8 *Application of an IMS to the response organization and planning cycle for both major and smaller incidents*

The organization and planning process are scaled appropriately to match the size and complexity of the incident response.



Notification and activation

Notifying the appropriate organizations that an incident has occurred is the first step in the initial response for all incidents. Notification efforts should include verification of the type of incident and its exact geographic location. Once notification has occurred, incident command is established by the first arriving responder, and the responding organizations activate and dispatch qualified personnel to the response. Depending on the location of the incident, there may be country-specific notification requirements to inform governmental entities and organizations of the occurrence of the incident.

Establishing the IMS organization

As mentioned earlier, the philosophy of the incident command is to 'prudently over-respond' to ensure that the incident can be controlled and to prevent unnecessary escalation of the response. The location and type of incident govern the scope of response activities and the size of the IMS organization. The IMS structure should expand and contract throughout the incident life cycle according to the needs of the response. The Incident Commander is always the first role to be established, and organizational elements then expand from the established Command structure as needed. For small incidents, the organization may be limited to an Incident Commander and a tactical operations team. Only rarely is the full IMS structure required, and then typically for major and complex incidents. The IMS organization is evaluated continually, and is sized to meet incident response objectives and maintain appropriate span-of-control limits.

Table 2 *Initial actions in developing the organizational structure for an IMS*

Action	Condition that triggers action
Establish Command	• The Incident Commander is always the first role established • The Incident Commander shall be given full authority to manage the response and protect the safety of the responders and the public
Transfer Command (Single Command)	• Arrival of a more qualified person to fulfill the role of Incident Commander • Change in mission priority requiring a new Incident Commander • Specification of an individual from a single organization for the role of Incident Commander • Extended incident duration necessitating relief of the Incident Commander

Establish Divisions or Groups	• Number of response personnel exceeds span-of-control limit of supervisor
	  • Divisions organize response activities based on geographic areas of operation
	  • Groups organize response activities based on functional areas of operation

Establish Branches	• Number of Divisions, Groups and single resources exceed span-of-control limit of supervisor (typically the Incident Commander or Operations Section Chief) • Incident response objectives require two or more different functional operations, and each assisting entity is organized under a specific functional Branch
Establish Operations Section	• Number of Branches, Divisions and Groups exceeds span-of-control limit of the Incident Commander
Establish Planning Section	• Increase in incident complexity, scale and/or estimated duration that require Command to designate a Planning Section Chief to supervise development and documentation of an Incident Action Plan, address environmental issues and monitor situation and resource status

Establish Command Staff	• Increase in incident complexity, scale and/or estimated duration that requires Command to relinquish certain time-consuming, hands-on activities and designate a single on-scene responder for each of the following Command Staff positions as needed:
	  • Safety Officer—monitor scene safety conditions and ensure safety of all personnel and the public
	  • Public Information Officer—interact with media and release public information
	  • Liaison Officer—represent on-scene contact for assisting and cooperating agencies/stakeholders

Factors to consider in establishing the appropriate IMS organization include:

- time/date of incident;
- location of and access to the incident;
- medical assistance for injuries or fatalities;
- potential health or safety risks to the public;
- need for search and rescue operations;
- occurrence of, or potential for fire;
- volume and type of oil spilled;
- potential for environmental and socio-economic impacts;
- management issues such as human resources, legal, media, etc.;
- need for specialized expertise, such as source control;
- site security; and
- changing physical conditions such as weather, oil trajectory, sea conditions and other factors.

The two rules of thumb for managing the organizational structure of the IMS are to:

1. ensure that the organization develops at a pace that never constrains the level of required tactical operations and incident support activities during the operational period; and
2. maintain an organization size that is fit for purpose to accomplish the incident response objectives.

Initial assessment and response

The initial assessment of the response by the Incident Commander involves:

- verifying vital information about the incident;
- ensuring that the incident scene is secure;
- conducting an assessment of the incident situation, actions taken, safety concerns, incident worst-case potential, and resources required; and
- establishing an appropriate IMS structure.

Initial incident briefing

The initial incident briefing covers the situation status and response activities, and typically includes a map/sketch of the incident, a summary of current actions, a chart of the current IMS organization, and a summary of resources ordered. This information serves as an initial Incident Action Plan and may be communicated orally or in writing by the Incident Commander to other responders. The initial Incident Action Plan is updated for each operational period or until the incident is resolved.

The Incident Commander uses the initial incident briefing as a key step in determining the appropriate IMS structure for effectively and efficiently managing an incident. A brief command meeting is used to initiate the planning process. The Incident Commander determines and prioritizes a common set of response objectives, and may also identify the preferred associated strategies. The Incident Commander may designate an Operations Section Chief to manage tactical operations, and may fill Command Staff positions (including Safety Officer, Public Information Officer and Liaison Officer) and General Staff positions as necessary.

Topics commonly reviewed in an incident briefing include:

- situation status—objectives, priorities, hazards and resource needs;
- situation potential, safety concerns and related issues;
- current response activities and progress;
- current organizational structure of the IMS;
- resource assignments (personnel and equipment);
- resources en route and/or ordered;
- facilities established; and
- communications established.

Incident response objectives

The objectives are a succinct statement of Command's overall goals and intents for the response. Objectives describe the intended outcomes and should encompass the totality of the response. The industry generally follows a hierarchy when setting objectives:

- People: protect the health and safety of responders and the public.
- Environment: protect and mitigate impacts to the environment.
- Assets: protect public and industry assets from further impact.
- Reputation: conduct the response in an ethical and transparent manner.

Determine operational periods

The planning of response actions is generally divided into operational periods. The first operational period begins at the onset of an incident. It includes the immediate response actions and utilizes the industry operator's response plan to assist in guiding response priorities and directives, response strategies and actions. The initiation of the response strategies and activities may be based on a planning scenario that closely matches the actual incident, with any necessary changes being made to address the real circumstances.

For responses that last more than a day, the Incident Commander should establish operating periods for which Incident Action Plans are developed to support the response activities. Typically, operational periods are based on:

- operational factors, including safety as the key priority;
- the ability to conduct day and night operations;
- logistical constraints on shift operations within the geography of the incident;
- weather considerations; and
- the availability of response resources (people, equipment and supplies).

Operational periods are commonly based on a 24-hour cycle or defined by day and night, with daytime operations focused on response activities and night-time actions focused on resource mobilization and the logistics needed to support the next day's activities. For steady-state activities, which typically occur later in a response, operational periods may encompass several days.

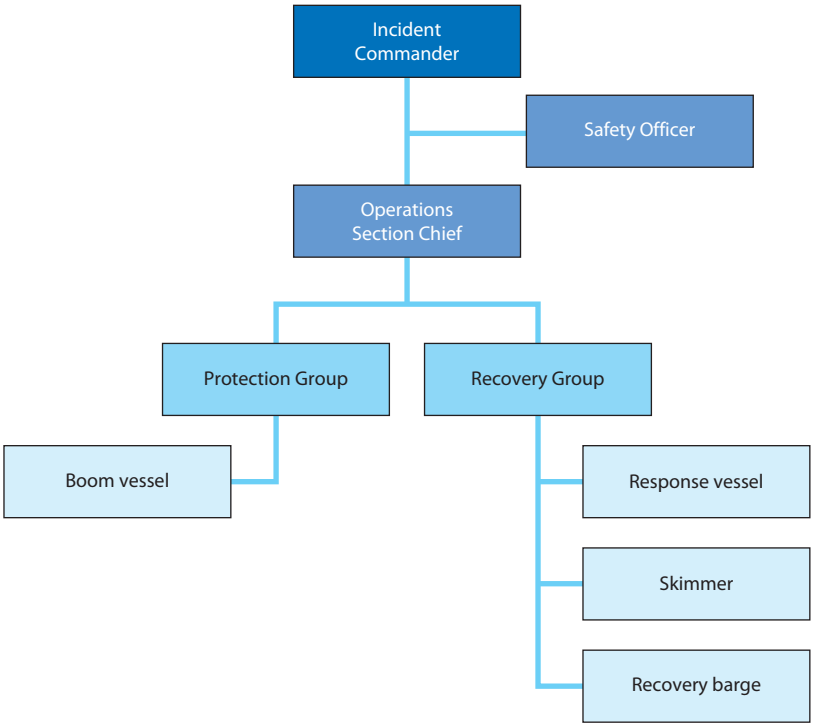
Operational periods generally fall into one of two categories, i.e.:

- the 'current operational period'—which includes activities under way; or
- the 'next operational period'—which includes actions being planned for the next period.

Implementing the response—small to medium, or simple incidents

Most incidents are small to medium in size, not complex, and do not require a large organizational structure or operational planning cycle.

Figure 9 *IMS response structure for a small incident*



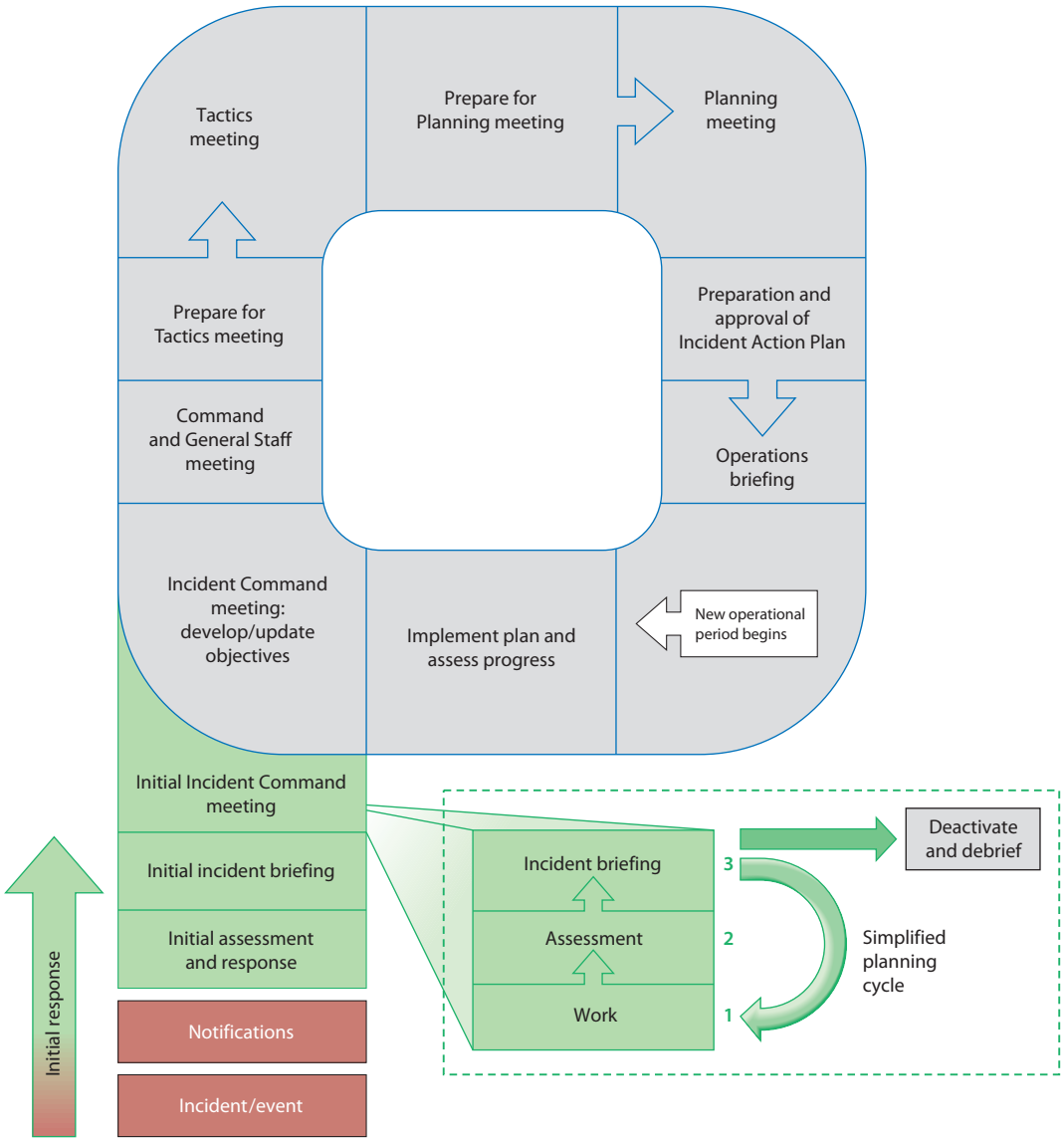
In the case of a small oil spill incident, for example at a marine terminal facility, the activation of the spill response team would be organized using a simplified IMS structure. The approach will be tactically and operationally focused, using only the positions and sections required to execute the facility's oil spill response plan. Direction may be given verbally or using an incident briefing document. Response actions continue until the objectives have been met, after which the team deactivates.

Source: Daniel Sanford

Simplified planning cycle

Small incidents are managed and directed using a simple iterative process; this involves performing response activities and assessing progress towards achieving the objectives until the response is completed and the incident command is deactivated. The simplified planning process consists of iterative cycles of *work*, *assess* and *brief* that can be thought of as repeating the foundational steps of the leg of the 'Planning P' in Figure 8. The lower part of Figure 10 shows the typical steps of an initial incident response, and the ongoing simplified planning cycle for such an incident.

Figure 10 *Simplified planning cycle for small, medium or simple incidents*



Perform work and assessment meetings

Following the initial briefing, response actions are taken which are consistent with the response objectives and the facility's response plan. Assessment meetings are then used to provide updates on the progress of the response towards meeting the objectives, and to establish the direction for the next operational period. The duration of the operational period and the frequency of assessment meetings are dictated by the pace at which the incident unfolds and the progress of the response activities. This cycle of work and assessment continues until all response objectives have been met and the incident command is deactivated, or until the incident becomes more complex and escalates into a full IMS organization.

Assessment meetings include:

- an incident briefing, including updates on the progress of the response;
- assessment of the worst-case scenario;
- review and update of the response objectives;
- discussion of primary and alternative response strategies;
- evaluation of resources and assistance needed; and
- analysis of impacts on stakeholders.

Key outputs are:

- the operations' tactics and IMS management structure for the next operational period;
- tactical and support resource requirements; and
- resource availability and identification of sources for fulfilling orders for the required resources.

Ongoing incident briefings

Periodic incident briefings and updates to inform personnel about new information and matters of particular importance should occur frequently, based on the pace of the response throughout the operational period(s). These briefings provide the opportunity to: (1) update key staff and, in turn, all incident responders on the current incident situation and any new information; and (2) evaluate the Incident Action Plan and, if necessary, determine appropriate revisions in response to current conditions.

Deactivation and debrief

A response can be terminated when all response objectives have been met. Resources can be demobilized when they are no longer needed and as incident response activities diminish. At the conclusion of every incident, a debrief meeting is held to capture lessons learned from the incident response so that response capabilities can be improved for the future.

Implementing the response—major and complex incidents

A response to a major incident may involve hundreds or even thousands of responders from multiple organizations, working in multiple locations, and carrying out a wide range of response activities—some of which may involve simultaneous operations requiring close coordination. The level of management and transactional demands required to maintain effective command and control of such a response will exceed that provided by the simplified 'assessment-based' process. A full IMS structure and operational planning cycle will therefore be required to manage a response of this scale. The effectiveness of the response is further enhanced by the use of a common IMS by all response organizations.

In a major incident, the IMS structure will generally include:

- Incident Command;
- Command Staff;
- Operations Section;
- Planning Section;
- Logistics Section; and
- Finance and Administration Section.

The use of other IMS components—i.e. Branches, Divisions, Groups and Units—and roles such as Deputies and Assistants will depend on the specific needs of the response. The IMS structure and resourcing must be sufficient to achieve the response objectives and to maintain an appropriate span of control. For longer duration incidents, the incident commander needs to anticipate and plan for rotations of qualified personnel to provide relief to the cadre of initial IMS staff.

The Command function designates a Planning Section Chief to guide the Operational Planning Process and to develop the written Incident Action Plan. As the incident management effort evolves over time, additional lead time, staff, information systems and technologies enable more detailed planning and cataloguing of events. Planning involves:

- evaluating the situation and the progress of the response;
- developing and updating response objectives;
- developing primary and alternative response strategies; and
- determining the resources needed to achieve the objectives in the safest and most effective manner.

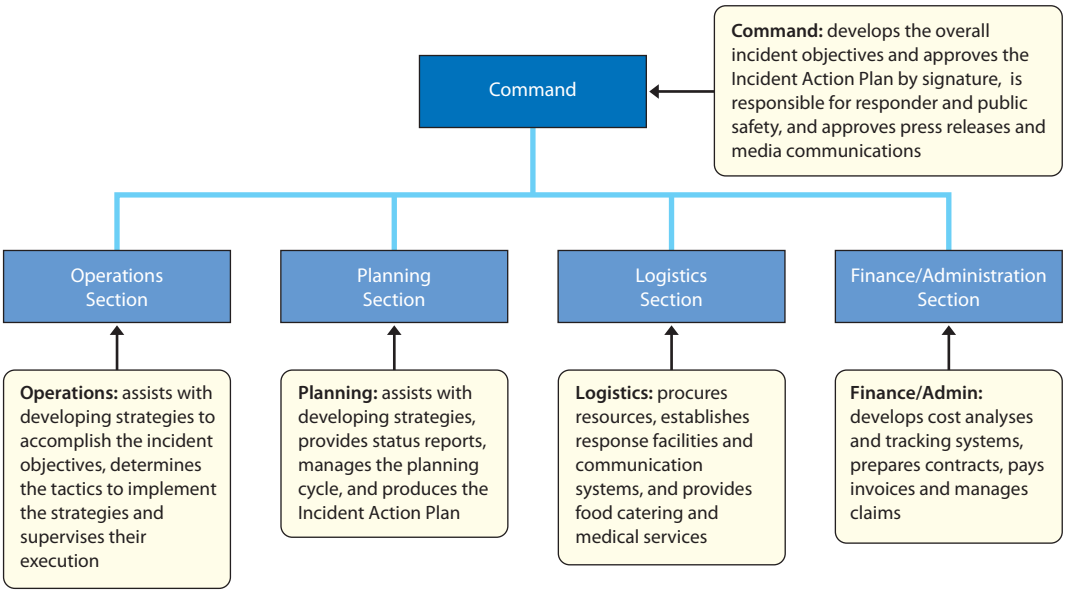
The key planning activities are summarized in Table 3 on page 32.

The functions of the Command and General Staff in the development of the Incident Action Plan are shown in Figure 11 on page 33.

Table 3 *Key activities of the planning process*

Phase	Activity
Evaluate the situation and progress of the response	• Gather, record, analyse and display situation and resource information • Obtain a clear picture of the scale and complexity of the incident, and assess the incident potential • Assess worst-case potential • Determine resources required to implement the Incident Action Plan
Establish and refresh incident objectives and strategy	• Formulate and prioritize response objectives • Identify, analyse and evaluate reasonable response strategies to accomplish the overall objectives of the response
Develop the Incident Action Plan	• Determine the tactical direction (i.e. how, where and when) and the resources, logistics and strategies for the next operational period • Define operational periods • Identify resource status and availability • Configure the IMS organizational structure to implement tactics, and determine work assignments and specific resource requirements • As needed, develop Incident Action Plan attachments (Medical Plan, Health and Safety Plan, Communications Plan, Waste Management Plan, etc.)
Prepare and disseminate the Incident Action Plan	• Format the Incident Action Plan in accordance with the level of complexity of the incident, and produce a well-prepared outline for an oral briefing or written plan • Obtain Incident Action Plan attachments and review for completeness and approval • Ensure the Incident Action Plan is up-to-date and complete in relation to the incident situation • Reproduce the Incident Action Plan and distribute before the start of the next operational period
Evaluate and revise the Incident Action Plan	• Compare planned progress with actual progress on a regular basis, and identify deviations or changes in resource availability, mission failure or unexpected success, and new safety and environmental considerations • Input new information and changes in the situation into the first step of the planning process as necessary to modify the Incident Action Plan for the current or subsequent operational period

Figure 11 *Activities of the operational planning cycle by role*



The completed and approved Incident Action Plan will specify tactics and associated personnel and equipment for the next operational period. Additional Incident Action Plan components may include, but are not limited to, the following plans:

- Medical Plan: provides a description and location of on-scene medical facilities, ambulances and hospitals, and details medical emergency procedures.
- Health and Safety Plan: specifies safety procedures, a health and safety analysis for hazardous tactical operations, personnel training requirements, medical monitoring requirements, site control measures, and an air monitoring plan as appropriate.
- Communications Plan: lists the type(s) of radios in use, the function of each channel, the frequency/tone to which the radio is set, and the radio's assignment.
- Waste management plan: specifies the potential sources and disposal routes for operational and oily wastes.

Box 6 *Example template for the content on an Incident Action Plan*

Templates are helpful for conveying and recording Incident Action Plan information.
An Incident Action Plan typically contains this information as a minimum:

- Incident objectives
- Organization chart
- Response strategies and work assignments
- Medical Plan
- Health and Safety Plan
- Waste management plan
- Communications Plan with incident radio details
- Maps, photographs or other graphics (e.g. oil trajectories)
- Resources

A full library of useful templates, often called Forms, can be found in the Incident Management Handbook *produced by Oil Spill Response Limited (OSRL, 2012).*

Operational planning cycle

The initial response to a major incident may begin with a tactical response using the assessment-based process to develop an Incident Action Plan. As the scope and complexity of the response escalates, the planning process takes on a more formalized approach, known as the 'Operational Planning Cycle', to develop a written Incident Action Plan that contains response objectives that reflect the overall strategy for managing the incident. This process is generally implemented when one or more of the following criteria are met:

- The breadth, scope and complexity of response activities exceeds the ability to develop and communicate tactical work assignments using a simplified planning process.
- Resources from multiple response organizations are involved.
- The response operations will span several operational periods.
- Rotations in shifts of personnel and/or equipment are required.
- There is a need to document actions and/or decisions.
- Formal updates on the response are required by key stakeholders.

The Operational Planning Cycle progresses through five phases to validate the accuracy of current information on the situation and resources, estimate the probable course of events, evaluate alternative strategies and develop the Incident Action Plan to be carried out during the next operational period:

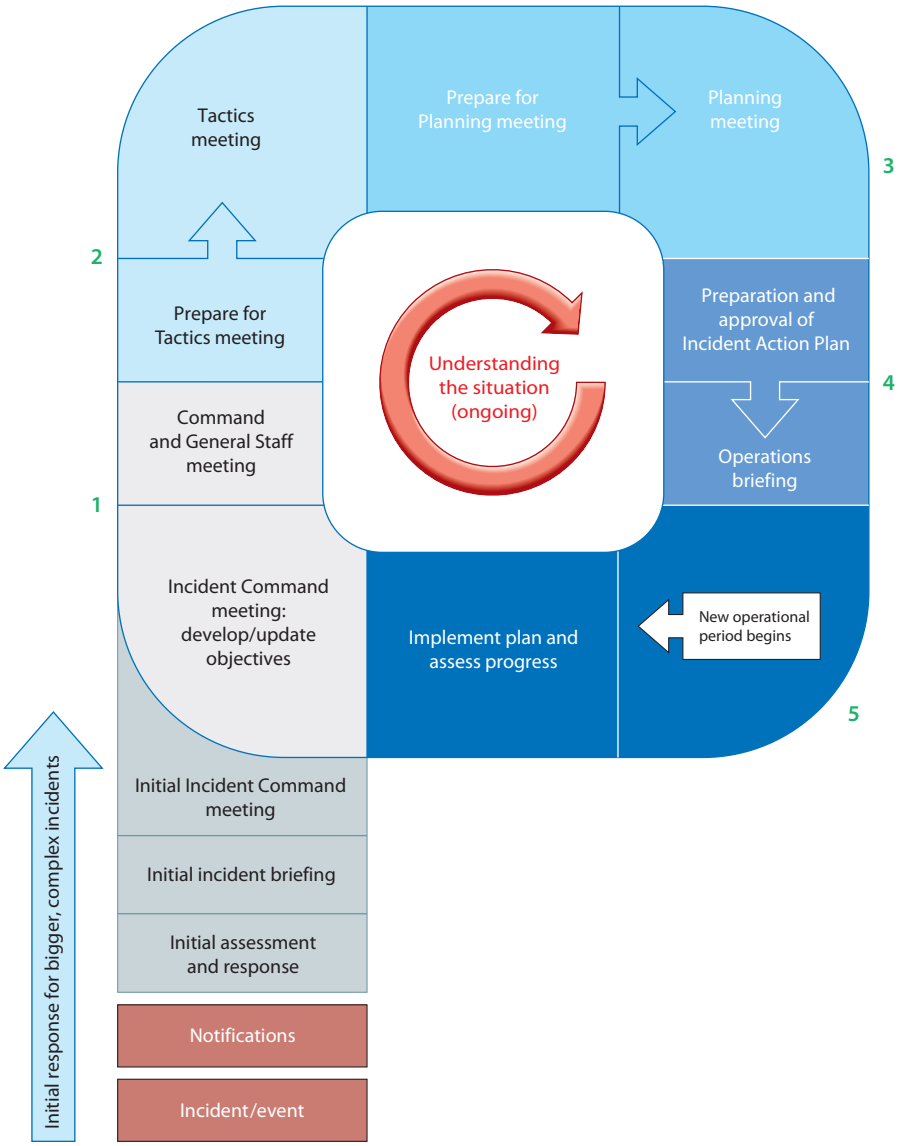
1. Understand the situation.
2. Establish response objectives and strategy.
3. Develop the plan.
4. Prepare and disseminate the plan.
5. Execute, evaluate and revise the plan.

Planning cycle activities

The planning cycle shown in Figure 12 depicts the Operational Planning Cycle moving through a progression of planning activities to proactively respond to the incident. The planning cycle is designed to take the overall incident objectives and break them down into strategies and tactical assignments for each operational period. It is important that incident objectives establish the overall direction of the incident response, rather than having incident objectives address only a single component of the response. Operational strategies and tactics for each operational period should be directly linked to achieving those objectives.

For further details on planning activities refer to OSRL, 2012.

Figure 12 *Operational planning cycle for major and complex incidents*



The steps illustrated in Figure 12 are elaborated further on page 36.

The steps of the Operational Planning Cycle are listed below:

- **Incident Command meeting:** Command establishes incident objectives that cover the next operational period of the incident.
- **Command and General Staff meeting:** Command meets with the Command and General Staff to provide immediate direction and clarification on decisions, objectives, priorities, expectations and procedures for the response.
- **Tactics meeting:** the Operations and Planning Sections review the response strategy and develop the associated tactics. This includes:
  - determining how the selected strategy will be accomplished in order to achieve the incident objectives; and
  - identifying and assigning resources for each work task to implement the tactical operations, and identifying methods for monitoring the effectiveness of the tactics and resources.
- **Planning meeting:** the Command and General Staff review and validate the tactical operations plan as proposed by the Operations Section Chief. The Operations Section Chief delineates the amount and type of resources needed to accomplish the plan and coordinates these requests with the Logistics Section.
- **Incident Action Plan preparation and approval:** a written Incident Action Plan is a document that conveys the Incident Commander's intent and the Operations Section direction for the next operational period. The Incident Commander has the authority and responsibility to approve the Incident Action Plan or request modifications. Once approved, the Incident Action Plan is disseminated to the Command and General Staff in preparation for the operations briefing.
- **Operations briefing:** each operational period begins with an operations briefing where the Incident Action Plan is presented to supervisors of tactical resources. This is followed by a cascading of these assignments to field supervisors who then meet with their assigned personnel for a detailed briefing on their respective assignments.
- **Implement plan and assess progress:** the Operations Section directs the implementation of the plan. The supervisory personnel within the Operations Section are responsible for implementation of the plan for the specific operational period. The plan is evaluated at various stages in its implementation and the Operations Section Chief may make appropriate adjustments during the operational period to ensure that the objectives are met and effectiveness is assured.

Project Plan

As the emergency phase is completed, the ongoing monitoring and restoration activities are addressed in a Project Plan. Examples include post clean-up monitoring of beaches for re-oiling, replacement of sorbent booms in lightly oiled shorelines, and sourcing of food and supplies for response bases, etc. A Project Plan is also used to establish the longer-term restoration activities that may be handed over to other organizations after the emergency response phase is completed.

Comprehensive resource management

The objective of resource management is to optimize critical resource use, safety, and resource accountability and tracking. Resource management involves the application of tools, processes, and systems that provide incident managers with timely and appropriate updates on the status of resources during an incident. Incident response resources include: (1) personnel or equipment available to perform a specific tactical operation towards accomplishing an incident strategy; and (2) supplies and facilities to support on-scene incident operations. Operations authorizes tactical resource assignments, and a Support and/or Service Branch typically orders support items (e.g. food) and facilities (e.g. equipment staging).

Optimal resource selection, deployment, and monitoring under demanding conditions necessitates systems for describing, inventorying, requesting and tracking resources over the life cycle of an incident. The establishment of such systems and procedures is the first step in resource management. Subsequent resource management steps involve dispatching resources during an incident, and deactivating resources when they are no longer needed and when the incident response is concluded.

Communications and information management

Communications and information management represents the backbone of coordination across an IMS organization, enabling essential functions such as tactical planning and operations, and resource identification and assignment. Effective communication is based on two broad principles:

- Common operating picture: achieving a broad common (or shared) view of the overall situation so that the Incident Command and IMS staff at all levels and authorities are able to make effective, consistent and timely decisions.
- Common communications and data standards: ensuring voice and data communications flow efficiently through a commonly accepted architecture using clear text and IMS terminology.

Application of an IMS in varying response frameworks

The response framework under which incidents are managed varies around the globe. While, industry must always be prepared to respond to emergencies using a proven and effective IMS, in certain locations industry must adapt to, and align with, the incident management system in that country.

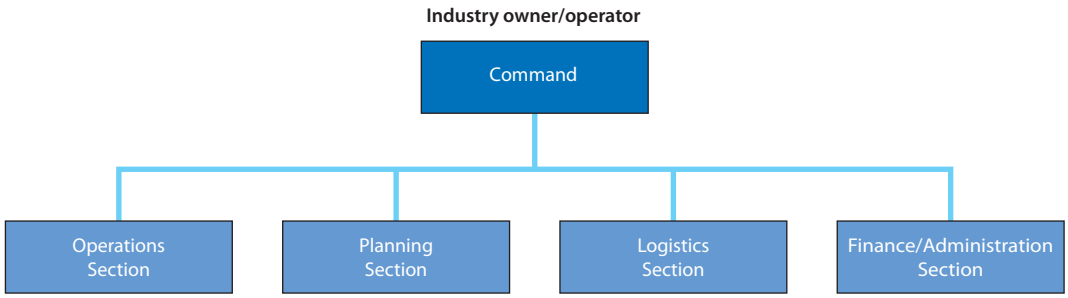
In broad terms, there are three models under which incidents may be managed, and their application will depend on the size of the response and the country where the incident occurs. The three models are defined as:

- Single Command;
- Coordinated Command; and
- Unified Command.

Single Command

Nearly all small incidents, and many medium incidents, are managed directly by the industry operator using their own response team and support contractors. Generally, the response is conducted using a fit-for-purpose IMS structure, and uses the planning process described in the section entitled *Managing an incident response using an IMS* (page 24). In some circumstances, government authorities may allow the industry operator to manage major incidents under the Single Command approach with the appropriate oversight.

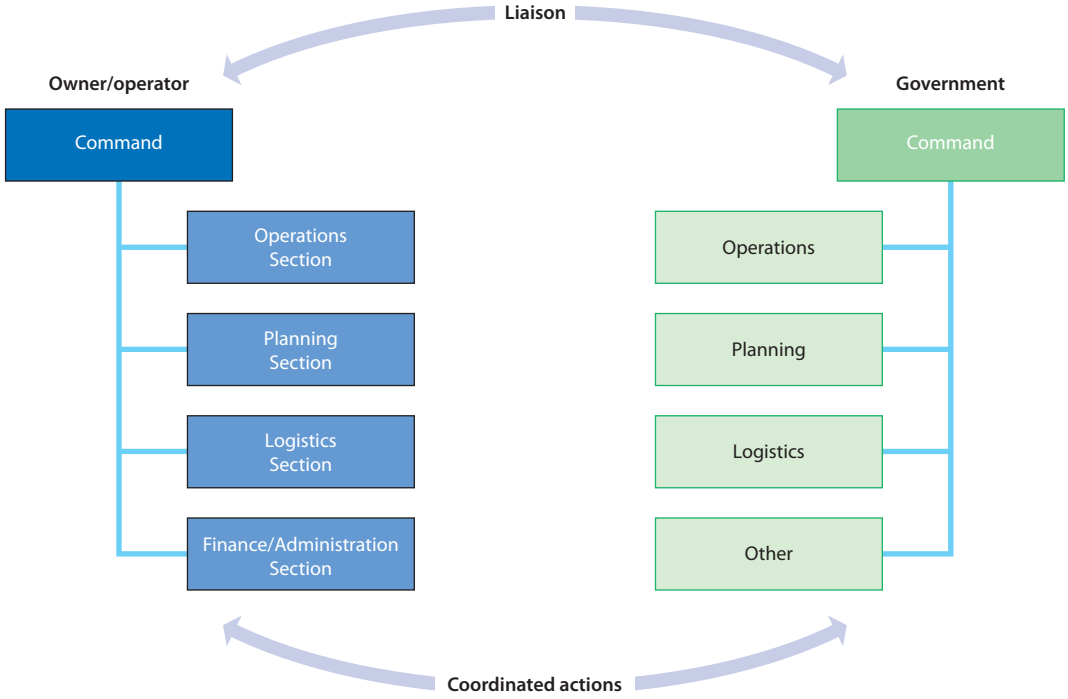
Figure 13 *The Single Command structure*



Coordinated Command

This model is commonly used where government and the industry operator are responding in parallel to an incident. Coordination of activities and alignment in decision making is achieved through close liaison between command posts, and is facilitated by competent individuals authorized to represent their respective organizations.

Figure 14 *The Coordinated Command structure*



Source: Loren Bonser

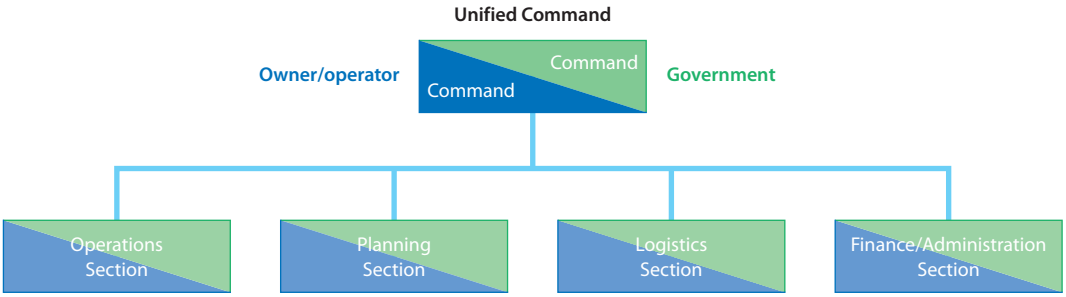
Source: Zachary Zubricki

Far left: members from government and industry attend a port tour during an oil spill response workshop involving more than 35 stakeholders.
Near left: effective liaison between command posts is facilitated by competent individuals authorized to represent their respective organizations.

Unified Command

The Unified Command model is used in responses where the government and the industry operator form a joint Command, and manage the response under a fully integrated IMS structure operating under a single Incident Action Plan. The staffing of a Unified Command may vary depending on the availability of qualified personnel. In some situations it may only be practical to have a Unified Command Section with the other Sections staffed by owner/operator personnel and response contractors.

Figure 15 *The Unified Command structure*



Adapting the IMS to the response framework may require consideration of a number of culturally important and pragmatic issues, including:

- language;
- cultural norms or expectations (for example, hours of work, religious accommodation, holidays);
- varying objectives, and priorities of stakeholders and response partners;
- external reporting and liaison with multiple government ministries; and
- engagement with NGOs.

Source: Stephen Lehmann

Command Staff provide updates on response activities to parties involved in the response at a Unified Command centre.

Adapting the IMS to meet response challenges

In addition to the potential need to adapt the IMS framework as described in the previous section, it may also be necessary to adapt the IMS to address the specific operational, geographic and resource challenges of an incident response. These challenges need to be considered early in the response process when assessing incident potential, response strategies, and potential staffing and resource needs.

Operational response considerations

Experience has shown that time is a critical factor when responding to incidents. For example, spilled oil can quickly move to locations where it can cause environmental or societal impacts, and oil can weather over time, limiting the effectiveness of some response tools. Even one hour lost early in the response can have an impact on the length of a response, and can increase the potential for impacts on environmental and community assets.

Key response strategies, tools and logistics should be identified in advance of an incident based on proven response planning strategies and credible incident scenarios that have been tested through preparedness exercises; this is the essence of effective contingency planning. However, even with proper planning, not all factors critical to a response can be foreseen or arranged in advance. The Incident Commander will need to identify, as early as possible, any issues that may have an impact on the ability to respond in a timely fashion, and will need to work with the appropriate response organizations and government entities to address these issues.

Potential issues may include:

- Pre-approval of response strategies (such as the use of dispersants, in situ-burning, etc.):
  - use of a NEBA-driven decision process to determine appropriate response options.
- The need to expedite access of personnel and equipment to the response site:
  - visa and customs clearance support;
  - airspace clearance.
- Additional resources or capabilities, or approval to import the required capabilities:
  - use of aerial surveillance via helicopters, aircraft, or unmanned aerial vehicles;
  - use of aircraft to move personnel and equipment;
  - security of response personnel;
  - the need for civil authorities to limit public access to the impacted areas;
  - third-party agreements.
- Volunteers and indemnification of responders.
- Access to government data, e.g. on tide and currents.
- Waste management.

Geographic considerations

The location of the incident may require adjustments to the IMS organization and support functions for the response. The types of adjustments that may be required include the following:

- Coordination with multiple governmental ministries and response organizations may be required, especially for incidents that have transboundary impacts, e.g. where oil crosses

country borders. An additional command post, or forward operating base, may need to be established in the second country.

- Limited accommodation and infrastructure for responders may require that some IMS support functions be managed remotely with an electronic link to Command. This may include, for example, procurement support, accounting support, or trajectory modelling.
- Complex source control activities may require the use of off-site technical teams to access key expertise needed to develop intervention strategies. Such expertise may include, for example, well control specialists or naval architects for vessel stability.
- In a major well control and intervention event, the size and scope of response activities may, for example, merit the establishment of a Source Control Branch under the Operations Section. Alternatively, depending on the situation, it may be necessary to create a new Section, specifically to address matters relating to source control.

Obtaining resources through mutual aid agreements

Preparedness for a response to a major incident includes assessing the availability and suitability of resources (people and equipment) that will be need to be sourced, together with those that are locally available, to implement key response strategies. Depending on the incident location, size and types of response operations required, the Incident Command may request additional response assets and personnel from other operators in the region or vicinity.

To facilitate the availability of such assets, it is advantageous to have mutual aid agreements, or a Memorandum of Agreement (MOA), which should be prearranged with other industry operators in the region. Such agreements may allow for the expedited release of key equipment (surveillance aircraft, firefighting equipment, oil spill response equipment, dispersant stock, etc.) needed to quickly combat a major incident before assets can arrive from outside the region. Additionally, an MOA may allow for the secondment of personnel from industry with key skills needed to support the response. If such MOAs are not in place at the time an incident occurs, the Incident Command may need to quickly enter into such an agreement, to meet organizational, equipment or staffing needs. MOAs should be structured to address legal and liability issues, and to ensure appropriate reimbursement for expenses and assets. (For further details refer to IPIECA-OGP, 2014d. Use of a common IMS by operators can facilitate the rapid integration of personnel and assets under an MOA.

IMS competency and preparedness

An effective incident response requires well-qualified and trained responders working under an IMS with a properly developed and resourced incident response plan. Building IMS competency involves a combination of skills acquired through training and experiential learning from exercises or actual responses. As with any competency, an IMS requires a sustained and long-term programme to provide practitioners with sufficient time to carry out the number and frequency of training and exercising opportunities required to build and maintain their capabilities.

Advance incident response planning and preparedness are important components for the successful application of an IMS in an incident response. The planning and coordination activities discussed in this section are part of broader advanced incident planning and preparedness process of which IMS is only a part. The doctrine of incident management is built on processes that begin long before an incident occurs, and continues long after the incident response is completed.

Competency

The successful implementation of an IMS within an organization requires a commitment by senior leaders to a sustained competency development programme. Such a programme should include ongoing basic and role-specific IMS training to provide personnel with the necessary process and technical skills, and simulations or exercises that provide robust experiential learning and competency development.

A programme for implementing IMS within an organization includes:

- sustained and visible commitment from the management;
- an organizational policy which supports the IMS;
- availability of personnel for training and exercises;
- resources for large-scale exercises;
- a budget for the programme; and
- an internal 'centre of expertise' and/or subject matter experts to support the programme.

Not all members of an IMS organization require the same type and level of training. The type and frequency of training depends on an individual's role in the IMS organization and whether the role is a leadership, staff or technical position. In general, training in IMS consists of the following:

- Introductory training on IMS concepts, terminology, organization, and intermediate IMS training which includes the development of Incident Action Plans.
- Role-specific or Section-based training that covers the roles and responsibilities of a specific IMS function or Section (e.g. the Planning Section).
- Advanced IMS training, typically targeted at key IMS positions including the Incident Commander and Section Chiefs (especially the Planning Section Chief). Deputies for these positions normally have the same training as the primary officers.
- Specialized training needed for specific IMS functions (e.g. resource tracking, documentation, leadership of the Environment Unit, etc.). Some organizations utilize software to generate Incident Action Plans, and this may also require selected individuals to be trained in its use.

First responders who provide front-line tactical response are normally trained specifically for the tasks involved. They include fire teams, search-and-rescue teams, and oil spill response teams who, for example, conduct tactical responses such as firefighting, containment booming, small-scale skimming operations, dispersant spraying from vessels, or other emergency response operations. These teams generally concentrate on the safe conduct of such tactical response operations and may receive certifications for all or part of their remit, e.g. small vessel handling, safe work practices in hazardous environments, handling of hazardous materials, first aid, etc.

Emergency response teams whose remit is to provide direction and support to the tactical response for small- to medium-sized incidents may undergo introductory and intermediate IMS training. The focus of their exercises should be on the use of simplified, assessment-based planning for emergency response, as the vast majority of incidents are small and of short duration.

Response teams with a remit for large incidents will generally progress to advanced and more specialized IMS training. The focus of their exercises will be on the integration of the tactical response teams into the Operations Section, building up the full IMS structure and generating one or more written Incident Action Plans. Training exercises should be designed to provide the participants with the experience to role play their respective positions in the IMS structure, and to implement the IMS process to achieve command and control of the simulated incident.

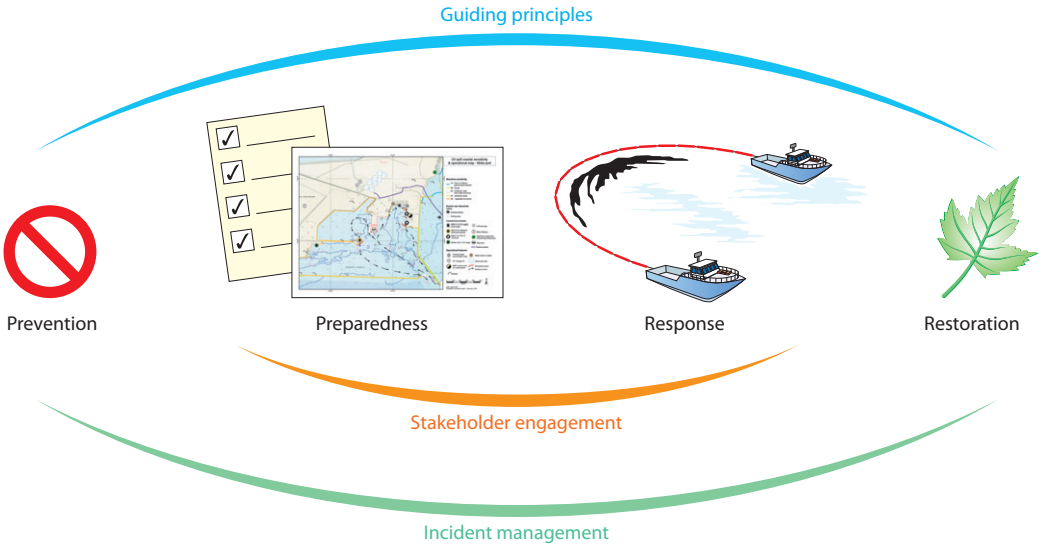
Competency-based programmes can range from informal, annual training required for individual response team members, to a broad set of minimum training requirements established by an industry operator, to formalized programmes designed to track and verify the competencies of response team members to ensure that they can fulfill their specific roles in the IMS.

Preparedness

Preparedness (see Figure 16) is part of a larger response framework based on guiding principles that includes incident prevention, preparedness, rapid and coordinated response and restoration. Preparedness includes planning for credible incident scenarios, developing strategies for effective response, training response teams and resourcing appropriate supplies, equipment and personnel. Engagement of stakeholders in the planning process will better ensure an efficient and effective response if an incident should occur.

A successful response depends on many factors, including well-trained personnel working to a well-developed and exercised response plan and strategy with adequate resources. Preparedness allows response organizations to identify and plan for potential incidents, including worst-case scenarios. Incorporated within the planning and preparedness process is the training and exercising of response teams. A well-prepared and well-practiced response strategy significantly increases the likelihood of an effective response operation. Additionally, incorporating the principle of tiered preparedness and response using a common IMS enables response organizations to allocate resources appropriately to facilities or regions. This in turn facilitates the escalation and integration of a response based on prior planning, if appropriate.

Figure 16 *Preparedness*



The preparedness process includes the following steps:

- Identifying potential incidents and events by facility or region.
- Developing plan scenarios that encompass the full range of impact and response challenges for each facility or region.
- Evaluating scenarios using applicable risk management techniques.
- Developing response strategies based on the planning scenarios.
- Allocating resources according to the response strategies using the principles of tiered preparedness and response.
- Gaining pre-approvals for response strategies, if appropriate,
- Identifying communication protocols with stakeholders and government entities.

Further guidance on preparedness and training is available in the following IPIECA-OGP Good Practice Guides:

- *Contingency planning for oil spills on water: Good practice guidelines for the development of an effective spill response capability* (IPIECA-OGP, 2014);
- *Tiered preparedness and response: Good practice guidelines for incident management and emergency response personnel* (IPIECA-OGP, 2014a);
- *Oil spill training: Good practice guidelines on the development of training programmes for incident management and emergency response personnel* (IPIECA-OGP, 2014b);
- *Oil spill exercises: Good practice guidelines for the development of an effective exercise programme* (IPIECA-OGP, 2014c).

Further guidance on risk assessment and response planning for offshore installations is provided in IPIECA-OGP, 2013.

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Glossary

Assistant: title for subordinates of the Command Staff positions. The title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary positions.

Branch: an organizational level below the Section level and above the Division/Group level that facilitates efficient management of multiple operational activities via geographic, functional or jurisdictional responsibility. Typically, Branches are established only for very large or complex incidents.

Chain of command: a series of command, control, executive or management positions in hierarchical order of authority.

Chief: the individual assigned to supervise a particular Section in an IMS organization.

Command: one of five major functional areas of an IMS organization that provides management and control authority.

Command Staff: personnel assigned to, and charged with performing or supporting the duties and responsibilities of, the Command function. Command Staff include the Incident Commander or Unified Command as well as the Public Information Officer, Safety Officer and Liaison Officer.

Common operating picture (COP): a single, comprehensive, display of relevant operational and planning information that provides an overall status of priorities, activities and resources. A COP facilitates collaborative planning and helps to achieve situational awareness. A COP may be in the form of status boards and/or digital information displays that are kept current by the Situation Unit.

Communications Plan: a plan used to document the communications protocols used in an incident response. The plan can include a list of the type(s) of radios in use, the function of each radio channel, the frequency/tone to which the radio is set, and the radio's assignment.

Crisis management: development and application of the organizational capability to deal with crises, i.e. abnormal and unstable situations that threaten the organization's strategic objectives, reputation or viability. For further reading on crisis management as it pertains to this guidance, please refer to BSI Standards Publication 11200:2014, *Crisis Management. Guidance and good practice* (2014).

Deputy: fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff and Branch Directors.

Director: an individual assigned to supervise a particular Branch within a Section of the IMS organization.

Division: an organizational level of the Operations Section that partitions resources on the basis of separation in terrain, geography or fuelling locations. Divisions (or Groups) are established when the number of resources exceeds the manageable span of control of the Operations Chief.

Finance and Administration Section: one of five major functional areas of an IMS organization. This Section provides financial controls, contracting and procurement, claims management and reimbursements.

First responder: the first responding organization to arrive at an incident scene. These may include fire, law enforcement, emergency medical services, oil spill responders and emergency management personnel.

General Staff: personnel assigned by Command to lead the four functional areas, or Sections, of the IMS organization. An individual Section leader is known as a Chief.

Group: an organizational level that partitions resources based on major operational functions. Groups are established when the number of single resources exceeds the manageable span of control.

Incident Action Plan (IAP): an oral or written plan that describes the overall objectives and strategies for managing an incident. An Incident Action Plan may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.

Incident command post (ICP): a facility where the Incident Command and organization is located.

Incident Commander (IC): the ranking individual, representing the industry operator or organization with incident authority, who performs the Command function. The Incident Commander authorizes incident objectives and strategies that collectively delineate a course of action.

Incident Management System (IMS): a systematic tool used for the command, control and coordination of emergency response. An IMS allows organizations to work together using common terminology and operating procedures controlling personnel, facilities, equipment and communications at a single incident scene. It facilitates a consistent response to any incident by employing a common organizational structure that can be expanded and contracted in a logical manner based on the level of response required.

Industry operator: also known as the responsible party; the company or industry organization that holds responsibility for the response and other potential liabilities.

Leader: an individual assigned to supervise a particular Strike Team or Task Force within the Operations Section or a particular Unit within another Section of the IMS organization.

Liaison Officer: a Command Staff position consisting of a single person who acts as the on-scene contact point for representatives of assisting agencies assigned to the incident.

Logistics Section: one of five major functional areas of an IMS organization that functions to provide services and support to the incident response effort in the form of personnel, facilities and materials. The Logistics Section serves as the support mechanism for the IMS organization.

Medical Plan: a plan for an incident response that includes a description and location of on-scene medical facilities, ambulances and hospitals and may detail medical emergency procedures.

Mutual aid agreement: a written agreement between organizations and/or jurisdictions that they will assist one another on request by furnishing personnel, equipment and/or expertise in a specified manner.

NEBA (net environmental benefit analysis): a risk/impact analysis tool that uses a comparative process to determine the response methods that will yield the greatest benefit with the least impact.

Operational period: the period of time scheduled for conducting a given set of operational actions as specified in an Incident Action Plan. Operational periods can be of various lengths, but do not usually exceed 24 hours.

Operations Section: one of five major functional areas of an IMS organization that performs all incident tactical operations.

Planning Section: one of five major functional areas of an IMS organization that maintains resource status and situation status, produces the Incident Action Plan, and provides technical specialists. A central function of the Planning Section involves the collection and evaluation of operational information about the incident, including the current and forecasted situation and the status of assigned resources.

Preparedness: the range of deliberate, critical tasks and activities necessary to build, sustain and improve the operational capability to prevent, protect against, respond to and recover from incidents.

Public Information Officer: a Command Staff position consisting of a single person who has responsibility for all interaction between Command and the news media, and who coordinates the release of information on the incident situation and response efforts from Command to the media and stakeholders.

Resource: a personnel crew or equipment assigned to perform a specific tactical operation at an incident. Resources can be organized into task forces or strike teams.

Resource management: the application of tools, processes and systems for identifying available resources at all jurisdictional levels to enable the timely and unimpeded access to resources during an incident. The objective of resource management is to optimize resource use, safety, tracking and accountability.

Safety Officer: a Command Staff position consisting of a single person who has responsibility for monitoring overall on-scene safety conditions and developing measures to ensure the safety of all assigned personnel.

Section: the organizational level having responsibility for a major functional area of incident management, e.g. Operations, Planning, Logistics, Finance/Administration and Intelligence (if established).

SCAT team: Shoreline Clean-up Assessment Technique team—a group of technical specialists responsible for providing appropriate clean-up recommendations for different types of shorelines based on the degree to which they have been impacted.

Single Command: one of two methods of performing the Command function that involves a single Incident Commander with authority to respond to the incident.

Source Control (also Hazard Source Control): intervention at the point of hazard generation to reduce the probability or magnitude of an event. Includes the control or stoppage of a release of hazardous material associated with an emergency incident. In the case of a fire it may include confining or eliminating specific fuel elements to prevent the fire's expansion.

Span of control: the maximum number of individuals that one supervisor can manage effectively. Span of control should range from three to a maximum of seven, with five representing the optimum level.

Staging area: the location established to enable positioning of, and accounting for, resources not immediately assigned. A staging area may include temporary feeding, fuelling and sanitation services as necessary.

Strike team: an organizational level of the Operations Section, below the Division/Group level, that contains multiple single resources of the same kind (function) and type (performance capability).

Supervisor: an individual assigned to supervise a particular division or group within the Operations Section.

Task force: an organizational level of the Operations Section, below the Division/Group level, that contains a combination of single resources temporarily assembled for executing a specific operations mission.

Unified Command (UC): may be used when an incident involves multiple jurisdictions and/or involves several responding organizations with shared authority to respond to incidents.

Unit: the organizational element formed under a Section with functional responsibility for a specific incident Planning, Logistics or Finance/Administration activity.

Unity of Command: the concept by which each person within an organization reports to one and only one designated person.

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IPIECA is the global oil and gas industry association for environmental and social issues. It develops, shares and promotes good practices and knowledge to help the industry improve its environmental and social performance; and is the industry's principal channel of communication with the United Nations. Through its member led working groups and executive leadership, IPIECA brings together the collective expertise of oil and gas companies and associations. Its unique position within the industry enables its members to respond effectively to key environmental and social issues.

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