

# What difference does a letter make? - Exploring “Good Practice” Incident Management System with respect to the Incident Command System

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## ABSTRACT

How can a process be flexible enough for use in any incident, yet rigid enough to provide the structure required in times where stress is high, and time is short?

In 2014 the IPIECA-IOGP Joint Industry Project (JIP; an outcome of the 2010 Gulf of Mexico oil spill) recommended the implementation of a structured Incident Management System (IMS) in their publication of a Good Practice Guide (GPG): Incident Management System for the Oil and Gas Industry. Now, half a decade on from this publication, many oil companies have, or are in the process of implementing some form of IMS across their global operations.

The GPG describes IMS as a “set of proven organizational and management principles.” It also states that it is based on ICS as it “is a version of IMS that is widely used by Industry”.

As multiple IMS’s exist globally, this paper explores whether the blanket adoption of a single existing system can be used when so many considerations, are required. Through observing and assisting their members in introducing (and maintaining) an IMS across various business units, Oil Spill Response Limited (OSRL) has seen how systems can be tailored that are flexible enough to meet the specific needs of the company concerned. Examples include introducing initial assessment procedures and customisation of documentation. Potential limitations of ICS possible evolutions of IMS are discussed.

Incorporation of the organisational and management principles described by the JIP provides guidance when modifying/tailoring a system that can be used by businesses facing

different scenarios in different environments and with differing levels of resources. The change in terminology from the Incident Command System to the Incident Management System allows for customisation of a proven system and increased flexibility whilst being based on tried and trusted foundations.

## INTRODUCTION

In 2011, in response to the Gulf of Mexico (Macondo) Oil Spill Incident, IPIECA and the International Association of Oil & Gas Producers (IOGP) established the Oil Spill Response – Joint Industry Project (JIP). The JIP was tasked with identifying learning opportunities from this incident. Among the outputs was the production of 24 Good Practice Guides (GPGs) to “summarise current views on good practice”. One of these GPGs was entitled “Incident management system for the oil and gas industry, Good practice guidelines for incident management and emergency response personnel” (IPIECA & IOGP, 2014).

This GPG was written to introduce the common elements of an Incident Management System (IMS) and to “supplement” (IPIECA & IOGP, 2014) the International Maritime Organisation (IMO)’s own “Guidance document on the implementation of an incident management system”.

To increase the efficiency of any response, the adherence to an incident management system with clearly defined roles and responsibilities minimises the time required to develop a response structure allowing greater concentration on developing response strategies. Both the JIP GPG and IMO Guidance documents acknowledge that multiple incident management systems exist, however both are based on the Incident Command System (ICS) as a “version of IMS that is widely used by industry, response contractors and professional emergency service organisations” (IPIECA & IOGP, 2014). But what is ICS? What does it involve and why is this the framework being advocated?

This paper will explore how the JIP GPG “uses the Incident Command System to illustrate the response management concepts” (IPIECA & IOGP, 2014) and the directions that may be taken in the future based on these foundations. It will be discussed what it could mean for organisations, agencies or governments when they seek to implement their own IMS into the national response structure in which they operate.

## THE INCIDENT COMMAND SYSTEM

### Origin of ICS

The Incident Command System (ICS) was initially developed in California, United States of America (USA) in the 1970’s to respond to wildfires, which required response from multiple agencies. ICS continued to be used to manage the response of incidents of different natures within the USA including the response to the 2001 terrorist attacks on the World Trade Centre. Use of ICS for oil spills and other incidents is legally mandated as it forms part of the USA’s National Incident Management System (NIMS).

Outside of the USA, ICS has been widely adopted across different industries, for example, in addition to the IMO, other specialist agencies of the United Nations (UN), for example the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO) use IMS’ based on ICS as part of their Emergency Response Frameworks. In addition to this is the example of ICS Canada, a network of organizations working cooperatively to maintain a standard Incident Command System despite that use of ICS is not mandated at the national level by Canadian law.

### ICS Management Principles

This paper will not be able to replace any part of formal ICS training however for the observations that follow it would be useful to provide a brief overview of the 14 management principles of ICS as described in NIMS (FEMA, 2017):

1. Use of pre-agreed common terminology to minimise miscommunication
2. Modular Organisation so that the response is scalable based on incident complexity with additional modules being stood up or down in line with the response requirements.
3. Management by objectives which drive the operations
4. Incident Action Planning to guide response and incident management activities
5. Ensuring there is a manageable span of control so that supervisors are not overwhelmed
6. Determination of facilities and locations such as an Incident Command Post and staging areas etc
7. Comprehensive resource management covering personnel to equipment supplies and facilities
8. Integrated Communications to ensure that command who may be separated geographically are aware of situational changes and response developments
9. Establishment and Transfer of Command to minimise delays in determining “ownership” and ensure that should command transfer between agencies or actors, formal briefings are provided
10. Unified Command where no single agency or actor has primary authority over all the resources to manage the incident alone
11. Identifying the chain of command and ensuring unity of command
12. Accountability of all personnel involved in the response
13. Dispatch/Deployment only when formally authorised
14. Information and Intelligence Management through an established process for gathering, analysing, assessing and disseminating information.

## THE JIP INCIDENT MANAGEMENT SYSTEM

The JIP GPG consolidates the 14 management principles of ICS into nine which are then split into “organisational” and “management” principles (IPIECA & IOGP, 2014):

### Organisational

- O1. Use of a single, integrated organisation to manage a response
- O2. Organisation by function (ie. Command, Operations, Planning, Logistics, Finance)
- O3. Establishment of clear, hierarchical reporting relationships
- O4. Maintaining a modular and scalable organisation, ensuring it is appropriately sized to achieve the response objectives

### Management

- M1. Ensuring an objective(s) driven response
- M2. Formulation of an Incident Action Plan
- M3. Use of common and consistent terminology
- M4. Maintaining a manageable span of control
- M5. Coordination of equipment, personnel, other resources and communication

We can see therefore clear adherence to the 14 principles of ICS. But, have five principles been discarded or have they been amalgamated by rewording in the JIP GPG?

**Table 1** provides an illustration of the alignment between the principles as described by the JIP GPG and those of ICS.

**Table 1. Comparison and alignment of JIP and ICS Principles**

<b>Principles as outlined in the JIP GPG</b>		<b>NIMS ICS Principles</b>	
O1	Use of a single, integrated organisation to manage a response	9	Establishment of Command
		10	Unified Command
		11	Chain of command and unity of command
O2	Organisation by function (ie. Command, Operations, Planning, Logistics, Finance)	2	Modular Organisation
O3	Establishment of clear, hierarchical reporting relationships	11	Chain of command and unity of command
O4	Maintaining a modular and scalable organisation, ensuring it is appropriately sized to achieve the response objectives	2	Modular Organisation
M1	Ensuring an objectives driven response	3	Management by Objectives
M2	Formulation of incident action plan	4	Incident Action Planning
M3	Use of common terminology	1	Common Terminology
M4	Maintaining a manageable span of control	5	Span of Control
M5	Coordination of equipment, personnel, other resources and communication	6	Determination of facilities and locations
		7	Resource Management
		8	Integrated Communications
		13	Dispatch/Deployment
		14	Information and Intelligence Management
-	-	12	Accountability

The rewording appears to cover all the principles apart from accountability which may be already be a core principle of the organisation itself.

### Why “IMS”?

Having looked at the JIP GPG, it’s clear that ICS is being proposed in all but name. So why was the name changed?

One issue is in transferring a specific national system into a recommended system for a global audience, there will always be restrictions due to the regulatory landscape. This will be particularly true around the command structure. As ICS forms part of the USA's NIMS, there is a clearly defined command structure in place that all operators operating within the USA are aware of and must set up their response management accordingly. The unified command structure is not the case across the world however and therefore ICS in its pure state cannot be truly implemented where different regulatory frameworks exist.

In some countries the operator will be expected to lead the response and take almost sole responsibility for managing the response. In others a joint response may be mandated where the regulator and the operator respond in parallel but without a unified command, responding as two separate entities but working towards the same goal. As a result, the JIP GPG provides a summary of the difference between these single co-ordinated command structures as well as the unified command seen in the USA. The range of command structures that may be required to be adopted, even by the same operator for different geographical operations, is one of the main deviations from pure ICS in IMS as described by the JIP. The command structure required for the regulatory environment will result in additional considerations particularly around information sharing and external messaging.

One of the greatest challenges will always be that of training personnel, especially in a regulatory environment where training is not mandated. The logical process of ICS needs regular repetition to ensure that those who find themselves in such a situation are using the system as a tool to respond to the incident, not having to respond to the steps of the system. ICS as part of NIMS has a regulated syllabus, the adoption of an IMS based on ICS therefore provides a starting point. In working with Clients worldwide OSRL has seen that it is very common for personnel attending an IMS300 course have completed the preceding courses the evening before. Organisations must therefore decide on the importance of these preceding



courses. If time is not available to ensure a gap between the courses, it may be that a tailored introductory course can be delivered or more time spent on the principles during the “higher level” course.

A challenge often levelled at ICS by those who are not familiar with it is that it is “all about forms”. These forms provide tools to help manage all the information and the decision-making process during an incident and the criticism can be traced back to the challenge around training. Those with limited training and experience in the system can be intimidated by the forms and may end up responding to the system rather than using it to respond to the incident.

### Challenges experienced in the response to the Deepwater Horizon Oil Spill

The management of so many resources across such a wide geographical area would have been impossible without a well-established management structure yet even such an established system as ICS was found to have challenges when faced with an emergency response on the unprecedented scale as DWH. These challenges have been described by Epperson (2011) who was deployed from the US Coast Guard with the task of evaluating the response structure and making suggestions as to future improvement:

- Rapid exhaustion of trained resources due to the number of responders required
- Deployment of specialists to roles/positions where most value could be extracted from their expertise
- Allocation and coordination of differing actors’ assets under the Unified Incident Command
- Management of data and keeping on top of Situational Awareness
- Managing the autonomy of on-scene leaders to determine daily operations when they are the primary source of situational awareness (while adhering to hierarchy of control and ensuring safety information is not delayed or diverted)

- Conflicts between different actor’s safety procedures

### Challenges of ICS used in a non-ICS regulatory environment

Although ICS or ICS-inspired IMS’s use are common worldwide, there are countries whose regulatory framework provides a different system and structure. The United Kingdom uses a “Gold, Silver and Bronze” command hierarchy (Figure 1). With regards to oil spill response, the operator is expected to lead the response, but the UK government will set up their own response management structure and assess the operator’s actions to ensure an appropriate response is being carried out. If not satisfied, they have the power to take over the response. The response structure is different to the modular system of IMS and so Unified command is not an option.



Figure 1. Overview of the command hierarchy utilised by UK government agencies in emergency response (College of policing, 2013)

OSRL has witnessed the regulator’s frustration in numerous exercises that as they (the regulator) conduct their own meetings on their own timetables, they are sometime required to “wait until the end of a planning cycle” for all their required updates. This “wait” is something

that, as the regulator, they will not entertain. There is a danger in these instances that the operator begins responding not to the incident but to the expectations of the regulator.

Unfortunately, whilst countries such as Australia and New Zealand have developed national systems based on ICS, there are also countries who will not entertain the idea of adopting “the American System” and are not happy to modify theirs to work with companies using ICS.

## POTENTIAL EVOLUTION OF IMS

We have explored how the ICS structure and its principles have been advocated as the core of an Incident Management but can be modified or tailored to specific requirements of the regulatory environment. We have also looked at challenges which may be faced in using ICS, so how may these be overcome in the future and with developments in response technology and methodology? The below attempts to highlight where some of the divergence may arise in IMS use for oil spill response.

Modern surveillance tools can provide huge benefits with regards to providing situational awareness but can also present challenges and require consideration in its employment and use. Shoreline Clean up Assessment Technique (SCAT - a standardized process for assessing the sensitivity of shorelines, define and document degree of shoreline oiling and develop recommendations for treatment and end points) is often placed in the Planning Section of an Incident Management Team (IMT) due to its information gathering nature. Unmanned Aerial Vehicles (UAVs) are now providing a great many benefits in undertaking SCAT in accessing otherwise inaccessible areas and the range and speed that can be covered with longer loiter times at lower altitudes for recording images and/or videos (Domaille & Campion, 2018). It was observed in the DWH response that deconflicting aerial operations was a challenge and the management of UAVs within the IMT will need to be determined when alternative uses for

UAV (eg. Offshore operational support) are considered so that the principles of “clear hierarchical reporting relationships” and “Coordination of equipment, personnel, other resources and communication” are followed.

The adoption of technology will not only require thought as to the structure of the IMT but also how it will store and process data. With increasing technological use ever more data is being created and organisations will have to develop ways of managing this, making sure that important information is not lost amongst the “noise” that may be created in the terabytes of video footage etc. The current structure of a situation unit may not change but the tools required by this function are an area that will likely experience growth. The JIP addressed this topic within a work package and report “Work Package 5: Common Operating Picture” (IPIECA & IOGP, 2015) but in such a rapidly moving field, future knowledge sharing will be vital.

In an oil spill response setting, as with technology, good practice with regards to methodology moves on. Spill Impact Mitigation Assessment (SIMA) was introduced in 2017 as decision making tool to select the best combination of response techniques. It recommends a semi quantitative approach using numerical values to reflect sensitivity and importance of various sensitivities. Within the Planning cycle of IMS, an operator’s own corporate standards may require the process to be completed as part of their response strategy justification. Consideration will have to be paid to ensure that this process facilitates the response by providing required information but does not delay or prevent operational planning. A specific SIMA form to aid its competition and presentation within the IAP could also be introduced, something that does not exist in NIMS ICS.

The example of SIMA is only one instance where corporate processes or requirements may be embedded into that organisation’s IMS. Through working with our members OSRL has witnessed the modification of IMS in varying ways such as the adoption of an initial decision making processes for determining initial actions during the reactive phase.

As well as introducing new forms or processes, the move to IMS rather than ICS also allows greater modification of existing tools or processes. As an organisation specialising in oil spill response, OSRL has adopted ICS forms for our internal IMS but tailored them to oil spill response. OSRL's Incident Status form for example records specific metrics for oil spill response operations such as amount of oil recovered, a metric of no concern form many other types of incident. Typically, an oil industry operator will be required to manage fewer types of incident than a national system may be concerned with and so such paperwork may be modified. The reduction in types of incident mean that operators could have multiple Incident Status forms (one for oil spill, another for fire etc).

As previously discussed, the use of ICS can have challenges regions/countries where the regulator does not use an ICS based IMS. The IMS as described by the JIP GPG allows for modifications of the IMT to accommodate regulator cells should they operate a different command structure. This has been witnessed in the UK where during a regulatory exercise, an operator modified their IMT to accommodate the regulator's offshore response cell. This deviation from the pure ICS structure meant that the regulator was more aware of the conversations and decision-making process ongoing within the IMT. It also allows the regulator to retain control as they are invited into the IMT rather than an operator attempt to dictate the way a response will be managed. After all it is for the regulator to regulate and operators will have to modify their actions to the climate they operate in. Insisting on pure ICS use will hinder collaboration with the regulator whereas minor adaptations can aid trust building and enhance cooperation, particularly if jointly exercised prior to spill incidents.

Whilst the international good practice guidance allows for modifications and the evolution of ICS, warning should be given about too much deviation. One of the strengths of ICS is that as it sits within NIMS there should be consistency in understanding of the process throughout the entire USA. By making only minor adaptations internationally as required, operators can

make use of their global workforce in an emergency response as staff from other regions will be able to aid a response without having to learn a new system. As we look at the Tiered Response Model, the ability for Tier 2 and 3 responders to seamlessly aid the management of responses to different operators is also increased if there is consistency between the international community in terms of the structure and process they employ. This is why we see organisations such as ICS Canada created to encourage the adoption of a consistent framework and aid response effectiveness. As previously discussed, it is also why the system has been adopted by such international agencies as the FAO and WHO. Having a consistent approach and agreed good practice aides inter-organisational support including between the state and private organisations. Even in countries where an ICS-like IMS is not used by the state, a consistent approach by the industry players can increase the regulators knowledge and appreciation of the system through consistent interaction in exercises and audits. Too much modification and tailoring risks this consistency and those gains will be lost.

The advocacy of IMS adoption allows for tailoring and modification however care should be taken as to the extent this is conducted. Not only is the consistency of structure and process important but also the terminology employed. NIMS has a glossary of defined terminology (as do several other countries' systems) and agreement on this topic is vital for an efficient response involving a large number of people from different organisations and/or agencies and even nations. For an international audience the glossary developed by the IMO and included as Appendix 12 in their guidance on International Offers of Assistance (IMO, 2016) could be used.

## CONCLUSION

In conclusion, use of an ICS based IMS provides the familiarity and flexibility to make it globally accessible, the underlying principles and the process in action planning remain unchanged but allowances can be made for the 3 different types of command structure that are found across national response structure (Unified command, Co-ordinated command and Single Command).

When looking at ICS and IMS it should not be a case of “either/or”. A good analogy is that of automobiles. Traditionally cars have been constructed and driven following the same principles (wheels, combustion engines etc) however manufactures must make adaptations depending on the country of sale for example, left and right-hand drive. These modifications are a necessity in international operations but do not change the underlying principles and only slightly affect the usability for most people. Similarly, whilst it would make sense for automotive safety to be standardised globally but this has not yet happened, with regards to IMS, this is what the JIP is trying to lay the foundations for. Regulators cannot be dictated to that any one system will be used but by making modifications/adaptations it shows willingness to work together and can aid international adoption of a consistent system.

By encouraging a global audience to use IMS the opportunities for lessons learned are going to increase in frequency as it is used in more and more incidents. The ability to influence IMS and make modifications therefore is increased so long as knowledge sharing occurs between users (both inter- or intra-organisational).

If operators can adopt a consistent approach, which is also understood and practiced by government agencies and professional response organisations, the integration of personnel from different organisations (even different countries in the case of cross border incidents) will be greatly enhanced. Even simple things such as consistent, agreed terminology can save time (and critical misunderstandings) when time is short and stress levels are high.

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