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The National Incident Management System

A Framework for National Response

PROCEEDINGS

Winter 2006-07

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On the cover: Pictured are the bow and stern sections of the *Selendang Ayu*, a 738-foot freighter, hopelessly adrift in the Bering Sea, in November 2004. Rescue efforts involved USCG Cutter *Alex Haley,* and several Coast Guard helicopters, one of which was lost during this response. AMT3 Gregory Gibbons was awarded the Association for Rescue at Sea gold medal for his efforts in rescuing *Selendang Ayu* crewmembers as well as the crew of the downed CG helo. Photo courtesy of United Command.

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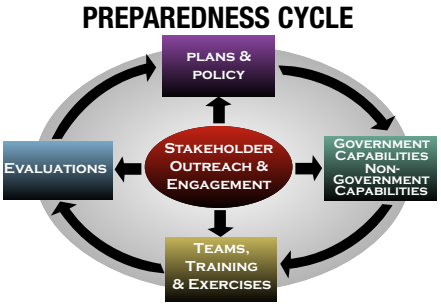

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Assistant Commandant's Perspective

by RDML Wayne Justice
U.S. Coast Guard Assistant Commandant for Response

The U.S. Coast Guard has a long tradition of service during times of national and international response. Our service is unique in that we have local level authorities and responsibilities within the communities we serve, and national level capabilities with international reach. This allows us to respond to a vast number of safety, security, and environmental threats at the global level.

The potential to be called upon virtually anywhere and at any time makes it vital to establish a framework to allow for a coordinated response effort, regardless of the scope or location of the incident. The Coast Guard's response role and capabilities were highlighted in the aftermath of Hurricanes Katrina and Rita. But what was also made apparent was the continued need for coordinated response efforts among federal, state, and local governments as well as among non-governmental organizations, and the private sector.

Within the United States, the National Response Plan (NRP) provides a template for these entities to work together effectively and efficiently to prevent, prepare for, respond to, and recover from domestic incidents regardless of cause, size, or complexity. The NRP, using the National Incident Management System (NIMS), is an all-hazards plan that provides the structure and mechanisms for national level policy and operational coordination for domestic incident management.

Consistent with the model provided in the NIMS, the National Response Plan can be partially or fully implemented in the context of a threat, anticipation of a significant event, or the response to a significant event. Selective implementation through the activation of one or more of the system's components allows maximum flexibility in meeting the unique operational and information-sharing requirements of the situation at hand and enabling effective interaction between various federal and non-federal entities.

Systematic implementation of NIMS/ICS and adherence to the NRP and its associated protocols will require continued cooperation, collaboration, and information sharing between government and the private sector at all levels. Through the continued institutionalization of NIMS and the Incident Command System within the Coast Guard and among all of our response partners, we will continue our great tradition of response, and improve our coordination, execution, and effectiveness.

All Threats…All Hazards…Always Ready.

ADM Thad Allen
Commandant
U.S. Coast Guard

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Editorial Contact

email: ARL-DG-NMCProceedings
@uscg.mil

Editor, *Proceedings* Magazine
U.S. Coast Guard
National Maritime Center
4200 Wilson Blvd., Suite 730
Arlington, VA 22203-1804

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Champion's Point of View

CAPT Steve Hanewich
U.S. Coast Guard Office of Incident Management and Preparedness

The U.S. Coast Guard is a national and world leader in promoting professional, integrated preparedness and response to catastrophic events. Long before Hurricane Katrina and the National Response Plan, the Coast Guard served as an integral member and leader within the response community alongside other federal, state, and local government and private sector emergency response personnel.

Before the development of the Incident Command System, area committees and local response communities, through real incident experience, recognized the need for a system to manage complex response operations. They experimented with a variety of systems and identified the critical elements of incident management.

The U.S. Forest Service and the National Wildfire Coordinating Group were the first to refine and shape incident response organization and strategies into a single logical doctrine that they labeled the Incident Command System (ICS). The system was enormously successful in establishing unity of effort and maintaining span of control during responses to large-scale wild fires in the Western U.S.

Many in the Coast Guard were initially skeptical that a system for fighting wild fires could be put to other uses. Nevertheless, the Coast Guard and the National Response Team encouraged area committees to experiment with and assess ICS for oil spills and other responses. Following the *M/V American Trader*[1] incident on the West Coast in the mid-1990s, the Coast Guard's Eleventh District produced the first locally developed Field Operations Guide (FOG) as its ICS doctrinal base. That document quickly spread from Marine Safety Office to Marine Safety Office, gaining acceptance. It was adopted for Coast Guard-wide use in support of the oil and hazardous substance programs in 1996.

Since that time, the FOG has evolved into the Incident Management Handbook (IMH). It has been adopted Coast Guard-wide and is heralded as a model job aid. The Coast Guard has translated the IMH into five other languages (Spanish, Russian, French, Norwegian, and Arabic) and many nations around the world have embraced its incident management doctrine.

We continue to establish and refine NIMS/ICS doctrine. We support training the response community in its use and support its implementation in crisis situations domestically and around the world. We are proud of what we have achieved, but also recognize that the road is long and we have just begun to mature NIMS/ICS doctrine within the Coast Guard. There is much to do internally and in concert with our government and private sector partners at all levels.

This issue of *Proceedings* explains the evolution of NIMS/ICS and highlights its theory and practice. Most importantly, it outlines the way ahead as we improve our ability to respond to complex incidents and events.

I offer my sincere thanks to the authors and contributors, and I am confident that readers will appreciate their talent as they gain a better understanding of the importance of NIMS/ICS to our nation's preparedness. Please enjoy this edition of *Proceedings.*

[1] On February 7, 1990, the tanker *American Trader* spilled approximately 400,000 gallons of crude oil into the Pacific near Huntington Beach, Calif. http://www.darrp.noaa.gov/index.html.

The History of the Incident Command System

From genesis to national and global implementation.

by Mr. Chuck Mills
President, Emergency Management Services International, Inc.

In early 1970, major firefighting organizations in California were getting battered by enormous wildland fires. At that time, the sky was full of giant smoke columns. Fire engines were passing each other on their way to incidents—some going north as others headed south. Response resource draw down reached a critical level. Command posts and fire camps were being established by multiple agencies for the same incident.

The number of fires burning at the same time taxed the organizational capability to protect lives, property, and the environment, especially where wilderness bordered large urban communities. During 13 days, 16 lives were lost, 700 structures were destroyed, and more than 500,000 acres of valuable watershed was lost. The overall cost and loss associated with these fires totaled over $234 million dollars.[1]

Numerous problems with communications and coordination hampered the overall effectiveness. Comments were made by many fire department officials, such as; "If we only had more of everything, we could manage the problem." That was the wrong solution. In truth, we could have done a better job with what we had. We just didn't have a common management system for on-scene management and off-sight coordination. We were seven different agencies with seven different ways of doing business. As a result, the 92nd Congress in 1971 mandated that the U.S. Forest Service, through its Fire Research and Development Program and working with other key agencies in southern California, design a system that would make a quantum jump in the capabilities of Southern California wildland fire protection agencies.[2] The solution must effectively coordinate interagency actions and allocate and manage suppression resources in dynamic, multiple-fire situations.

Seven major fire-fighting agencies located in Southern California joined forces and committed to developing a new system. Participating agencies included the California Department of Forestry; the Governor's Office of Emergency Services; Los Angeles City Fire Department; Los Angeles, Ventura, and Santa Barbara County Fire Departments; and the U.S. Forest Service. This system was known as FIRESCOPE (Firefighting Resources of Southern California Organized for Potential Emergencies).[3]

System Design

To develop an interagency system that would eventually meet the needs of all the participating agencies would require a very detailed systems engineering approach. This approach mandated that a program director be assigned, along with an interagency oversight committee, development task force, and functional working groups. Two major components came out of these development efforts-—the Incident Command System (ICS) and the Multi-Agency Coordination System (MACS). The ICS is primarily the on-scene command and control system for managing day-to-day response operations, whereas the MACS would provide the off-sight coordination that is needed to support complex mobilization requirements.[4]

For three years, I was assigned to the research and development program, representing the U.S. Forest Service. These were some of the most memorable years during my career in emergency management. Many interagency design meetings were held, where the response system structure was hammered out, along with the operating procedures that were required to make the systems work effectively.

The involved agencies agreed that the system would need to be field tested. A wildland fire burning on the Angeles National Forest was selected for the test. Many lessons were learned during this response that influenced not only the proposed operating procedures, but the training that would be required if the system was to be accepted and implemented throughout California. Some of the reasons that the system was not initially as successful as anticipated were:

- Appropriate training on the new system had not occurred.
- Agencies had not integrated the new system into their daily response operations procedures.
- Some agencies were trying to operate in both the old and new system.
- System documentation was not complete and disseminated.
- Resistance to change by some chief officers.
- Agency personnel had not yet been trained in the interagency environment.

System Implementation

By 1980, most of the original agencies participating in the development process had formally adopted the ICS and the MACS. Now a new set of issues had to be addressed by the partner agencies, including:

- partner agency formal recognition and buy-in;
- development of an implementation plan;
- short-term bridge training development and implementation;
- long-term training and exercise requirements;
- position qualification and certification program;
- supporting technology requirements;
- system documentation requirements;
- adaptation to all-risk response operations.

Another set of issues that had to be addressed was the overall effect on national response assets, including the U.S. Forest Service, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and the numerous state forestries that were part of the national mobilization system in support of wildland fires. National organizations soon realized that you cannot operate one way while managing incidents in California and another way when responding outside of the state. Hence in 1982, the National Wildfire Coordinating Group adopted the FIRESCOPE ICS and it became the National Interagency Incident Management System (NIIMS).[5] This system was marketed as an all-risk response system.

In 1986, following the international response to the Mexico City earthquake, where response operations were not as effective and efficient as desired, the Agency for International Disaster Response began to look at using the ICS response model to support future international responses. After slight modifications in the operating procedures and organization structure, the ICS became the incident management system for coordinating U.S. relief efforts internationally.

One of the first national organizations to adopt ICS was the U.S. Coast Guard.

In 1990, specialized tactical response teams were being formed by the Federal Emergency Management Agency and the National Public Health Service. The Northridge earthquake, followed by the Oklahoma City bombing response validated the need for these specialized assets. However, on-scene management of these assets in some cases overtaxed the local government's ability to coordinate and support these resources. A management team was developed that would oversee these assets during response operations. These teams were called incident support teams. The concept of these teams closely followed the structure and procedures outlined in the National Interagency Incident Management System.

The U.S. Coast Guard and ICS

One of the first national organizations to adopt ICS outside of the wildland fire community was the U.S. Coast Guard. Following the *Valdez* disaster in Alaska, the Coast Guard began to look at how to better integrate its efforts into overall state and local government response efforts, especially those associated with oil and hazardous material incidents. If one looked at the after-action report from the *Valdez* incident, he or she could find many of the same issues that surfaced during the fires in the 1970s. Several senior officers in the marine safety program of the Coast Guard recognized the need to learn about the Incident Command System and to attend any available training. The problem with ICS training in the 1990s, however, was that most of the training courses were focused solely on fire fighting and did not focus on all-risk responses.

In 1996, the Coast Guard adopted the NIIMS for response to pollution incidents involving interagency response operations. In February of 2001, the Coast Guard formally adopted NIIMS ICS for all of the contingencies to which it responds, and the ICS training program was accelerated to begin meeting implementation requirements.

The September 11, 2001 terrorist attacks again highlighted the need for a common incident management system, along with a national mutual aid system. This was a wake-up call for many response organizations, as they were not adequately prepared to meet the response requirements, including using ICS as the standard incident management system.

In February 2003, Homeland Security Presidential Directive Five was issued, providing broad direction to all federal agencies to develop a national incident management system to provide a consistent nationwide approach for federal, state, tribal, and local government to work together to prepare for, prevent, respond to, and recover from domestic incidents regardless of cause, complexity, and size.

On March 1, 2004, the secretary of the Department of Homeland Security issued a memorandum formally adopting the National Incident Management System (NIMS) as the national model.[6] The NIMS is very much like the NIIMS and caused no major adverse impact on the Coast Guard ICS implementation plan. However, this decision left many federal agencies with a dilemma of how to get on board with the new direction. The Coast Guard is years ahead of most federal agencies, outside of the wildland fire communities, in implementing ICS.

The 2005 hurricane season provided a good opportunity for all of the agencies at all levels to test their ability to respond using the National Incident Management System. However, everything did not go so well for most agencies and organizations supporting the response effort. It soon became evident that agencies were not adequately prepared to respond using NIMS, nor were they able to adjust their response actions to meet the needs of the impacted population. Initially, a lot of criticism was misdirected toward the National Incident Management System and the National Response Plan (NRP).

However, it was soon apparent that most agencies had not prepared themselves to meet either the ICS or NRP requirements. One of the most notable successes in responding to the hurricane disasters of 2005 was the response operation conducted by the Coast Guard, because it had embraced ICS years prior. The Coast Guard has become the flag ship for federal response, and many agencies are trying to catch up with its internal application of the Incident Command System.

The Coast Guard, through its dedication to excellence when carrying out its missions, including implementing ICS, is duly noted by all in the response community.

Implementing ICS at the National Level

You cannot change the response culture of an agency or organization overnight, especially at the national level; however, there are proven steps that can be taken to help ensure an agency's success in implementing ICS. Some of these steps include:

- Provide strong agency commitment and direction.
- Develop and promulgate a comprehensive implementation plan.
- Ensure accountability for those responsible for implementing the plan.
- Integrate ICS into contingency plans.
- Incorporate ICS into everyday operations.
- Ensure that technical support is available to support implementation effort.
- Ensure that the ICS program is properly staffed for success.
- Establish an aggressive training and exercise program.
- Provide adequate funding to support program implementation and maintenance.
- Conduct readiness evaluations to measure agency progress.
- Institute a corrective action program for areas requiring greater ICS emphasis.
- Conduct an annual review of implementation efforts.
- Establish a program to reward outstanding achievers.
- Include ability to successfully use ICS in annual performance evaluations.
- Consider individual contributions to ICS implementation initiative for promotional opportunities.

There are 35 years of history that clearly illustrate that agencies that commit to implementing and supporting the Incident Command System as part of their culture will provide unparalleled response management. It takes time to develop the level of sophistication that the wildland fire agencies have achieved over the last three decades, but they have provided the nation with the lessons learned that help show the way forward.

About the author:

Mr. Mills has 40 years of experience in emergency management, including 32 years with the U.S. Forest Service. He was the federal representative to the multi-agency task force that developed and implemented the National Interagency Incident Management System Incident Command System (NIIMS ICS). For the past seven years, Mr. Mills has substantially contributed to the U.S. Coast Guard's ICS implementation initiatives, developing an all-hazard, all-risk program that set the standard for other federal agencies.

Endnotes:

1. http://www.firescope.org.
2. http://www.loc.gov/index.html.
3. http://www.firescope.org.
4. http://www.firescope.org.
5. http://www.firescope.org.
6. http://www.dhs.gov/dhspublic/.

Resource Central

The NIMS Integration Center.

by Ms. Pamela S. Bramblette,
Program Management Specialist, NIMS Integration Center

The strategic development and eventual implementation of the National Incident Management System (NIMS) has centered on extensive coordination with federal, state, local, and tribal agencies; first responders and emergency management leaders; and non-governmental organizations and private-sector entities. Among its ongoing initiatives: extended relations with national first responder and emergency response leadership organizations, such as the International Association of Chiefs of Police, International Association of Fire Chiefs, National Association of Counties, the Fraternal Order of Police, and the National Emergency Management Association.

The National Incident Management System is designed to help incident management personnel and responders from different jurisdictions and disciplines work together. The unified command system supports all aspects of emergency response. NIMS provides a comprehensive structure that unifies emergency response and sets consistent standards for management and operations at any type of disaster or emergency response incident, regardless of its size.

The NIMS Integration Center

The NIMS Integration Center (NIC) was established by the Secretary of Homeland Security in 2004, to provide strategic direction and oversight of the National Incident Management System. The NIMS Integration Center develops and directs NIMS and Incident Command System implementation and provides continuous refinement of the overall system and its components.

In addition to providing guidance and support to jurisdictions, incident management, and the responder community, the NIC oversees all aspects of the National Incident Management System, including development of standards and protocol as well as training, compliance, and implementation of all these activities at federal, state, and local levels.

"The NIC supports both day-to-day functionality of the system, and the continuous refinement of its components over the long term," says Al Fluman, director of the NIMS Integration Center. "The NIC provides the strategic direction and tactical oversight of the National Incident Management System and the National Response Plan," Fluman adds.

"The NIC serves all federal departments and agencies, as well as state, territorial, local, and tribal jurisdictions, and is charged with providing NIMS leadership and development on this truly broad scale," he says.

The NIMS Integration Center directs National Incident Management System implementation through a full list emergency response development, education, and training initiatives, such as:

- defining and developing mutual aid systems and protocol;
- identifying and defining, by type, resources and resource management;
- identifying and defining personnel credentials for on-scene and management personnel;
- developing NIMS national standard training curriculum;

Homeland Security Presidential Directive – 5:

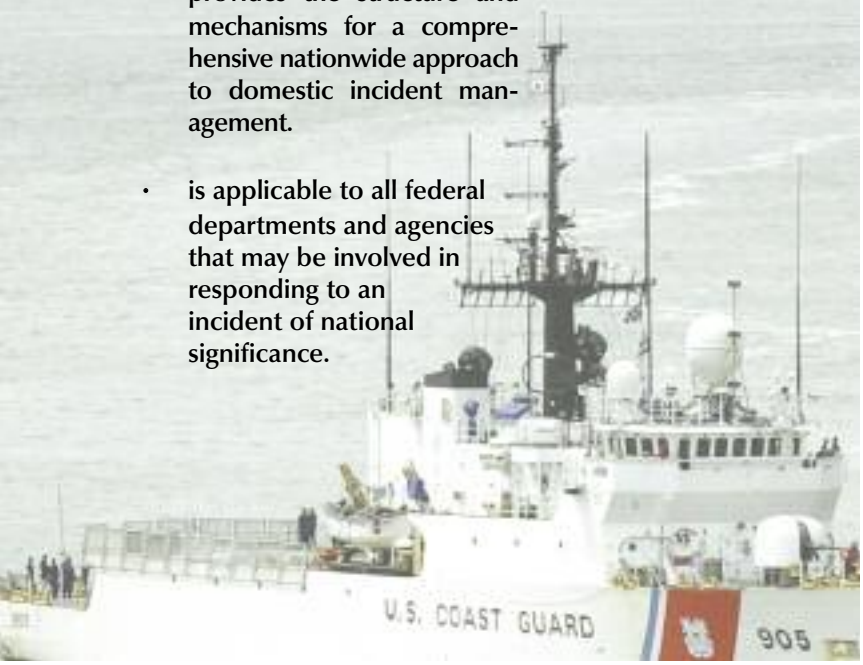
- requires all federal departments and agencies to adopt the National Incident Management System and the National Response Plan.
- requires state and local National Incident Management System compliance as a requirement for federal preparedness assistance.

The National Incident Management System:

- is a consistent nationwide approach for all levels of government to work effectively and efficiently together to prepare for and respond to domestic incidents.
- is a core set of concepts, principles and terminology for incident command and multi-agency coordination.

The National Response Plan:

- provides the structure and mechanisms for a comprehensive nationwide approach to domestic incident management.
- is applicable to all federal departments and agencies that may be involved in responding to an incident of national significance.



- establishing standards identification;
- providing outreach guidance and informative publications;
- implementing compliance and evaluation tools;
- reviewing and refining the National Response Plan on an ongoing basis;
- managing strategic direction and implementing tactical direction and coordination.

NIMS Integration Center Priorities and Activities

Resource typing. Among the most important NIMS Integration Center activities is development of an essential standards list that will establish a set of the most significant national standards for NIMS. The standardized list is intended to enhance compatibility between national-level standards for NIMS, and those developed by other public and private organizations, including those identified by professional groups.

Lessons learned. Continually upgrading the evolving NIMS document to reflect lessons learned, and to clarify and expand areas that need additional consideration and deliberation.

Response personnel credentials. The personnel and resource credentialing effort involves draft descriptions for 101 positions from the emergency management system, public works, fire/hazmat, incident management and search and rescue working groups. These personnel credential positions describe the minimum knowledge, skills, and abilities needed for an individual to serve as mutual aid resource for disasters and emergency response. Credential groups and descriptions for health/medical, law enforcement, and animal control are currently being developed.

NIC's Ongoing Mission

NIMS Integration Center continuing programs include ICS specific-position training, as well as launching and developing new National Incident Management System training in the areas of:

- resource management,
- public information,
- multi-agency coordination,
- communications,
- information management,
- mutual aid,
- preparedness.

About the author:

Ms. Pamela S. Bramblette works with the NIMS Integration Center, Federal Emergency Management Agency in Washington, D.C. Her duties include NIMS resource typing, credentialing, and best practices. She is formerly the CEO/publisher of Responder *magazine and has extensive experience in emergency management and emergency response, as well as having been a hospital trauma/triage charge nurse.*

The Incident Command System

A process to move our response stance from reactive to proactive.

by Ms. Kristy L. Plourde
U.S. Coast Guard NIMS ICS Program Coordinator

and Mr. Jason Moats,
Training Coordinator, Enhanced Incident Management Program, Texas A&M University

The Incident Command System (ICS) is a management system designed to enable effective and efficient management of incidents and planned events by integrating into a common organizational structure a combination of facilities, equipment, personnel, procedures, and communications. The common management characteristics of ICS as defined by the National Incident Management System (NIMS)[1] are:

- common terminology;
- modular organization;
- management by objectives;
- reliance on the incident action plan (IAP);
- manageable span of control;
- predesignated incident locations and facilities;
- comprehensive resource management;
- integrated communications;
- establishment and transfer of command;
- chain of command/unity of command;
- unified command;
- accountability;
- deployment; and
- information and intelligence management.

Those who have taken any Incident Command System course understand these concepts, but there is one more foundation that is often overlooked but is of the utmost importance to the incident commander: the ICS planning process. Like the other key concepts of the Incident Command System, the ICS planning process establishes a common method for developing and implementing tactical plans to efficiently and effectively manage an incident or a planned event.

The ICS planning process goes beyond the different processes that agencies like the Coast Guard use in their day-to-day operations and provides a disciplined common process for all responders to work toward the successful resolution of an incident. Knowing and using the planning process will increase the abilities of the incident command organization to successfully manage the incident or event.

The ICS planning process moves the focus of the response effort from reactive to proactive, and enables the incident management team (IMT) to gain control over the incident. Every incident starts with the initial dispatch of resources to the incident. Responders react to the incident upon arrival and continue to react as they assess the situation. As additional resources arrive, they again react, adopting initial tactics based on their own assessments. This reactive process is unlikely to achieve the best possible response, and may result in safety hazards and other unfortunate events.

The key to a safe, efficient, and effective response is to move the response from a series of reactions to a planned, proactive response that makes the best use of resources and tactics to meet response objectives, allows for continuous assessment of effectiveness, and maximizes responder safety. Shifting to an ICS planning process requires situational awareness, personnel, and time. Key steps include setting the operational period, using the ICS planning "P" (Figure 1) to help guide the incident management team toward development of an incident action plan. The incident action plan then focuses the objectives and current situation by outlining the tactical assignments for the next operational period. Failure to take these steps early in the

incident will result in missed opportunities and delay the time when the incident management team can truly take control of the incident.

The Operational Period

The first phase in the ICS planning process is for the incident commander or unified command (IC/UC) to determine the parameters of the operational period. The operational period essentially determines the "battle rhythm" of the response. This establishes the frequency of a host of required meetings and events, and has the added benefit of setting watch/shift periods, which aids in avoiding fatigue. The operational period is typically set at 12 or 24 hours, and may be changed (usually lengthened) as the level of activity declines over time. If an incident can be brought under control quickly, defining an operational period is not necessary.

The Operational Planning "P"

The planning "P" serves as a map through the planning process. Its history, while short, demonstrated its importance to ICS. The operational planning "P" was initially developed by an interagency and industry group for the Coast Guard Oil Spill Field Operations Guide in 2000. It has been modified and enhanced for all-risk, all-hazard response by the Coast Guard in its Incident Management Handbook.[2]

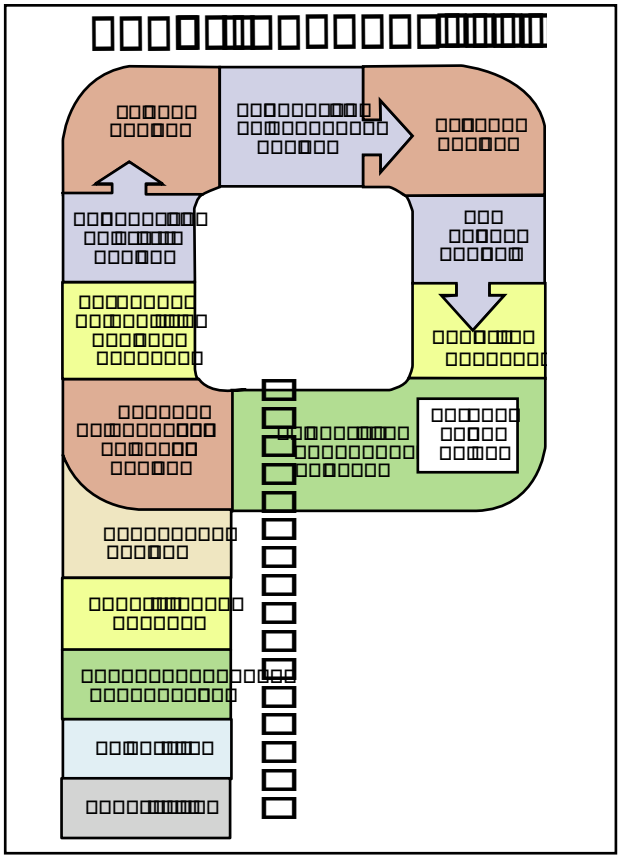


Figure 1: The operational planning "P" is a visual representation of the ICS planning process, which guides the incident management team from a reactive to the desired proactive response.

The ICS planning process depicted in the operational planning "P" addresses the five steps of the NIMS ICS planning process:

1. Understand the situation.
2. Establish incident objectives and strategies.
3. Develop the plan of action.
4. Prepare and disseminate the plan.
5. Evaluate and revise the plan.

The operational planning "P" outlines a progression of actions (meetings and events) in sequence. Sequential action is critical to use of the planning "P," but there are also many simultaneous actions incorporated within it. The outcome of the planning process is the incident action plan—a process that contains continuous, methodical response efforts that are effective, efficient, and, most importantly, safe for all concerned.

The ICS Planning Process—The Progression to Develop the Incident Action Plan

The National Incident Management System (NIMS) has been the gospel of ICS since it was promulgated in March 2004. The planning "P" and the NIMS ICS planning process are compatible and work well together. To illustrate this, brief summaries of each of the phases of the operational planning "P" that address this process are provided below.

Initial Response and Assessment

The first phase in the process is on the "stem" of the "P." The assumption at this point is that the incident has occurred and emergency response resources are reacting, without the benefit of a formal planning process. All command and general staff functions are handled by the incident commander. The ability to transition from the reactive mode visualized in the stem of the "P" to the proactive mode in the loop of the "P" is dependent upon how well the initial responders identify and document their objectives, determine and implement the organizational structure, and delegate management responsibilities.

Taking the time to record this type of information is critical to ensuring success of the initial phases of the response. The developers of the Incident Command System created the user-friendly incident briefing form, the ICS-201 (Figures 2 and 3), as a tool to document this information. As the process continues, there are phases in the process that help execute the ICS planning process in an efficient and effective manner. This form is essential for future planning and effective management of initial response activities.

Incident Brief
During the transfer-of-command process, an ICS-201-formatted briefing provides the offgoing incident commander/unified command with a ready-made format to provide the incoming IC/UC, section chiefs, and staff with basic information regarding the incident situation and the resources allotted to the incident. Most importantly, it functions as the incident action plan for the initial response and remains in force and continues to develop (through updates) until the response ends or the planning section generates the incident's first IAP.

Initial Unified Command Meeting
The initial unified command meeting is where the unified commanders first meet to discuss and agree on important response issues prior to entering an integrated planning process. This increases coordination and helps clarify critical response issues, setting the tone for the future of the response. The unified commanders will also select the planning section chief (PSC) and the operations section chief (OSC) during this meeting. If the incident response is to be managed by a single incident commander, then this step is not necessary.

IC/UC Develop/Update Objectives Meeting
In the IC/UC objectives meeting, the unified commanders will set response priorities, identify any limitations and constraints, establish guidelines, and develop SMART (specific, measurable, action-oriented, realistic, and time-bound) incident objectives for the incident management team to follow.

Command and General Staff Meeting
At the command and general staff (CGS) meeting, the incident commander/unified command will present their decisions and management direction to the CGS members. This meeting will help clarify and ensure understanding among the core incident management team members regarding the decisions, objectives, priorities, procedures, and tasks that the unified command has agreed upon.

Preparing for the Tactics Meeting
During this phase of the ICS planning process, the operations section chief and planning section chief prepare for the upcoming tactics meeting, developing strategies to meet the objectives set by the IC/UC for the next operational period.

Tactics Meeting
During the tactics meeting, the operations section chief discusses how the operations section will be organized and what resources are needed to support the strategies and tactics that will be used to address the objectives for the next operational period. This is documented on the ICS-215 operational planning worksheet (Figure 4). In addition, the ICS 215a is used to identify and measure the risks and hazards to personnel and equipment. Key players in this meeting are the planning section chief, the safety officer, resources unit leader, situation unit leader, and logistics section chief.

Figures 2 and 3: The ICS-201 incident briefing form.

Preparing for Planning Meeting
During this period of time, the command and general staff prepare for the upcoming planning meeting. The incident management team is gathering, verifying, and validating current incident information, confirming the availability of resources, and verifying the accuracy of any other information that they will present at the planning meeting.

Planning Meeting
This meeting is the culmination of all the preparation and meetings that have already taken place. This meeting, facilitated by the planning section chief, provides an overview of the tactical plan to achieve command's current direction, priorities, and objectives. It can be thought of as the staff's briefing to the incident commander/unified command. The tactical plan must be able to adequately guide and support the activity of the operations section—those who implement it on the ground. The goal of this meeting is to gain IC/UC tentative approval of the proposed plan of action.

IAP Preparation and Approval
After the planning meeting, the PSC assigns tasks/products that must be included in the incident action plan. The planning section chief then assembles and submits the incident action plan to the IC/UC for approval.

Operations Briefing
During the operations briefing, the operations section chief briefs the oncoming shift supervisors—those who have to carry out the plan. This gives OSC the opportunity to clarify the tactical assignments. After the operations briefing and during shift change, the OSC and relief personnel should interview off-going supervisors to validate the IAP's effectiveness. Division/group supervisors may make last-minute adjustments to tactics over which they have purview. Similarly, supervisors may reallocate resources within that division/group to adapt to changing conditions.

Execute IAP and Assess Progress
Assessment is an ongoing and continuous process to help adjust current operations and plan for future operations. The incident action plan is a living document that is subject to change, based on the incident situation. Continuous assessment from various sources helps to determine how well the plan is designed to meet the current situation, ensures that the objectives are still viable, and that the tactical direction and resources assigned are supporting the objectives.

Continue the ICS Planning Process
The process now repeats itself, which leads into the IC/UC objectives meeting, where the incident commander/unified command meet again to evaluate the current objectives and develop/update objectives for the next operational period.

It is important to note that, while the ICS planning process is intended to develop an IAP for the next operational period, the command and general staff must still support current operations. Developing an incident action plan and establishing the planning process is a time- and resource-intensive process, even under the best of conditions. Doing so under the time and resource constraints typical of an emergency situation is all the more difficult. Nonetheless, the IC/UC must be willing to devote the resources to doing so, or risk losing the ability to control the situation. The process cannot be rushed through and issues cannot be glossed over. An incident action plan can not be completed in two to three hours. All who possess an understanding and appreciation for what it takes to develop an incident action plan will validate this assertion. The operational planning "P" helps guide the ICS planning process and helps ensure that the IAP development is appropriate and efficient.

The Outcome
The goal in incident management is to have a safe, proactive, efficient, and effective incident response. The Incident Command System and the ICS planning process are essential tools to help responders get there—provided they know how to use the tools. The operational planning "P" is a visual representation of the ICS planning process and can guide the incident management team from a reactive to the desired proactive response. More importantly, it aids in the development of an adequate incident action plan. The IAP outlines the incident commander/unified command's intent, as well as tactical goals to be achieved for the next operational period.

Figure 4: The ICS-215 operational planning worksheet.

The incident action plan is constantly evaluated to ensure that it addresses the current incident situation by employing tactics that address the objectives set by the IC/UC. The ICS planning process requires personnel and time to adequately and effectively complete the process, but the end result is worth the time and effort. The ICS planning process is the methodology that helps responders transition into this more proactive response approach, which is critical to ensure that the incident response is safe, efficient, and effective.

About the authors:
Ms. Plourde has 23 years of Coast Guard experience (civilian and military) and has served as the U.S. Coast Guard federal on-scene coordinator's representative/incident commander, operations and planning section chief, and other roles during large incident response. She holds an M.S. in Chemistry from the University of Connecticut and B.S. in Physical Sciences from the U.S. Coast Guard Academy.

Mr. Moats is a training coordinator at Texas A & M University.

Endnotes
[1]United States Department of Homeland Security, "National Incident Management System," March 1, 2004.
[2]United States Coast Guard, "Incident Management Handbook," February 1, 2001.

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A Plan of Action

Ensuring we are qualified to lead.

by Captain Jon Sarubbi
U.S. Coast Guard (Ret.), Vice President, Marine Operations, International Registries

and Commander Tim Deal
U.S. Coast Guard (Ret.), Vice President, Emergency Management Services International

Somewhere in the United States…
A 600-foot cargo ship parts the waters as it transits inbound, under a random positive control boarding, when the master of the vessel states to the lead boarding officer that there is a bomb onboard the vessel that would detonate when the vessel reached its destination. The lead boarding officer quickly notifies the sector command center, catapulting the sector and port law enforcement community into a 92-hour-long response operation. What began as a routine positive control boarding has devolved into a potential threat against a major U.S. port. The response to the incident involves six federal, state, and local agencies and holds the firm attention of three state governors, the highest levels of the Department of Homeland Security, and the national media.

This actual event[1] necessitated a rapid, multi-agency response that included a common set of objectives and a synchronized tactical response. As the incident commander, the U.S. Coast Guard sector commander, using the Incident Command System (ICS), established a unified command, comprised of personnel from the Coast Guard, FBI, the state police, and several local agencies. The unified command swiftly implemented a security zone around the vessel, directed the vessel to an isolated anchorage, and launched a multi-agency boarding team with bomb-detection dogs. Once aboard the vessel, the team determined that there was no bomb onboard.

The vessel's master was later arrested and prosecuted by the U.S. attorney for the hoax. Without the ICS's unambiguous command structure and battle-tested planning and execution tools, an effective, multi-agency response could not have been mounted, placing in doubt the ability of responders to stop the crew from detonating a bomb, had there been one onboard the vessel. Such an event would have closed a key U.S. petroleum port for weeks, if not months, and could have shut down the nation's entire maritime transportation system for a period of time.

Conducting a Best Response, Coast Guard-Style
The Coast Guard is a unique federal agency: It is a branch of the military that is integrated at the local level with government and industry partners to ensure maritime safety, security, and preparedness. The Coast Guard is a true response agency in every sense of the word. It has jurisdiction over a wide range of functional responsibilities, including:

- search and rescue,
- radiological incidents,
- law enforcement,
- hazardous materials response,
- mass casualties,
- oil spills, and
- maritime security.

Every one of these functional responsibilities can range from a simple Coast Guard-only operation lasting hours or days to a highly complex multi-agency operation, lasting weeks or months.

Since the mid-1990s, the Coast Guard has recognized the intrinsic value of the Incident Command System as a response management tool. In early 2001, some seven months before the terrorist events of September 11, the Coast Guard's leadership mandated the use of ICS for all contingencies to which the agency might respond. It was a visionary move. When the president announced that the ICS was to be the nation's standard response management system following 9/11, the Coast Guard was well ahead of this mandate.

Proficiency in ICS cannot be maintained if it is treated as something that is pulled out of the closet when the "big one" hits.

The Coast Guard's responder heritage, respect and appreciation for the chain of command, broad array of missions, and exceptional personnel make it a critical component to the nation's preparedness. From conducting multi-agency operations to developing and exercising contingency plans, the wide range of operations that Coast Guard sectors undertake daily provides fertile ground to build and maintain competency in the use of ICS.

The advantage of incorporating the Incident Command System into sector operations benefits both the Coast Guard and government and industry partners within the maritime community. The Coast Guard sectors that are most successful in using the ICS are the ones that have position-trained personnel such as an operations section chief and that use ICS in the execution of their day-to-day operations.

Proficiency in ICS cannot be maintained if it is treated as something that is pulled out of the closet when the "big one" hits. Like math or a foreign language, the Incident Command System is perishable knowledge that diminishes without use. Sector commanders and port stakeholders are in a unique position to ensure that the entire port community's ability to effectively employ the Incident Command System does not atrophy.

A Planning Tool

The Incident Command System is a powerful and proven command and control structure that is invaluable in responding to a wide range of contingencies. It can be used in a dynamic environment where situational information is often lacking, and it can be used to execute nonemergency operations, such as military outloads, port security patrols, ice breaking operations, hurricane preparedness, and marine events. Using the ICS regularly to plan and execute these operations affords Coast Guard personnel and supporting agencies the opportunity to use the tools and terminology of ICS on a regular basis, building understanding and confidence with its users.

Military outloads are one of the many examples of how the Incident Command System can be used in day-to-day operations. These operations require seamless coordination among multiple agencies and organizations, including waterfront facility operations and security personnel, Coast Guard, Department of Defense agencies, and the local police.

The Incident Command System provides a common method for agencies to gather and develop a joint plan they can all support. From there, a well-documented and defensible plan can be created to guide everyone's actions. Unit personnel and port partners participating in the planning and execution of the military outload will have developed and maintained proficiency in the tools of ICS—a win-win for everyone.

Although there are many steps in the ICS planning process, there are three we'd like to describe. First, you cannot develop an incident action plan (IAP) without objectives. The objectives provide the direction, or the things that should be achieved, and they may come from a variety of sources. Many of the objectives for military outloads come from the Commandant, but objectives may come from the sector commander or other agencies with jurisdictional responsibility for the operation.

Next, a tactical plan is developed to achieve the objectives and that plan is briefed to the sector commander and other agency personnel to receive tentative approval. This is an important step in the ICS planning process, as it enables all parties to make sure that all the objectives are addressed before building the incident action plan.

Finally, the jointly developed IAP (Figure 1) gives agencies involved in the military outload clear direction of what has to be done and the resources that will be used to accomplish the work, to keep the entire

Figure 1: The incident action plan is comprised of several components that together provide users with the necessary information to carry out their responsibilities in a coordinated and efficient manner.

multi-agency operation moving in the same direction. Once the incident action plan is signed and approved, it is briefed to all who will be involved. During this briefing, the incident action plan is presented, assignments are reviewed, and any questions or concerns are addressed.

Preparedness

Resources like area maritime security committees (AMSC), and the contingency plans developed by these committees, provide excellent opportunities for sector commanders to strengthen stakeholder relationships and bolster ICS knowledge and use. Moreover, because many of the members of these committees work with the Coast Guard on a daily basis, the ICS organizational structures and procedures developed by these committees can also be used to execute routine law enforcement operations, harbor patrols, and other joint operations.

The AMSC is charged with ensuring that the port community is prepared to prevent and respond to terrorist events. The area maritime security plan defines how federal, state, and local law enforcement bodies; government agencies; and the maritime community prepare for and respond to a wide variety of contingencies. These incidents may include events, such as a terrorist attack on an oil refinery or other critical infrastructure; or a radiological incident, involving a shipping container. The committee is responsible for developing, maintaining, and exercising the plan.

Because the plan is developed in consultation with a broad spectrum of law enforcement, government, and maritime industry stakeholders, the expectation of using ICS to manage an incident can be agreed upon by all parties and incorporated into the plan. This ensures that each agency's role within the Incident Command System organizational structure is clearly defined and understood before an incident occurs.

To solidify this understanding and ensure that the port community is ready to respond, committee members periodically exercise the plan to make certain that all stakeholders are conversant with it, particularly with their specific roles within the ICS command organization. These exercises also help foster positive relationships among government and industry participants, further bolstering confidence in and understanding of the Incident Command System.

ICS Implementation

Figure 2 provides an example of a unified command organization for a radiological incident, containing the agencies and entities that would most likely fill key ICS positions in this event. Plans that are built within an ICS organizational structure enable users to go immediately to their section of the plan and find specific information that will help them in the initial minutes and hours of the response. For example, the incident commander/unified command (IC/UC) section of the plan should contain a list of potential initial response objectives for the type of incident they are facing, such as a radiation incident.

In addition to objectives, there should be a checklist of important determinations the IC/UC should make and act upon, within the first few hours of a response. Some examples might be to determine the need to close the air space above an incident or to determine the need to deploy a critical incident stress management team. If you know your ICS position, you will know where in the plan to look. Getting responders to crack open a contingency plan in response to an incident is often difficult, so the plans have to be easy to use and provide instant benefit, or the information in them will remain unused.

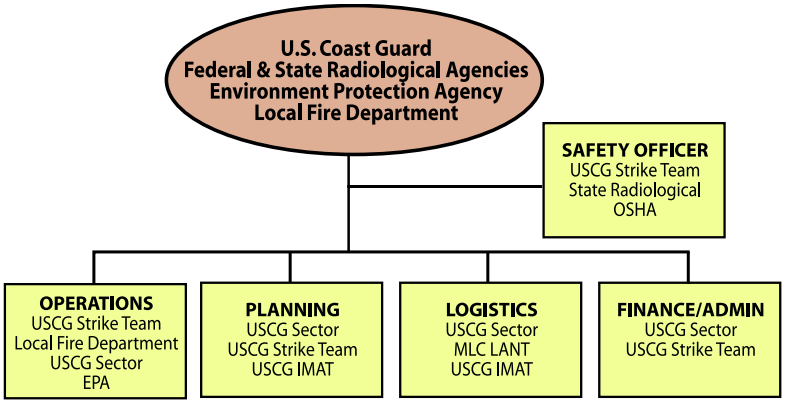

Figure 2: The actual composition of the unified command organization in response to a radiological incident will depend on incident location and complexity. The agencies and entities listed represent those most likely to respond to a radiological incident.

It is imperative that, for the successful implementation of the Incident Command System into Coast Guard culture and that of its port partners, ICS principles be applied in day-to-day operations. Use of ICS principles in daily operations will ensure that proficiency is maintained, allowing for the smooth expansion of the ICS organization as an incident expands in size, complexity, or public interest.

About the authors:

Mr. Jon Sarubbi is vice president, marine operations for International Registries and is a retired Coast Guard captain with over 26 years of marine safety experience.

Mr. Tim Deal is vice president of Emergency Management Services International and is a retired Coast Guard commander with 18 years of marine safety experience.

Endnote

[1] The incident occurred on July 22, 2004 and involved the *M/V Cenk Kaptanoglu*, a Turkish flagged vessel, which was transiting the Delaware River, enroute to Philadelphia.

NIMS/ICS Training

Ensuring our readiness to effectively respond to domestic incidents.

by Mr. David Giordano
NIMS ICS Training Coordinator,
U.S. Coast Guard National Strike Force Coordination Center

LT Rudyard Quiachon
NIMS ICS Training Coordinator,
U.S. Coast Guard Atlantic Area

Mr. Frank Shelley
NIMS ICS Training Coordinator,
U.S. Coast Guard Pacific Area

and Mr. William W. Whitson
NIMS ICS Training Coordinator,
U.S. Coast Guard Training Center

The National Incident Management System (NIMS) was published in March 2004 and required by Homeland Security Presidential Directive 5. Guidance for a graduated implementation of the NIMS Incident Command System (ICS) has been published by the NIMS Integration Center through 2007.[1] The National Incident Management System and the National Response Plan should harmonize our response efforts, regardless of incident complexity, type, or location to achieve an outcome that meets national, regional, and local needs and expectations.

Critical to the overall success of this plan is an objective of establishing an effective base of response personnel who use the Incident Command System on a regular basis. Two key challenges to this objective:

- migrating from the current course based system to a qualification based system, and
- vertically aligning NIMS from the federal level through state, county, local, and private industry entities.

Preparedness

NIMS defines preparedness as the "integrated combination of planning, training, exercises, personnel qualification and certification standards, equipment acquisition and certification standards, and publication management processes and activities."[2] While all of these are linked, training and personnel qualification have a special kinship. One cannot become qualified without being properly trained. While the National Incident Management System defines what a qualification system is, how someone gets qualified has yet to be defined. And, how we get from "not qualified" to "minimally qualified" to "best qualified" is an organizational as well as geocentric problem.

It is organizationally tied to mission, number of response personnel, budget, and access to training. It is a geocentric problem, in that not all areas of the country face the same risks of incident type or magnitude. Ideally, each community would have the right number of people qualified and certified to manage the majority of incidents in their risk profile. The gaps would be filled in by mutual aid agreements and deployable incident management teams for the most severe incident types. In fact, this is the way that the system works right now. The problem is ensuring we are all using the same NIMS Incident Command System, and effectively training, qualifying, and certifying the right people from the incident management level to the policy level.

Managing this kind of program at a national level is fraught with operational, financial, and political problems. Implementing a program that serves 50 states,

INCIDENT TYPES Incidents may be typed in order to make decisions about resource requirements. Incident types are based on the following five levels of complexity. (Source: U.S. Fire Administration)	
Type 5	• The incident can be handled with one or two single resources with up to six personnel. • Command and general staff positions (other than the incident commander) are not activated. • No written Incident Action Plan (IAP) is required. • The incident is contained within the first operational period and often within an hour to a few hours after resources arrive on scene. • Examples include a vehicle fire, an injured person, or a police traffic stop.
Type 4	• Command staff and general staff functions are activated only if needed. • Several resources are required to mitigate the incident. • The incident is usually limited to one operational period in the control phase. • The agency administrator may have briefings, and ensure the complexity analysis and delegation of authority are updated. • No written Incident Action Plan (IAP) is required but a documented operational briefing will be completed for all incoming resources. • The role of the agency administrator includes operational plans including objectives and priorities.
Type 3	• When capabilities exceed initial attack, the appropriate ICS positions should be added to match the complexity of the incident. • Some or all of the command and general staff positions may be activated, as well as division/group supervisor and/or unit leader level positions. • A type 3 incident management team (IMT) or incident command organization manages initial action incidents with a significant number of resources, an extended attack incident until containment/control is achieved, or an expanding incident until transition to a type 1 or 2 team. • The incident may extend into multiple operational periods. • A written IAP may be required for each operational period.
Type 2	• This type of incident extends beyond the capabilities for local control and is expected to go into multiple operational periods. A type 2 incident may require the response of resources out of area, including regional and/or national resources, to effectively manage the operations, command, and general staffing. • Most or all of the command and general staff positions are filled. • A written IAP is required for each operational period. • Many of the functional units are needed and staffed. • Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (guidelines only). • The agency administrator is responsible for the incident complexity analysis, agency administrator briefings, and the written delegation of authority.
Type 1	• This type of incident is the most complex, requiring national resources to safely and effectively manage and operate. • All command and general staff positions are activated. • Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1,000. • Branches need to be established. • The agency administrator will have briefings, and ensure that the complexity analysis and delegation of authority are updated. • Use of resource advisors at the incident base is recommended. • There is a high impact on the local jurisdiction, requiring additional staff for office administrative and support functions.

Table 1: Incidents may be "typed," in order to make decisions about resource requirements. Incident types are based on the following five levels of complexity. (Source: U.S. Fire Administration.)

more than 7,500 tax jurisdictions, and hundreds of cities and towns is a monumental task. Who decides what the "right" number of personnel and the right level of training is for thousands of communities around the country? The initial approach has been to require a base level of training from all response communities. But in order to make real progress in raising the bar on national preparedness, we must move to a certification-based system as soon as possible.

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COAST GUARD TRAINING PROGRAMS

The Coast Guard courses use a combination of knowledge-based training (sometimes done online) and skill-based training (usually done in the classroom) for all of its courses. The courses fall into three basic categories: basic, advanced, and team training. The Coast Guard courses that fall into these categories are:

BASIC:	ADVANCED:	TEAM:
ICS-100	ICS-339	ICS-320
ICS-200	ICS-341	ICS-420
ICS-210	ICS-351	ICS-620
ICS-300	ICS-410	
ICS-400	ICS-430	
	ICS-440	
	ICS-450	
	ICS-460	

ICS-100 Introduction to ICS is suggested training for all entry-level personnel. This course is a self-paced module, addressing the ICS organization, basic terminology, and common responsibilities.

ICS-200 Basic ICS introduces students to the principles of the Incident Command System associated with incident-related performance. It is targeted for personnel assigned to an incident or event; persons working in support roles and cooperating agencies; off-incident personnel who require a minimum of NIMS ICS; and technical specialists assigned to support an incident from an off-site location. The course covers organization, facilities, resource terminology, and the common responsibilities or general instructions associated with incident or event assignments. Prerequisite is ICS-100.

ICS-210 Initial Incident Command is designed for single resource leader/type 5 and type 4 incident commanders. This four-hour course consists of an overview of the ICS principles and protocols applicable to small incident management. The course specifically focuses on initial incident assessment, initial incident management (includes assuming command, organization, and execution), the development and use of the ICS-201, transfer of command, and the ICS-204. Prerequisite is ICS-100 and ICS-200.

ICS-300 Intermediate ICS is designed for personnel who will be assigned to ICS supervisory positions and expands on Basic ICS. It provides more description and detail of the organization and operation of the ICS, management of resources, describes the duties of all positions including the air operations organization, and provides examples of how the essential principles are used in incident and event planning. The CG version of this course is process based and will require the students to work from initial response through one full planning cycle. Prerequisite is ICS-200.

ICS-400 Advanced ICS is designed for senior personnel expected to perform in a management capacity in an area command/complex incident environment. The course emphasizes large-scale organization development; roles and relationships of the primary staff; the planning, operational, logistical, and fiscal consideration related to large and complex incident and event management. It describes the application of area command and the importance of interagency coordination on complex incidents and events. Prerequisite is ICS-300.

ICS-320 Intermediate Incident Management Team (IMT) Training (old MATES) is a three-day CG developed team-building course that consists of an overview of the concepts, principles, and protocols of NIMS ICS with a focus on the establishment of the incident command post, specific responsibilities, assignments, information flow, and NIMS ICS products related to management of resources; command staff issues; development of the operations section organization and the planning cycle during a response or event. It highlights the interdependence of information flow and the need for teamwork within a type 2/3 IMT organization. Prerequisite is ICS-300. Desired training to be held before the course is ICS-341.

ICS-339 Division/Group Supervisor (scheduled for revision) is designed to meet the training requirements of a division or group supervisor on a response incident. It provides instruction in support of the specific tasks of division/group supervisor, but will not instruct the student in general management/supervision or in the Incident Command System, both of which the student should learn through prerequisite course work. Course topics include: division/group management, organizational interaction, and division operations. Prerequisite is ICS-300.

ICS-341 Incident Response Planning Workshop (IRPW) is a CG position-specific course that presents the concepts, principles, and protocols of the planning section duties intended to familiarize the student with the process mechanics of planning activities in support of an incident. This course also is specific training designed to

meet the training requirements of the type 3 planning section chief. The course will culminate in an exercise that will require the students to work from initial response through one full planning cycle. This training is a blend of training, coaching, and hands-on exercising. Prerequisite is ICS-300.

ICS-351 Logistics/Finance Section Workshop is a CG position-specific course that presents the concepts, principles, and protocols of the logistics and finance section duties intended to familiarize the student with the process mechanics of support activities in an incident. This course is also designed to meet the training requirements of the type 3 logistics and finance section chiefs. This training is a blend of training, coaching, and hands-on exercising. Prerequisite is ICS-300. Desired training to be held before the course is ICS-341.

ICS-410 Advanced Incident Commander is a CG position-specific course and is designed to meet the training requirements of the type 2 incident commander (equivalent to ICS-400). Course topics include team administration; communication, information, and intelligence processing; agency administrator and IC responsibilities; transfer of command; and demobilization. The course provides exercises to assist the student in acquiring the knowledge to learn these skills. An optional "lessons learned" unit allows the addition of geographic area specific information, but the course time frame must be increased accordingly. Prerequisite is ICS-400 and ICS-341.

ICS-420 Command and General Staff is a team course designed to prepare the student to function effectively in the position of a type 2 incident commander, command, or general staff with the application of previously acquired knowledge and skills. Students will participate in two types of groups (teams and similar position) during exercises. These exercises include a simulation of the mobilization, management, and demobilization phases of a rapidly accelerating type 2 incident that has potential to become a type 1 incident. The course will culminate in an exercise that will require the students to work through one full planning cycle and develop an incident action plan. This training day should be a blend of training, coaching and hands-on exercises in team building and human resource management to ensure that students leave with the necessary skills to establish and implement incident response policy. Prerequisite is ICS-320 and the position specific course for the position held (i.e. for planning section chief, the prerequisite is ICS-440).

ICS-430 Operations Section Chief is position-specific training designed to meet the training needs of the type 2 operations section chief. This course concentrates on the duties and responsibilities as they pertain to planning for, supervision of, and the coordination of the operations section. Subjects covered include: information gathering, interaction with the command and general staff, incident action plan development, operational period briefing, OSC daily schedule, interaction with incident and non-incident personnel, and demobilization. The course will culminate in an exercise that will require the students to work from initial response through one full planning cycle. Prerequisite is ICS-339, ICS-341, and ICS-400.

ICS-440 Planning Section Chief is position-specific training designed to meet the training needs of the type 2 planning section chief. Topics include information gathering, strategies, meetings and briefings, incident action plan, interactions, forms, documents, supplies, and demobilization. There is an optional technology section. The final exercise requires the students to observe a simulated planning meeting and use the information derived to find errors in an incident action plan. Prerequisite is ICS-400 and ICS-341.

ICS-450 Logistics Section Chief is position-specific training designed to meet the training requirements of the type 2 logistics section chief. Topics include gathering information, organizing and staffing the section, planning activities, operations, demobilization, and evaluation. Prerequisite is ICS-400 and ICS-341.

ICS-460 Finance/Admin. Section Chief is position specific training designed to meet the training requirements of the type 2 finance/admin. section chief. Topics include gathering information, organizing and staffing the section, planning activities, operations, demobilization, and evaluation. Prerequisite is ICS-400.

ICS-620 Area Command/Joint Field Office (JFO) is a USCG designed course and is intended for senior personnel expected to perform in a management capacity in an area command/complex incident environment. The course provides why, when, where, and how area command is established, and the organization, facilities, communications required, and demobilization process under an area command organization. It also covers the organizational relationships between area command and incidents, and between an area command and jurisdictional authorities. Prerequisite is ICS-400.

A Strategic Plan

The Coast Guard's initial program focused on training personnel to respond at the type 2 incident level. However, 97 percent of the incidents we respond to annually are at the type 3, 4, and 5 levels.[3] Table 1 defines the five incident types.

While many of our personnel have a wealth of experience in responding to daily incidents, the training program was not geared to match our day-to-day business. In other words, training personnel to respond to incidents that happen only 1 to 2 percent of the time, without the benefit of critical base training, resulted in a net effect to the organization of major expense for only marginal increases in our NIMS ICS response capability.

To effectively implement NIMS ICS, the Coast Guard created a focused strategic plan for the next 10 years. The key tenets of the plan are:

1. Determine the overall qualification and certification requirements.
2. Determine the initial requirements from tenet number 1.
3. Establish a training pipeline, which includes accession points, to build an effective base to meet the type 3, 4, and 5 level requirements as determined above.
4. Expand the capabilities of the Coast Guard incident management assist teams to ensure our current ability to respond to type 1 and type 2 incidents.

Qualification and Certification

The Coast Guard long-range plan is to have all 50 sector commanders and their deputies trained as type 3 incident commanders within five years. Each of these ports will also have selected personnel qualified in key positions at the type 3 level (operations section chief, division/group supervisors, planning section chief, situation unit leaders, resource unit leaders, logistics section chief, information officers, etc). The 10-year outlook is to have type 2 incident commanders at selected ports and selected personnel qualified in key positions at the type 2 level.

The Coast Guard's qualification system is based on a standardized personnel qualification system, similar to that used by the Department of Defense, as well as the wildland fire community position task books. These enable supervisors and trainees to track training from formal courses (see sidebar) to on-the-job training to final qualification. In addition, the Coast Guard uses an enterprise-wide online training management tool to track key elements of the personnel qualification system.

Training

There are a number of training venues available to any organization or person. The Federal Emergency Management Agency has established a good suite of basic courses.[4] The Coast Guard has developed courses similar to those developed by the National Wildfire Coordinating Group.[5] The EPA also has a number of courses available.[6]

For Coast Guard purposes, the overall organization requirements will be passed to each unit, who will use the personnel qualification system for qualification and certification and the Coast Guard ICS courses for the majority of our training. At the same time, the Coast Guard will rely heavily on special teams, like incident management assist teams and strike teams, to get through type 1 and type 2 incidents. Eventually, the use of NIMS ICS will become part of our culture and will result in more effective responses.

About the authors:

Mr. David Giordano is an emergency management specialist/ICS program coordinator with the USCG national strike force. Prior experience includes 32 years in municipal fire service. He is a retired fire chief, and has response experience in fire, emergency medical, hazardous materials incidents. He has also been an ICS instructor for the National Emergency Response and Rescue Training Center.

Mr. Bill Whitson retired as a commander after 22 years in the U.S. Coast Guard. He is a 1980 graduate of the U.S. Merchant Marine Academy at Kings Point and sailed with Military Sealift Command for two years before joining the Coast Guard. His service in the Coast Guard included inspections, investigations, and port operations. During his last tour, he developed and managed one of five Coast Guard incident management assist teams. He is currently serving as the Coast Guard's NIMS ICS training coordinator.

LT Rudyard Quiachon is the NIMS ICS and incident response assist team program manager for Atlantic Area. Prior experience includes seven years in the marine safety field as an inspector and investigator. Additional tours include one tour afloat and a staff tour at Coast Guard Headquarters. LT Quiachon is a 1995 graduate of the U.S. Coast Guard Academy.

Mr. Frank Shelley holds a Bachelor's degree in Aviation Maintenance from San Jose State University and a Master's in Safety from Marshall University. He retired from active duty in 1998 and was recalled to active duty from 2002 to 2005. At the end of his retired recall, he accepted the new position of Pacific Area ICS coordinator. Mr. Shelley completed eight marine safety tours of duty and three tours afloat. His military awards include five commendation and two achievement medals as well as two humanitarian service medals and nine special operation ribbons.

Endnotes:

[1] www.dhs.gov.
[2] www.dhs.gov.
[3] http://cgcentral.uscg.mil/mycg/portal/ep/home.do.
[4] http://training.fema.gov.
[5] www.nwcg.gov.
[6] http://www.trainex.org.

Everyone Has a Plan

Maritime plans and planning systems.

by LCDR M. L. Smith
Chief, Incident Management, U.S. Coast Guard Sector Seattle

Regulations enforced by the Coast Guard require vessels and facilities to have contingency plans to facilitate response, such as:

- shipboard marine pollution emergency plans,
- vessel response plans,
- facility response plans,
- vessel security plans,
- facility security plans,
- facility operations manuals, and
- vessel oil transfer procedures.

The formats for some of these plans are mandated and some are alluded to in their enacting regulations. In addition, some industry plans are required to integrate and reference key portions of specific Coast Guard plans. So what are the planning requirements for the Coast Guard?

The Coast Guard has 11 contingencies that it is required to plan for and ultimately respond to at various organizational levels:

- search and rescue;
- alien migration interdiction operations;
- environmental response;
- homeland security;
- continuity of operations;
- civil disturbance;
- counterterrorism;
- military outload;
- combatant commander support;
- natural disaster;
- physical security/force protection.

Like the required industry plans, some of the Coast Guard contingency plans have required formats, while others do not.

A standard format is merely an aid to the user to facilitate finding information in the plan. While a format is significant for final production of the product, the most valuable part of a plan is the process for producing the plan. The planner's slogan is: "The process is more important than the plan."

The process that the Coast Guard planning doctrine uses is called the "cycle of quality preparedness." This cycle incorporates sequential steps:

1. Have/create a plan.
2. Train and educate the users of the plan.
3. Exercise the plan through a drill or real-world response.
4. Evaluate the plan.
5. Feedback/improve the plan.

The process does not end with step five. Feedback and improvements create a new plan, which is then run through the steps, creating a continuous improvement/feedback loop.

Processes Are More Important Than Plans

Most planning processes are cyclical. At its basic level, the planning process is a job that is never finished. As soon as a plan is written, the contingency it was written to deal with begins to change. So planning must be a part of regular management processes. The point is that functionally, all planning cycles are very similar. Anyone who has participated in planning understands the value of processes. The process itself drives critical information and directs the communication of that information into the organizational "nooks and crannies" where it needs to go.

The Coast Guard's planning includes two very unique planning systems that follow the cycle of quality preparedness—the Joint Operational Planning Execution System (JOPES), and the National Incident

Management System (NIMS) Incident Command System (ICS). (Note: There is more than one type of ICS, but the Coast Guard is required to use NIMS ICS, as are all agencies operating under the National Response Plan.) Within JOPES and ICS there are two forms of the planning process:

- deliberate/planned event and
- crisis action planning /unplanned incident response.

Plan formats are somewhat more varied; there are JOPES formatted OPLANS for specified contingencies/crises; area contingency plans for oil/hazmat and marine fire response; area maritime security plans for antiterrorism preparedness and response coordination; and other specified plans with non-specified formats; and, finally, the NIMS ICS planning process.

If you have not experienced ICS in response to an incident with the Coast Guard or other agencies, then this will be new to you. If you have, the Joint Operational Planning Execution System may still be new to you, since it is not used by civilian agencies or industry. Below are some of the features and similarities of JOPES and ICS, and why the Coast Guard uses both systems.

JOPES consists of crisis action planning and deliberate planning. The Incident Command System delineates between unplanned incidents and planned events. The deliberate planning process prepares for the crisis action planning process. In 1991, then Secretary of Defense Richard Cheney said, "[A] lesson of the Persian Gulf conflict is the importance, in a highly uncertain world, of sound planning…our response in the crisis was greatly aided because we had planned for such a contingency."[1]

The actual contingency plan using the Joint Operational Planning Execution System involved a nation other than Iraq, but because the deliberate planning was sound, the JOPES process for Desert Shield/Desert Storm went smoothly. This illustrates the importance of these processes and their relationship to each other. This relationship between deliberate and crisis action planning transcends the system used to develop the plan.

Deliberate planning can take months or years, whereas crisis action planning can span as little as months, weeks, or even days. ICS and Incident Command System tools are used by the Coast Guard in response to unplanned incidents, but are much more effective when the process can draw upon existing, deliberate contingency plans.

For example, area contingency plans for environmental response were developed and continue to be updated and revised over the years. When an actual incident takes place, the Coast Guard uses the ICS planning process and tools to develop an incident action plan based upon information in the area contingency plan, specific to that response.

The Incident Command System is also used in advance preparation for supporting planned events. National special security events are among the largest of these planned events and have included the G-8 summit, the Democratic national convention, and the Republican national convention. Although ICS has been, and will continue to be, utilized for large-scale planned events, from inception and by design, it is a crisis action planning process.

So why have two systems? For JOPES it's a matter of cross communication between the Coast Guard and our Department of Defense (DOD) sister services. JOPES is the system that the DOD war-fighting capability is built around. Since it is a subordinate service that often supports DOD missions, the Coast Guard must integrate with the Department of Defense, using the Joint Operational Planning Execution System.

One of the primary distinctions between planning systems, JOPES and ICS, is the dimension in which the Coast Guard uses them. JOPES is vertical: Planning is internal to the Coast Guard and Department of Defense. ICS is horizontal: It is used by the Coast Guard to coordinate with response partners outside of the Coast Guard. (Note: When the Department of Defense is supporting a response under the National Response Plan, it is required to use NIMS ICS and ICS tools.)

As stated before, most planning is cyclical. Graphic representations of planning cycles are usually circular, depicting a continuous improvement feedback loop. However, graphic representations of the Joint Operational Planning Execution System crisis action planning and deliberate planning processes are linear, with a clear start and finish. Why? Because when the U.S. goes to war, "We'll keep doing it until we get better at it" is not a perception military and government leaders want to project.

That is not to say that DOD does not improve and incorporate lessons learned. On the contrary, lessons learned are documented and fed back into all aspects of military actions—training, communications, tac-

tics, logistics, etc. Particularly in the crisis action planning process, thorough planning is the goal. In his book, "War as I Knew It," GEN George S. Patton summed it up when he said, "A good plan executed violently NOW is better than a perfect plan executed next week."[2] So, thorough deliberate planning will facilitate better crisis action planning.

Perspective

Outside of the Coast Guard, civilian agencies, and industry, JOPES is invisible, since the plans required to be in the Joint Operational Planning Execution System format are not usually plans that are shared with anyone other than DOD agencies and other Coast Guard units. But it may be helpful for holders of industry plans regulated by the Coast Guard to know more about this system.

JOPES is the planning system of the most successful military in the history of the world. It has been tested and proven time and again by the Department of Defense. However, as a support agency to DOD, the Coast Guard does not fully participate in JOPES. Most of us in the Coast Guard see the Joint Operational Planning Execution System as a five paragraph plan format. These are:

- situation;
- mission;
- execution;
- admin. and logistics; and
- command, control, communications, computers, intelligence, surveillance, reconnaissance.

Using an acronym taken from the first letter of each designation, this is known as SMEAC. DOD commanders using the Joint Operational Planning Execution System view their involvement in the planning process through the SMEAC outline. Functional staff elements under the commander facilitate the development of the details in each paragraph in support of the mission. The series of annexes that follow SMEAC offer expanded information that many in the Coast Guard have used, without realizing that JOPES provided it. However, as you will see, the Joint Operational Planning Execution System is somewhat more than that.

The Incident Command System is the planning system originally developed for use by fire services to combat large wildland fires (see related article in this edition). It has been tested in the Coast Guard, and is fully implemented across all mission areas for large unplanned incident response. In fact, it is mandated when operating under the National Response Plan. The value of the Incident Command System in horizontal planning has been proven time after time. There have been instances where it has failed to be implemented properly, but the system itself has never failed.

Based upon jurisdiction, agency policies, and directives, ICS develops objectives that tie directly to strategies, and that ultimately lead to the development of tactics for resource application. The commander's role is to finalize the development of specific, measurable, action-oriented, realistic, time-specific (SMART) objectives. Functional elements in the incident command then take the objectives and develop the strategies and tactics to resolve the incident response.

As noted earlier, the Joint Operational Planning Execution System is much more than a planning format. It is a system of processes that supports war planning. DOD services consider a planning assignment as a required part of career development for those officers aspiring to command level at or above the O-6 pay grade. Incident Command System practitioners should understand that the JOPES and its internal processes are how the United States plans and prepares for war and military operations other than war. It is integral to the cultures in all branches of the military. As always, the extent to which the Coast Guard uses or participates in the use of JOPES will depend upon the level of involvement it has with DOD missions.

JOPES and ICS have designated staffing positions, referred to as "J-Staff" for JOPES. The Incident Command System has standardized position titles. Although they are similar, they don't map across to each other, one-for-one. But they both standardize the functional performance of the person(s) staffing them.

For industry readers, suffice it to say that there are many more parallels between JOPES and ICS, but to list them would be meaningless to you.

NIMS ICS and JOPES Interaction

In the contingency preparedness and response management schools at the Coast Guard Training Center, we clarify the relationship between the Joint Operational Planning Execution System and the Incident Command System. The traditional hourglass diagram, showing JOPES (vertical) high in the organization and ICS (horizontal) at the port level, has never adequately explained the relationship between these systems. Therefore a more user friendly graphic representation was necessary.

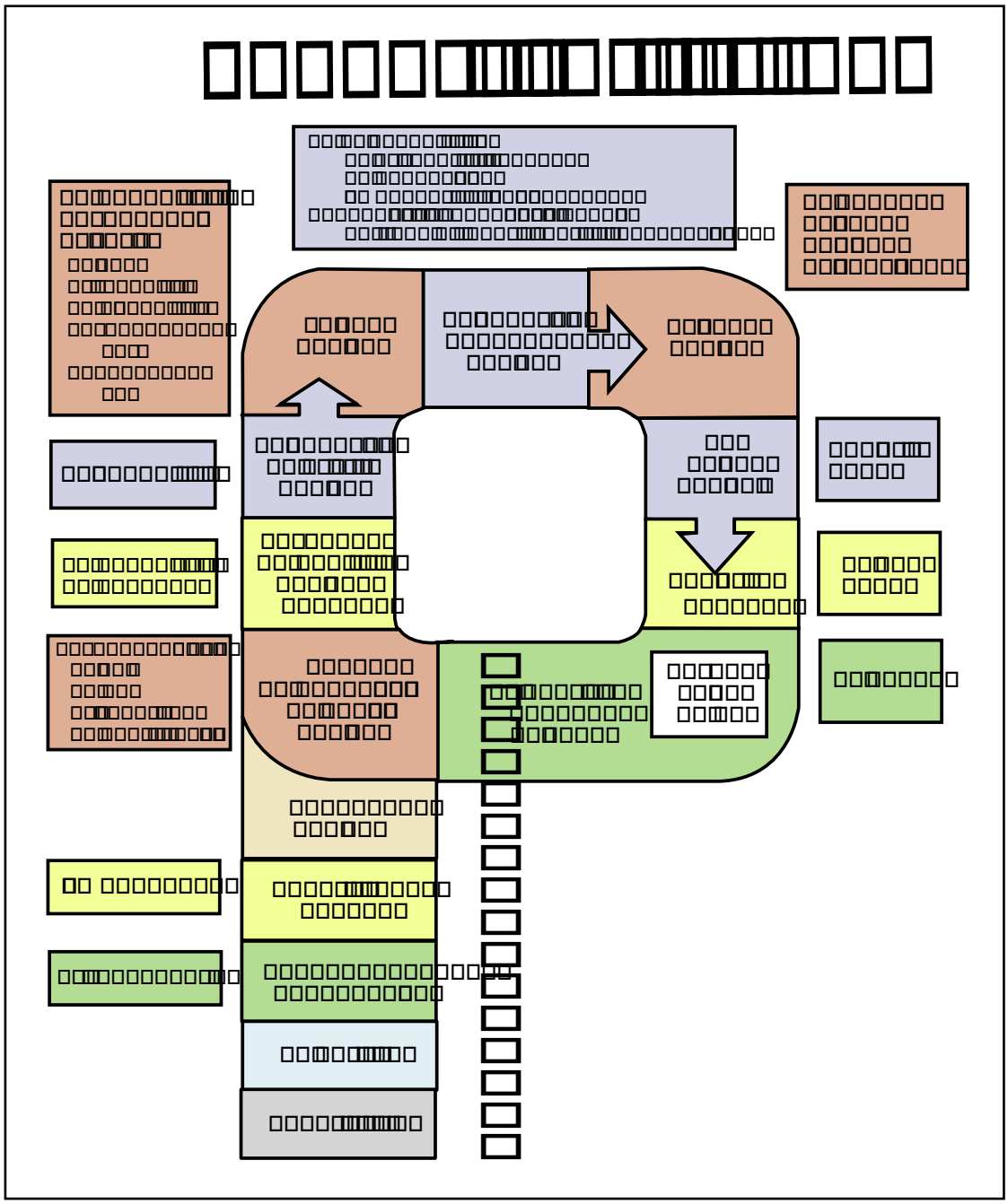


Figure 1: The Joint Operational Planning Execution System "P" diagram.

The new JOPES and ICS interaction planning "P" takes the linear graphic for producing JOPES OPLANS and bends it around the ICS operational planning "P." The goal is not to demonstrate a requirement on how to use JOPES and ICS at the same time, but to translate between them and show commonality of function. This works because the basic functional activities are essentially the same for all planning processes—continuous improvement through feedback and incorporation of lessons learned. The new "JOPES P" diagram (Figure 1) allows us to translate between the Joint Operational Planning Execution System and the Incident Command System functions, phases, and tools. Both Joint Operational Planning Execution System and the Incident Command System practitioners can now see that the processes flow in the same sequence.

While the Coast Guard uses ICS at nearly every level, DOD will need to understand and communicate using the Incident Command System when responding under the National Response Plan. That does not preclude DOD's use of the Joint Operational Planning Execution System as it plans and prepares

internally for this type of response.

JOPES and ICS: The Future

Current Coast Guard/DOD doctrine dictates JOPES for some of its deliberate planning for the Coast Guard, while DHS policy and the National Response Plan require ICS for crisis action planning responses. The deliberate OPLANS and contingency plans prepare units for response and directly feed into the development of ICS incident action plans. We have heard recommendations that the Coast Guard move away from JOPES altogether, however the Coast Guard will continue to use the Joint Operational Planning Execution System process for all contingency plans, and then write them in their respective (required) format. However, the Joint Operational Planning Execution System does not, by design, include civil agencies or stakeholders in the same manner that the Incident Command System does. JOPES may not be appropriate for those contingencies where large external stakeholder groups are involved, and may actually be rejected, simply because it is a military planning system. Keeping in mind that the functionality of all planning processes is similar, one must ask, "Would a planning process for area contingency plans or an area maritime security plan look any different?"

We must say this: Planning with the Joint Operational Planning Execution System directs the Coast Guard planner through all of the functional needs of planning with regard to writing and maintaining plans. It does fit the cycle of quality preparedness. It does aid the Coast Guard in understanding how our sister services plan. Where we operate jointly with DOD, developing, writing, and understanding plans in the JOPES OPLAN format will be necessary. Therefore, as industry plans are related to many Coast Guard plans, they are carried along in the process.

Whatever the future holds, neither the Joint Operational Planning Execution System nor the Incident Command System will be going away. To facilitate interoperability with DOD as well as industry and other agencies, Coast Guard planners and responders must be well versed in both.

About the author:

LCDR M. L. "Marty" Smith enlisted in the Coast Guard in 1980 and advanced to the rank of chief marine science technician, prior to attending Officer Candidate School and being commissioned in 1994. LCDR Smith has served aboard Coast Guard icebreakers and Aerostat vessels, at several marine safety offices, the Marine Safety Lab, the 13th Coast Guard District Office, the Pacific Strike Team, the Training Center in Yorktown, Va., served as a member of one of Atlantic Area incident management assist teams, and is now the chief of incident management at Sector Seattle. LCDR Smith has a Bachelor's degree in Management of Human Resources and is an ICS instructor and is both type 2 operations and planning section chief qualified.

Additional Contributors:
Zachary Pickett, LCDR, USCG
Ladonn Allen, LCDR, USCG
Mr. Manuel Garcia, MEP, USCG
Dominique Samonte, LCDR, USCG
Carissa VanderMay, LT, USCG
Ms. Mary Ann Chapman USCGAUX

Endnotes:

1. http://www.defenselink.mil/
2. "War as I Knew It" by George S. Patton, Mariner Books; Reissue edition (May 8, 1995) ISBN: 0395735297.

U.S. Coast Guard LT Craig MacClennan briefs his crew and New Jersey State Marine Police officers during a joint training exercise. USCG photo by PA2 Mike Hvozda.

Unified Command and Control

Keeping "pollution catastrophe" off Katrina's resume' of tragic consequences.

by CDR Roger Laferriere,
U.S. Coast Guard Deputy Sector Commander Honolulu, Hawaii

Mr. Tracy Long,
Security/Emergency Response Advisor, Chevron Pipe Line Company

and Mr. Greg Guerriero,
Incident Commander, Shell Oil Products U.S

In the aftermath of the devastating winds and flooding from Hurricane Katrina, more than 8.1 million gallons of oil escaped from numerous damaged oil infrastructure sources.[1] The amount of oil released was second, in the U.S., only to the tragic grounding of the *Exxon Valdez*, which resulted in the largest oil spill in U.S. history (11 million gallons).[2]

Figure 1: Oil leaks from hurricane-damaged oil tanks. USCG photo.

This was a different situation entirely, as this was not the result of human error, but rather resulted from the most powerful natural forces experienced by our nation in the modern era. The logistical challenges from this hurricane were something never envisioned by contingency planners, nor encountered before by oil spill responders. The only way to overcome these immense challenges was for governments and industry organizations to mount an effective and efficient response with absolute unified command and control. Fortunately they employed a process tried and true: the Incident Command System.

The Challenges

Hurricane Katrina ravaged the robust oil and gas infrastructure system in Southeastern Louisiana, causing oil to be discharged from more than 140 sources, 10 of which were high-volume oil pipelines, refineries, and storage facilities.[3] The marine facilities stretched more than 130 miles along the Mississippi River. Many were inland and around the sensitive Mississippi delta region. But the industry was as ready as it could be.

For example, Chevron Pipe Line (CPL), two days prior to Hurricane Katrina's landfall, activated its emergency response team and set up an incident command post in Houston, Texas. CPL has two major facilities in the region that were damaged, one near Empire, La. and a second at Fourchon, La. These terminals are where oil pipelines from the Gulf of Mexico come onshore and oil is stored and redirected to refineries and other petrochemical facilities along the gulf coast. All CPL's Southern Louisiana facilities were shut down, in anticipation of the storm. Other oil companies also took similar actions.

Figure 2: Oil from damaged tanks was moved by hurricane forces into impassable forested wetlands. USCG photo.

High winds and massive flooding caused damage to the oil infrastructure. Fortunately, these same forces helped to disperse and evaporate a large portion of the oil. The remaining oil settled into depressions—natural culverts and canals—or into dikes and containments already in place in the event of a catastrophic infrastructure release. However, the devastating Katrina moved a large volume of oil onto private property and into sensitive environments adjoining the oil facilities. In one neighborhood, oil contamination could be measured in square miles (Figure 1). This oil contaminated the exterior and interior areas and contents of private property, as it flowed through broken windows on vehicles, boats, sheds, and garages. Flood waters moved far inland and contaminated streets, playgrounds, businesses, and public service buildings.

On the environmental side, oil pollution removal was complicated by inaccessibility caused by massive quantities of obstructive debris. In one site, oil was pushed into highly sensitive forested wetlands and deposited into natural depressions. These forested wetlands were teeming with wildlife, including alligators and poisonous snakes. The vegetation in these wetlands was so dense, that vehicle access was not possible (Figure 2). Additionally, oil settled into miles of canals, culverts, and "cuts" on the backside of the Mississippi River levee that were only accessible by shallow water boats. At another location, oil migrated into a swamp grass region that was loaded with shellfish and shellfish spawning sites. Manual recovery was not an option here, due to the likely intrusive damage from the use of mechanical equipment and tools.

The normal infrastructure that would support a major oil spill operation was destroyed or damaged beyond immediate repair. More than 85 percent of the navigational aids along the Mississippi and its tributaries were destroyed.[4] Sunken vessels and floating debris made water operations highly risky. Communications beyond line of sight for handheld radios was non-existent. Lodging, food, medical care, fuel, and transportation resources were not available.

Local oil spill responders and support workers were scattered by the storm, many having lost their homes and livelihood. The magnitude of impact is best summed up by oil company representatives who were there on the ground trying to assemble forces to combat the spill. For Chevron Pipe Line, for instance, many of their employees who lived in southern Louisiana returned to lost or damaged homes. This was CPL's and the other oil company's first priority: Locate and ensure the safety of employees and their families. Chevron Pipe Line designated an incident management team (IMT) whose sole function was to address this priority, in addition to having an IMT that dealt with the oil spill. A third IMT was used to conduct a complete operational and safety site assessment for all their facilities in the region. As Chevron Pipe Line moved to respond on all these fronts, it experienced massive difficulty in even contacting emergency response contractors. Marine traffic was at a standstill, due to hidden dangers, and roads were closed and impassable.

Emergency resources brought in for the disaster

response were rightfully focused on the harrowing search and rescue effort throughout the southeast Louisiana region. It was clear that these resources could not be counted on by the oil spill responders. They were forced to scrounge what little resources that survived the storm and obtain resources from outside the region, hundreds of miles away.

The Coast Guard federal on-scene coordinator, CAPT Frank Paskewich, required a quick plan to attack the oil spills. He approved a plan proposed by his Coast Guard incident management team to implement an area command construct for the spill.

Area Command Construct

Historically, oil spill responses involved the formation of a unified command (UC) composed of the federal on-scene coordinator, state responders, and vessel/facility owners. During Katrina, most of the oil released was from six major oil spill companies.[5] Using a single unified command with six industry representatives as unified commanders was problematic for several reasons. First, the geography of the impacted area was vast and would remove many of the industry unified commanders far from their incidents. Second, each company had its own incident management teams and incident command posts, some established prior to the hurricane. Third, it would have been a challenge, to absorb all these teams and resources into a single efficient and effective UC. Finally, each senior spill response manager from each company was rightfully concerned for its individual oil response, and therefore would have competing priorities with other industry counterparts.

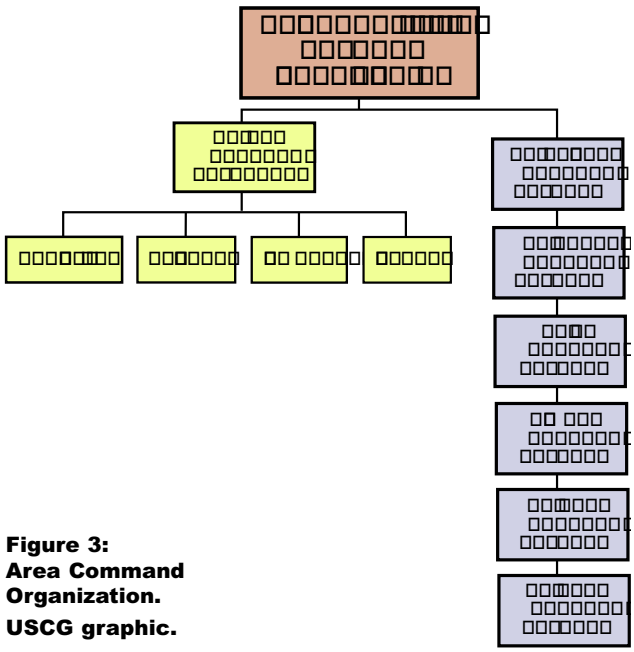


Figure 3: Area Command Organization. USCG graphic.

Whenever there are multiple incidents having competing priorities, such as the Katrina oil spills, an Incident Command System area command is the model of choice. An area command is an organization above incident commanders that sets the priorities for all incidents and ensures that competing demands are resolved for the benefit of the entire response effort.

A quick meeting was held by government and industry oil spill responders to discuss CAPT Paskewich's proposed option. The collective industry, federal, and state representatives settled on the formation of a unified area command, staffed by U.S. Coast Guard and Louisiana Oil Spill Coordinator's Office (LOSCO) spill response managers. This unified area command would oversee the six major oil companies who would act as incident commanders for each of their own spills. The organization chart for the response is illustrated in figure 3.

The unified area command was called the "Emergency Support Function-10 Maritime Command" initially. ESF-10 is a term used in the National Response Plan for designating a response to an oil or hazardous materials incident. The word "area" was omitted from the title purposefully, to avoid confusion with other National Response Plan entities already in place. The word "maritime" was necessary to distinguish the operation from the Environmental Protection Agency's ESF-10 inland command. Since there was one Coast Guard incident command post in Alexandria, La. already, the ESF-10 maritime command's command post was termed forward operating base Baton Rouge.

The organization chart in figure 3 is consistent with the ICS area command concept, with one notable difference: There is an operations section and a deputy incident commander to lead operations, planning, logistics, and finance sections. This was to ensure that an organization existed among the regulators to verify that industry activities were monitored for compliance with state and federal environmental regulations. Additionally, the maritime command's operation section was tasked with managing the investigation and response to hundreds of smaller spills.

Incident Action Planning

It was important to develop a process for ensuring good communications and coordinated operations between the unified maritime command (MC) and the industry incident commanders (ICs). The MC used the operational planning cycle (Figure 4) for developing its own incident action plans and to communicate incident priorities and objectives to the industry ICs. These were shared with the industry

ICs, who developed their own incident action plans for their specific incidents. These were forwarded to the maritime command for review and approval. The maritime command employed a second-shift incident management team, responsible for reviewing the industry incident action plans for consistency with maritime command priorities and objectives.

The timing in coordinating this process was critical. Figure 5 provides an illustration of the processes. It is very similar to figure 4, however a line is drawn in some of the blocks to show the segregated, but nearly parallel activities undertaken by the maritime command and incident commanders. One caveat for figure 5: The industry planning cycle and MC planning cycle may not have matched up as perfectly as the figure suggests. The diagram has been simplified to provide the reader with a user-friendly illustration to explain the process.

Starting at the left corner of figure 5, at the "Maritime Command Objectives Meeting" block, the maritime command would develop priorities and objectives for the entire operation and for their own unique activities. At the MC/incident commander brief, the priorities and objectives for the entire operation were discussed via teleconference. Any additional issues or concerns involving the entire group were also discussed. After the briefing, the planning process splits, as the maritime command and industry incident commanders start developing their own incident action plans to execute the identified priorities and objectives. If necessary, the industry incident commanders could expand or supplement the priorities and objectives developed by the maritime command to address concerns unique to their operation.

As required by the Incident Command System, the ICS command and general staff members are briefed on priorities and objectives at the tactics meeting, and then develop strategies and tactics for the operation. The maritime command and IC entities do not all converge until after conferences between the MC and individual ICs. The one-on-one conversations enabled the industry incident commanders to address their unique concerns privately with the MC, without tying up the other industry incident commanders.

The planning meeting is where the IC or unified commanders all hear and approve/reject the proposed plan for the next operational period. Following the planning meeting, incident action plans were developed and forwarded on to the maritime command for review and approval. This was the responsibility of second shift in the maritime command forward operating base. Once all plans were approved, they were sent back to the respective ICs and MC operations sections for briefing and execution. The cycle begins again at the start of a new operational planning period.

To ensure close coordination between MC and IC planning efforts, the maritime command provided assistant liaison officers in the industry incident command posts. These assistants all worked for the maritime command main liaison officer. Their job was to ensure consistent planning efforts between the MC and ICs and to assist the incident commanders with other liaison officer duties as necessary. Later in the response, these assistant liaison officers were removed, due to lack of resources, and routine calls between the maritime command and incident commanders were reduced. A later, informal lessons-learned discussion between the MC and ICs revealed it was more preferable to maintain the daily MC/IC calls and keep the assistant liaison officers located within the industry incident command posts for a longer period.

Chevron Pipe Line Facilities' Perspective

As Chevron Pipe Line Facilities began its response, CPL command staff implemented the Incident Command System (planning cycle), using the incident action plan software supported by the Response Group Inc. This helped frame the response objectives and primary/alternate strategies and tactics to be implemented in the field to accomplish objectives.

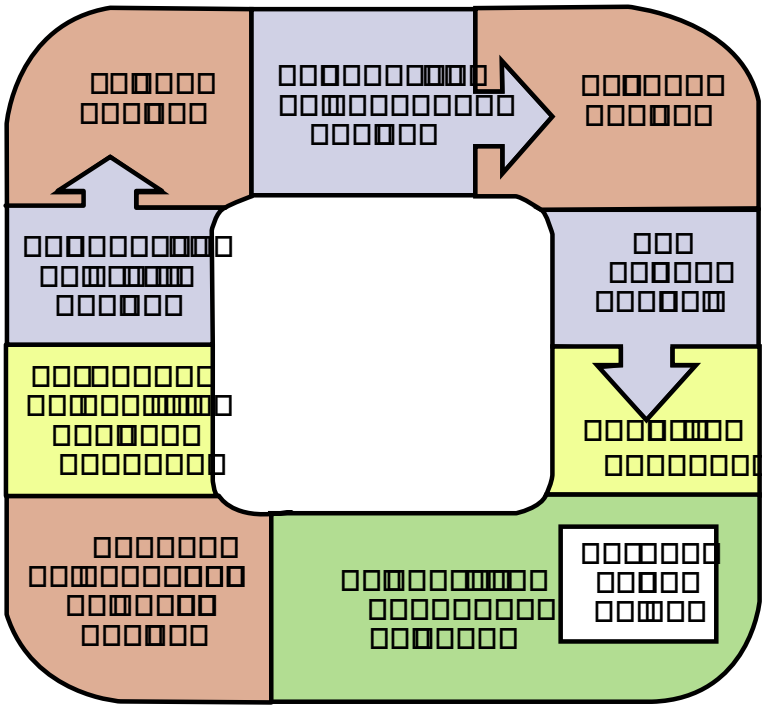


Figure 4: ICS operational planning cycle.

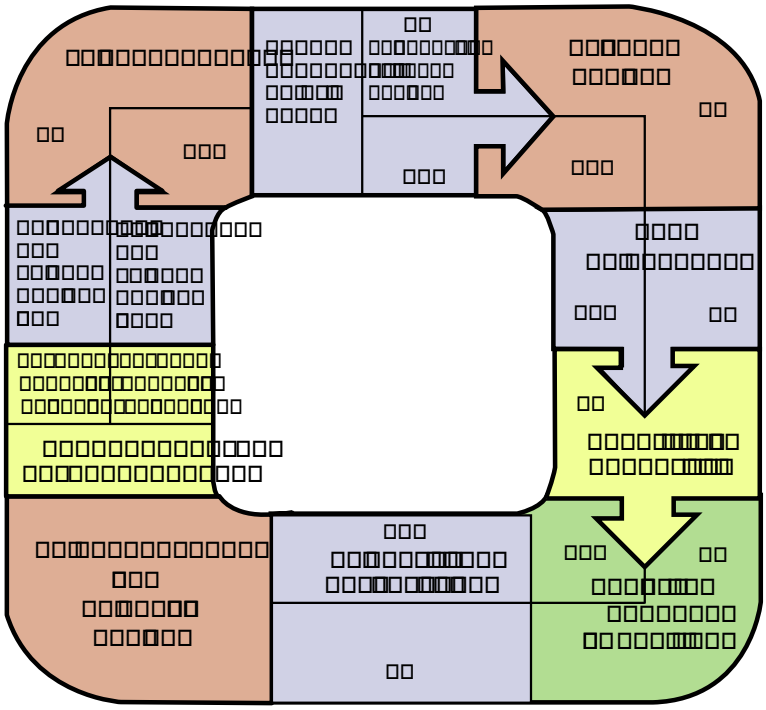


Figure 5: The industry planning cycle and maritime command planning cycle.

Utilization of the Incident Command System, by industry and agencies, allowed seamless integration and information flow between the CPL command post and the maritime command. Clear expectations were identified early in the response by the incident specific federal on-scene coordinator regarding U.S. Coast Guard MC objectives (i.e. safe and aggressive removal of all loose gross oil).

Meeting schedules were set in place to allow industry and maritime command to share information utilizing three key ICS forms—ICS 202 general response objectives, ICS 204 field assignment and ICS 209 incident status summary. To further assist CPL during the response, USCG placed a Coast Guard liaison in the Chevron Pipe Line facilities incident command post. This ensured open communication between federal and state agencies within the unified command, transferred key information for media releases, and worked through access issues involving restricted areas.

Coordinated Field Operations

The maritime command set up several monitoring teams within its operations section. These teams were responsible for ensuring cleanup operations were conducted consistent with regulations such as the National Contingency Plan (Title 40 Code of Federal Regulations, Part 300). The maritime command incident action plan provided detailed specifics on their work assignments.

The MC monitoring teams were dispatched by helicopter from forward operating base Baton Rouge to their respective industry cleanup sites initially on a daily basis. They carried the MC incident action plan for their specific assignment and a copy of the industry IAP for the site they were responsible for. This enabled them to ensure resources were committed and operations occurred at the site as outlined in the industry IAPs, provided the night before. Additionally, the maritime command monitoring teams, while in the field, worked closely with industry field supervisors on developing strategies and tactics for the next operational period, which was fed back to the incident command posts for inclusion in the next day's incident action plans.

After sundown, the MC monitoring teams returned to the maritime command and assisted the second shift in reviewing the industry IAPs. Any discrepancies and last-minute changes were discussed and resolved in unison with industry counterparts. The result was the completion of high-quality and accurate incident action plans for the next operational period.

Command Support

The ESF-10 maritime command not only communicated direction to the industry incident commanders, it also provided support for their operations whenever possible. For example, because no lodging was available for oil spill workers, maritime command was able to obtain berthing vessels from the Katrina joint field office. In one instance, when water and ice were in short supply, emergency airlift assets were deployed to remedy the shortage. Maritime command also established radio towers to improve communications in places where the infrastructure was destroyed. Maritime command coordinated wildlife surveys and rehabilitation services for all the industry partners and worked with concerned agencies and local governments to obtain permits to allow industry ICs to burn oil and oily debris (Figure 6).

> **"The Incident Command System worked as designed and CPL believes the results speak for themselves. We reached our objectives by safely responding and removing the loose oil in a relatively short period of time."**
>
> **Mr. Tracy Long, Chevron Pipe Line**

MC also responded to all other sources of oil pollution, including booming and deployment of oil absorbent material forward of the massive pumping stations used to remove water from New Orleans, to prevent pollution from entering sensitive waters in and around the Mississippi watershed. Perhaps the most important support provided by the maritime command to the field incident commanders was helping them ensure their operations were consistent with the overall objectives for an effective and efficient response.

The ICS/Area Command Advantage

In the midst of Katrina oil spill operations, Hurricane Rita loomed, and eventually impacted the cleanup area. The area command ICS approach was again highly useful, as maritime command and incident commanders began to design uniform hurricane evacuation and reconstitution IAPs. Critical resources were concentrated in priority areas to quickly remove all spilled oil before hurricane landfall, and work assignments drawn up to conduct a rapid assessment upon return to the cleanup area. This enabled the collective response organization to greatly minimize additional Rita environmental impact.

The use of the Incident Command System and area commands maximized information flow, enabling the collective ICs and MC to put together accurate and consistent spill response reports and statistics. This kept the Katrina/Rita response upper echelons such as the joint field office, area field offices and principal federal official fully apprised of the cleanup efforts. Additionally, a joint information center was created that ensured any press releases and interviews from the maritime command were vetted through all the incident commanders in the field. However, it also gave the individual incident commanders the autonomy to complete their own press interviews and press releases for their specific operations.

The operation was not without its glitches. Sometimes communication between monitoring teams and industry group supervisors in the field did not align with proposed incident action plans for the following days. However, the system had enough flexibility built in to ensure these issues were worked out either by teleconferencing or by personal visits to the forward operating base by industry incident commanders.

Figure 6: Oil burning operations for the removal of oil from a forested wetland. USCG photo.

Another advantage of using ICS is that it works well with existing contingency plans developed by government and industry. It was clear that both had very strong contingency plans that enabled them to reconstitute quickly and marshal resources to begin cleanup operations. Contingency plans allow government and industry to get to the starting point of an incident. They cannot account for all of the variable types of situations, especially a Katrina/Rita complex incident. This is where incident action planning can be a great help; to account for these complex and numerous variables posed before the response organization.

"Traditionally the pre-incident infrastructure exists to support both the oil spill response as well as the responder. In this case, neither was available in the affected areas. This unique situation challenged Shell to develop and employ innovative strategies that proved demanding for the field responders, who did the real work to accomplish the daily tactical objectives. In the larger picture, working in conjunction with the agencies at the federal, state, and local parish levels; guided by the tenants of NIMS ICS; and anchored by the hard work and dedication of all the responders (internal/external to Shell) proved to be the right strategy to deal with this unprecedented situation."

Mr. Gregg Guerreiro, Shell Oil Products U.S.

In summary, when governments and industry are faced with the daunting challenge of responding to multiple major events as a result of a natural or human-made disaster, it is best they work from a common operational framework. It is imperative that all players—government, industry, and other non-governmental organizations—have extensive knowledge in and use the system mandated by presidential order for emergencies: the Incident Command System.

It is a credit to both industry and government that this was indeed demonstrated superbly during the Hurricane Katrina/Rita oil spill response effort. ICS, however, cannot be credited for all the success of the response effort. The efforts of the oil industry incident commanders and their cleanup workforce is an untold story of heroism in itself. Like many residents impacted by the hurricanes, many of these people, from senior management to cleanup personnel were left homeless; had no place of work to go to; no means of transportation; and their lives completely turned upside-down. Yet, despite this incredible impact, they came together and provided the resources and effort needed to successfully combat the oil spills.

The Incident Command System provided the necessary framework to help focus this remarkable human effort. It enabled government and industry to execute an effective and efficient unified command and control system, keeping "pollution catastrophe" off Katrina's resume of tragic consequences.

About the authors:
Mr. Tracy Long attended college at Western Texas College, earning a degree in Applied Science (Law Enforcement) in 1982. He began his career with Chevron Pipe Line Company in 1982 and worked in various operational and maintenance positions in West Texas before transferring to New Orleans as the construction representative for technical services. Mr. Long currently serves as the security/emergency response advisor for all CPL facilities located in the U.S. and Canada.

Mr. Greg Guerriero has been a responder for Shell for many years. He has participated in numerous exercises with the Coast Guard and the Environmental Protection Agency serving in a variety of ICS positions. He was one of several incident commanders for Shell during the Katrina oil spill response.

CDR Laferriere was designated the initial incident specific federal on-scene coordinator for the Hurricane Katrina oil spills. He has 18 years of service with the Coast Guard and at the time was commanding officer of the Atlantic Strike Team at Fort Dix, N.J. He currently serves as deputy sector commander Honolulu, Hawaii.

Endnotes:

[1] "NOAA's Office of Response and Restoration Responds to Hurricane Katrina," available at http://response.restoration.noaa.gov/index.php.
[2] "Prince William's Oily Mess: A Tale of Recovery," available at http://response.restoration.noaa.gov/index.php.
[3] "NOAA's Office of Response and Restoration Responds to Hurricane Katrina," available at http://response.restoration.noaa.gov/index.php.
[4] "NOAA's Office of Response and Restoration Responds to Hurricane Katrina," available at http://response.restoration.noaa.gov/index.php.
[5] "NOAA's Office of Response and Restoration Responds to Hurricane Katrina," available at http://response.restoration.noaa.gov/index.php.

Working the Plan

It just may save your crewmembers.

by LCDR Peter Niles,
U.S. Coast Guard Office of International Affairs

I recently served as the commanding officer of Coast Guard Cutter *George Cobb*, a 175-foot buoy tender, based out of San Pedro, Calif. On July 11, 2006, we implemented the Incident Command System (ICS) and saved the lives of several crewmembers. My previous experience with the Incident Command System was attending a five-day course in 1996, when the Coast Guard was just starting to use the system. As a surface operator, I had always believed that ICS was just for the "marine safety" folks. I was wrong.

Immediately upon my arrival to *George Cobb*, I met with CAPT Peter Neffenger, Sector Los Angeles commanding officer and CAPT Kip Louttit, Integrated Support Command San Pedro commanding officer, and they placed *George Cobb* as a part of their regional continuity of operations team. This team met often, and included many civilian, federal, local, and state organizations that had some stake within the ports of the southern California area. This is where I really began to understand that the locals knew how to use the Incident Command System, and learned that many Coast Guard men and women were less knowledgeable.

ICS Training

I specifically remember CAPT Louttit mentioning to me that we as Coast Guardsmen needed to be as fluent in incident command as the fire and police, because we may lose credibility in an incident, and actually be a liability as a resource by not knowing the system. Taking their advice, we expedited mandatory completion of ICS 100, 200, and IS 700 and 800 training.

Although my crew and myself trained in ICS, I almost left the *George Cobb* without having to fully use the Incident Command System. This changed during my "change of command" week. *George Cobb* had an earlier casualty, resulting from a hydrogen sulfide (H_2S) leak. The vent pipe from the sewage tank had been clogged, and ultimately became corroded, and needed to be replaced. The engineering department put a flange on the tank, and the space was certified by a marine chemist as gas free and biologically safe. The system was isolated, or so we thought.

We previously had some exposure to hydrogen sulfide in the weeks leading up to our incident, and the crew took it very seriously and had gained much knowledge regarding H_2S exposure. The relations I had fostered while learning ICS led to calls from the Los Angeles county and city fire department hazardous materials teams, who offered their assistance, if needed. They reaffirmed to me about how deadly H_2S is and reminded me to treat it with the utmost respect. A few months earlier, three crewmembers had perished aboard a cruise ship[1] from H_2S exposure, so the fire departments were well versed in responding to that type of emergency.

The Incident

On Tuesday of the change of command week, the crew was preparing to display damage-controls skills to the incoming commanding officer, while performing a main-space fire drill. We conducted many risk assessments and I was assured that the sewage system was isolated, and that the sewage tank should never come into play, even though we accessed the

engine room through the sewage space with our fire teams as the primary point of access.

The midwatch was in the rack and it was uncharacteristically humid and hot in Los Angeles. The drill kicked off and was going well. The prospective commanding officer was watching the damage control training team carry out the drill. Within 10 minutes, I received an alarm on the bridge for a high level of hydrogen sulfide in the sewage space. Immediately, I sounded the "safety timeout" over the announcing system and ordered all hands topside. Then my executive officer notified me that I had three crew members exposed to H_2S and that two were not in good shape.

I ordered all hands to the pier and called 911 for a hazmat response and ambulances. One of my injured was an investigator in the sewage space, who had almost perished from the H_2S; another was a second class petty officer who went back into the berthing for the midwatchstander, who was nearly unconscious, due to H_2S exposure.

With the crew on the pier, I called the Sector Los Angeles command center, who took the job of notifying everyone up my chain of command. Coast Guard medical was first on scene and the medical officer and corpsman set up a dedicated triage area. Minutes later, more than 15 fire trucks and ambulances arrived, along with multiple fire boats. I noticed many fire fighters talking to the crew about what needed to be done. Everyone was still shell-shocked—their shipmates were hurt, and their ship was sitting moored, with nobody aboard keeping the watch.

ICS in Action

Immediately the battalion fire chief showed up and set up his incident command cell. At this point, the integrated support command commanding officer, CAPT Louttit arrived. CAPT Louttit, the fire battalion chief, and I immediately said that we would work within the Incident Command System. The battalion chief was selected to serve as the incident commander and he assured me that we would work together.

I then spoke to the crew and firefighters to let them know that we were operating out of the Incident Command System and what the chain of command was. Like a choreographed ballet, the fire department teams all lined up and knew what their role was and when they would be put into active participation. We went from 26 responders to more than 100 responders in minutes.

It was impressive to see the Coast Guard medical officer working alongside the fire paramedics as a team, in dedicated triage areas. My crew was everyone's first priority, and the incident commander had ambulances waiting to transport them and had arranged for easy departure routes off the base. Those that did not need ambulance transportation were put in government vehicles, dispatched by the logistics team.

The local Coast Guard station placed all of my nonessential crew in their lounge to minimize heat exposure, and the base galley quickly came over with bottles of water to hydrate everyone; something easily forgotten about but, thanks to ICS, we had a person handling logistics.

As a team, we decided that the Coast Guard would handle all press inquiries, and a public affairs detachment arrived on scene. The incident command checklist served as a reminder to have a visiting Coast Guard cutter moored downwind get underway and out of a potential "hot" zone. Partnering with my shipboard fire team and wearing proper positive air systems, the city fire department went aboard to assess the damage. Working as a team, they restored the shipboard ventilation and other systems.

While meeting with the incident commander, CAPT Louttit and I were amazed at watching another firefighter label where everyone was and who was on standby. It was in much more detail than we use in damage-control plotting, but along the same lines. I asked the fireman to tell me what the status of assets was, and with ease he told me every asset and their capabilities, including Coast Guard resources. With a shrug of his shoulders, the battalion chief said, "We do this a lot; it's second nature."

Situation Resolved

The incident was resolved in only two hours, using the Incident Command System, and the ship was declared safe to re-enter. There was a clear-cut time when the battalion chief asked me to reassume the position of incident commander. At that point, the fire department departed and the ship's crew developed a plan to repair the casualty.

Repairs to the sewage tank commenced and the crewmembers were released from the hospital. After the fact, I found out that an additional 30 new firefighters showed up on scene who were enrolled in a hazmat course, and they were being shown how incident command works. They were doing the same thing we do—learning from a real situation.

Lessons Learned

Several areas for improvement were noted in the aftermath of this incident.

- First, we did not have damage control drawings of the ship ashore, which would have helped explain the location of the casualty to those unfamiliar with the vessel. A set is now ashore for this reason.

- Second, it is easy to lose situational awareness when your shipmate is in distress. Having medical personnel and other safety personnel monitoring the situation is crucial to identifying those who may be experiencing battle fatigue.

- Third, we forgot about the patrol boat that was moored downwind. It was the fire department personnel, using their ICS checklist, who detected this. Moving the patrol boat prevented its crew from possible exposure.

- Finally, while everyone is an asset; not everyone is an expert. Though everyone in this incident was very knowledgeable, there were few experts in dealing with a hydrogen sulfide leak. Everyone wants to help: Make sure it is the right help.

What went right using the Incident Command System:

- We used the correct and proper terminology, learned in the online FEMA courses.
- There was clear-cut command and control.
- Logistics took care of routing all of the fire trucks around the base. Space is at a premium, similar to most ship mooring locations. A traffic system was a must. Think about the traffic pattern on your pier now.
- Making contacts with the responding agencies ahead of time was critical. Getting the fire department to come aboard and conduct training ended up being a force multiplier.
- We did not let our egos get in the way. The battalion chief was selected as incident commander since he was clearly more versed in incident command and his own fire assets. He was also happy to show us what he was doing, and respected our role in the system.
- Every crewmember had completed the Incident Command System courses.
- We had a clear plan of action. We realized it was a hazardous situation, and made a perimeter around the ship.

Never did I think that I would use the Incident Command System to respond an incident on my own ship. I learned that relationships with those that you may help, partner, or may be helped by, are critical.

My advice to those who are ever in a similar situation: Get the qualified people who deal with chemicals on a daily basis on scene and quickly. Meet with the people on your base to determine the traffic route for the many fire trucks that will respond. Be confident in dialing 911, knowing that that the Incident Command System is the way to respond.

I have been learning about ICS for 10 years and now feel fairly comfortable using it. It's ironic that in my final three days of command, I may have learned more than I had in the nearly two years of command prior to this incident.

I came close to losing three crewmembers and I ate a big old piece of humble pie. You read a bunch of mishaps and wonder: "What really went on?" Well, lives were almost lost aboard my ship. The Incident Command System helped to ensure a safe, effective response, in which everyone survived. We are ready to respond to "the big one," but fortunately, we also stand ready to respond to our own ship, using ICS.

- Triage area was clear and the Coast Guard medical officer was in charge, working with the corpsman and paramedics.
- We let the civilian experts in handling hazardous materials take charge. Our damage control teams then assisted them as a part of the response team.
- I was an active participant in earlier exercises using the Incident Command System, which helped dramatically. Watching firefighters work incident command at an actual fire or other emergency is great as well.

About the author:

LCDR Peter Niles has been a member of the Coast Guard for 21 years and has served aboard eight ships. After departing command of the George Cobb, *LCDR Niles joined the office of International Affairs.*

Endnote:

[1] Hector Becerra, David Pierson, "Gas Kills 3 Crewmen on Ship," Los Angeles Times, Sept. 3, 2005.

Planning the Recovery of the Marine Transportation System

Establishing the marine transportation system linkage within the Incident Command System.

by LCDR Brian Falk,
U.S. Coast Guard Atlantic Area Prevention Division

The U.S. marine transportation system (MTS) consists of waterways, ports, and their intermodal connections; vessels; vehicles; and system users. Each component is a complex system within itself and is closely linked with other components. It is primarily an aggregation of state, local, or privately owned facilities and companies. As with the U.S. economy as a whole, marine transportation system decision making and investment are primarily driven by the marketplace. In addition, local, state, and federal governments participate in its management, financing, and operation. The marine transportation system is an integral part of our nation's economy and even a temporary incapacitation at the local level can have a dramatic impact throughout the region and nation.[1]

Hurricane Katrina Recovery Efforts

Recognizing the importance of the marine transportation system, Coast Guard commanders in Atlantic Area and District Eight chartered the maritime recovery and restoration task force (MR2TF) in September 2005, to guide activities aimed at the recovery of the marine transportation system in the wake of Hurricane Katrina. The focus of the task force was on port reconstitution, identification of regional and national issues, and coordination of interagency and industry problem resolution.

Under the leadership of RADM Larry Hereth, the MR2TF quickly became an interagency effort with strong ties to the maritime industry. This effort helped to establish the Coast Guard as a leader for MTS recovery after incidents of national significance, transportation security incidents, and other events that significantly impact the marine transportation system.

After several months of intense operations and performance evaluation by task force members, including interagency and industry partners, the MR2TF final report was published in April 2006. Among the many lessons learned and recommendations made, Coast Guard Atlantic Area opted to rapidly press forward with some immediate measures, including:

1. Insert a planning function for marine transportation system recovery in the Coast Guard incident command/unified command; leverage existing industry and interagency relationships for this purpose.
2. Develop a core set of measures and essential elements of information (EEI) for marine transportation system infrastructure and activities strongly tied to Coast Guard missions.
3. Address the marine transportation system recovery in port level and regional contingency plans.[2]

Implementation of Lessons Learned

As a follow on to the MR2TF final report, Coast Guard leaders directed the formation of the marine transportation system recovery unit within the planning section of the Incident Command System (ICS)

response organization for every incident that significantly impacts the marine transportation system. This unit functions alongside the resource, situation, documentation, and demobilization units. It is designed to track and report on the status of the marine transportation system, understand critical recovery pathways, recommend courses of action, and provide all MTS stakeholders with an avenue of input to the response organization.

The marine transportation system recovery unit is prominent in the regular ICS planning cycle, including the situational brief, providing critical input into the incident objectives, and influencing response resources. Use of the EEIs ensures that all critical elements of the marine transportation system are considered in developing the recovery and restoration plan. Contingency planning provides both the baseline information for assessing incident impact and the pathways toward efficient recovery.

The Maritime Recovery and Restoration Task Force in Action

In June 2006, the MTS recovery unit had its first test, when faced with a major oil spill in Lake Charles, La. After more than 45,000 barrels of waste oil were discharged into the Calcasieu River and adjacent waterways, Coast Guard and marine industry leaders worked together in the marine transportation system recovery unit, and began tackling the severe disruption to maritime commerce in the area.

In the days following the spill, the recovery unit met with stakeholders, identified top level indicators of economic impacts, and prioritized recovery strategies. With the closure of a major, deep-draft shipping channel as well as the Gulf Intracoastal Waterway, it was imperative that port stakeholders, including facility managers and vessel operators, engage in the recovery effort.

Since the waterways were closed for more than a week, several refineries were facing complete shutdown, due to a lack of feedstock or storage capacity. Embedded in the planning section, the MTS recovery unit ensured that the unified command had full visibility of the multimillion dollar economic consequences of the waterway closures. Using the core set of measures developed by the MR2TF, the situation brief and common operational picture provided a quantifiable status of the marine transportation system infrastructure and assisted in setting operational objectives. Working closely with port partners, pilots, and inland operators, the recovery unit was able to prioritize vessel movements upon reopening of the ship channel and Intracoastal Waterway and facilitate safe and efficient cargo movements. As the response effort continued, the reports generated by the recovery unit kept congressional and cabinet level officials informed of the progress toward economic recovery.

In the wake of Hurricane Katrina, U.S. Coast Guard salvage teams in Empire, La. oversee commercial salvage operators as they work to recover more than 2,200 vessels in southeast Louisiana. USCG photo by PA2 Susan Blake.

The Future of Marine Transportation System Response

While the MTS recovery unit proved a valuable addition to the Incident Command System organization in Louisiana, there remains a lot to be done to improve marine transportation system recovery and restoration response. To be truly effective, marine transportation system recovery and restoration has to be

Coast Guard Petty Officer Third Class Thomas Bremer, a marine science technician from Coast Guard Sector New York, monitors contractors working to clean up the oil at the Bass Enterprises South Facility in Cox Bay, La. Hurricane Katrina caused an estimated 3.8 million gallons of oil to be released at this facility. A unified command comprised of the Coast Guard and dozens of other organizations focused cleanup efforts throughout southeast Louisiana. USCG photo by PO Mike Lutz.

preplanned, embedded at each level (local, regional, national) of the response, and based on common understanding of the system and key measures.

Given the strong nexus between infrastructure protection and infrastructure recovery, security plans and contingency plans need to focus on the marine transportation system in order to provide adequate protection and ensure rapid recovery after all incidents of significant impact. This requires a strong, collaborative effort between government agencies and maritime stakeholders. Recent events have opened a window of opportunity to refocus efforts on the efficient maintenance of the marine transportation system within the federal government and the maritime industry. Taking advantage of this opportunity, the Coast Guard will continue to engage its interagency and industry partners in this important effort.

About the author:
LCDR Brian Falk is a 1995 graduate of the United States Coast Guard Academy and holds a Bachelor of Science degree in Marine Science. He also holds a Master's degree in Public Administration from Texas A&M University-Corpus Christi. With more than 11 years of Coast Guard experience, he has served tours onboard USCGC Vigorous*; MSO Corpus Christi, Texas; at MSU Lake Charles, La.; and is currently assigned to CG Atlantic Area Prevention Division.*

Endnotes:

[1] "An Assessment of the U.S. Marine Transportation System, A Report to Congress," Department of Transportation, 1999.

[2] "Final Report of the Maritime Recovery and Restoration Task Force," U.S. Coast Guard, April 2006.

The National Response Plan

What it is and what's on the horizon.

by CDR Jeff Gafkjen, *U.S. Coast Guard*

and CDR Brian Penoyer
Chief, Prevention Operations, U.S. Coast Guard Sector Baltimore

As the attacks of September 11, 2001 sparked the creation of the National Response Plan (NRP), the response to Hurricane Katrina has brought new vigor to the plan and its implementation. Lessons learned from Katrina highlighted that, according to a follow-up report, "Federal agencies, including DHS, had varying degrees of unfamiliarity with their roles and responsibilities under the NRP,"[1] and the plan lacks clarity on key aspects, has operational gaps, and has not been effectively translated into action.[2] As a result, the Department of Homeland Security (DHS) has issued a change to the NRP and has renewed efforts to implement the plan, in order to be adequately prepared for future incidents.[3]

Fundamental Concepts

There are two concepts that are fundamental to understanding the NRP and its design. The first is the change in leadership roles brought by Homeland Security Presidential Directive-5 (HSPD-5). Under Presidential Decision Directive-39 (PDD-39), the FBI was the lead for crisis management and FEMA was the lead for consequence management. This arrangement was inherently problematic, due to the seam between crisis and consequence management, and the fact that there was no overall lead agency. HSPD-5 attempts to fix this by designating the DHS secretary as the principal federal official for domestic incident management (Figure 1). This places DHS in an overall coordination role to address the entire spectrum of an incident and to ensure that agencies with response authority over specific aspects of the incident are working in close coordination. This new arrangement is reflected throughout the plan and is most directly evident in the composition of the leadership group of the joint field office (JFO).

The second concept: The National Response Plan is based on existing authorities. This is important because the plan relies on agencies to bring their own existing authorities (and corresponding resources) to an incident, and provides the framework for integrating multiagency efforts into a single national structure.

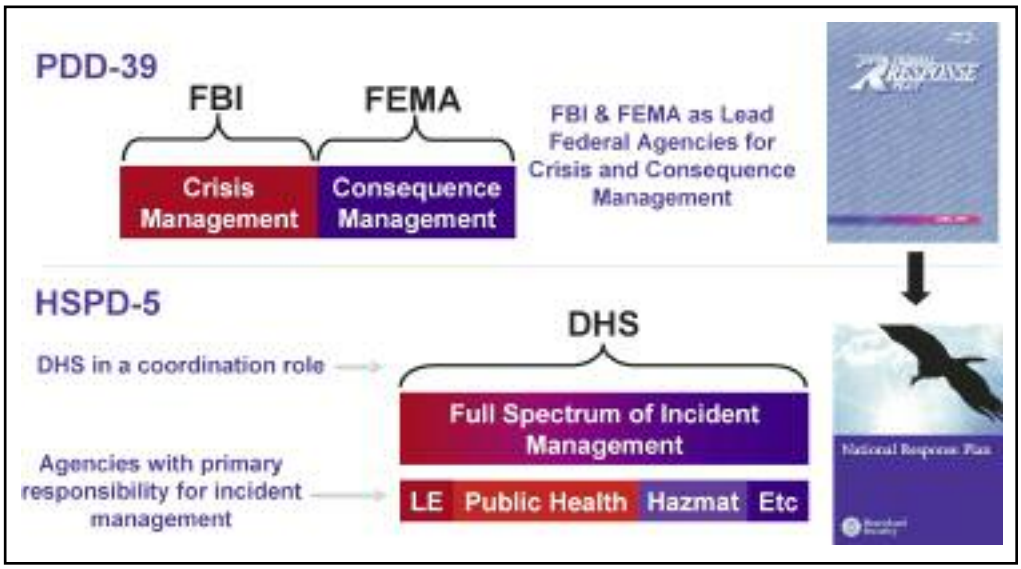


Figure 1: The old and the new: changing leadership dynamics. USCG graphic.

However, basing the NRP on existing authorities is also the reason for many operational gaps and conflicts. There was no single piece of legislation that provided a seamless, comprehensive, all-hazard incident management authority upon which to build the National Response Plan. Instead, we have a patchwork of legislative authorities created over the years to address various contingencies, which spreads authority and responsibility throughout the interagency community and levels of government. In some cases, these authorities differ significantly in the posture the federal government takes with the state and local response. While the National Response Plan attempts to bridge these gaps, legislative changes may be required to enable a truly seamless and consistent federal response to the wide range of contingencies. Despite the potential conflict inherent in relying on existing authorities, there is a benefit, in that the traditional authorities and regulations that agencies and private sector organizations are used to operating under still apply.

National Response Plan Basics

The National Response Plan establishes the national structure for incident management. This means that the NRP takes the generic framework created by the National Incident Management System (NIMS), which consists of an Incident Command System (ICS) supported by a multi-agency coordination system, and specifically defines what those structures are for an incident of national significance.

In doing so, the plan establishes structures at the field, regional, and headquarters level, which are designed to enable emergency responders at each level to integrate their efforts into a single organization. This design also provides a national capability for incident management. In this capacity, the higher level structures (such as the joint field office and emergency operations centers) serve the dual roles of bringing in nationwide resources to support the incident command structures on scene and addressing the broader regional or national impacts of the incident.

Role of the Private Sector

Since the vast majority of resources and critical infrastructure lies within the private sector, one of the key tasks in the development of the NRP was incorporation of the private sector into the national structure. This will bring all available resources to bear on a disaster, minimizing the impact to critical infrastructure. To accomplish this, the National Response Plan established focal points (or "plug-ins") at each level in the national structure, specifically designed to provide an interface with the private sector. In most cases, these focal points tie in to existing networks for information sharing and preparedness.

At the headquarters level, the National Operations Center coordinates directly with the National Infrastructure Coordinating Center to distribute and receive situational and operational information using the network established under the national infrastructure protection plan. In turn, the National Infrastructure Coordinating Center works with the information sharing and analysis centers and sector coordinating councils, which serve as central points for information sharing within each sector and act as liaisons between the federal government and private sector. In addition, the DHS secretary uses a private sector advisory council and has representatives from the DHS private sector office as members of the National Operations Center.

At the joint field office, the primary interface with the regional critical infrastructure community is through the infrastructure liaison. In addition, the JFO may stand up other components, such as an infrastructure support group, to specifically work with infrastructure and business stakeholders to coordinate response efforts and minimize impact. The National Response Plan also recognizes that a private sector organization may be part of the response as a regulated or responsible party and may be included as a member of the JFO coordination group.

The maritime infrastructure recovery plan further expands on this framework and describes the use of area maritime security committees to aid in coordination with private industry both within and outside the disaster area to facilitate recovery.

From a preparedness perspective, each of the emergency support functions (ESF) provides an interface for ongoing planning and coordination. The primary agency for each emergency support function is expected to maintain relations with its associated private sector counterparts through partnership committees or other means. This is intended to provide a function-specific forum for identifying and planning how private sector response resources can be brought in to aid in a disaster response. Joint ESF planning and coordination is then conducted at the regional level through the regional interagency steering committee and at the national level through the ESF leaders group.

The end result of the NRP's multiple points of private sector interface is an information sharing, planning, and coordination network. This engages the

private sector at the strategic and operational levels to enable informed, cooperative decision making by both government and business leaders. Through this framework, government and business leaders can set priorities, access resources, expedite the delivery of goods and services, and minimize the economic and other consequences of the incident.

On the Horizon

During interviews with the Homeland Security Council (HSC) team preparing the lessons learned from Hurricane Katrina, U.S. Coast Guard Commandant ADM Thad Allen said, "The ESF [emergency support function] structure currently prevents us from coordinating effectively, because if agencies responsible for their respective ESFs do not like the instructions they are receiving from the principal federal official at the field level, they go to their headquarters in Washington to get decisions reversed. This is convoluted, inefficient, and inappropriate during emergency conditions. Time equals lives saved."[4] This insight, along with others, led the HSC to recommend 125 significant upgrades to the nation's preparedness. Many of the recommendations aim squarely at unintended ambiguities in the National Response Plan.

ADM Allen's observation is consistent with many other observations in HSC's report. The transition from the old framework to the new National Response Plan framework had not fully occurred during the federal response to Hurricane Katrina, and there were areas where the NRP needed to be more explicit. Were ESF coordinating agencies authorized under the National Response Plan to function nearly independently? To avoid any ambiguity during the 2006 hurricane season, HSC and DHS jointly drafted a list of 11 NRP topics for clarification.[5] Published in May 2006, the "Notice of Change to the National Response Plan" significantly clarified that:

- ESFs are not stand-alone entities; instead they blend entirely into the NIMS/Incident Command System organization within the JFO (planning, operations, logistics, and finance/administration sections).
- ESFs report to the JFO coordination group (basically a unified federal, state, tribal, local, and private sector command), not to their coordinating agencies in Washington, D.C.
- The National Response Plan is always in effect, and does not need to be "activated" by the DHS secretary.
- Agencies may not establish large-scale incident coordination mechanisms separate and apart from those in the NRP.
- National Response Plan mechanisms will be used for any incident requiring a coordinated federal response (including those not rising to the level of an incident of national significance).
- The DHS secretary will formally declare all incidents of national significance (no more "automatic" declarations); such declaration will primarily be used to communicate to the nation that the secretary will actively manage the federal response under HSPD-5 (see Figure 2).
- The principal federal official (PFO) may be "co-designated" as the federal coordinating

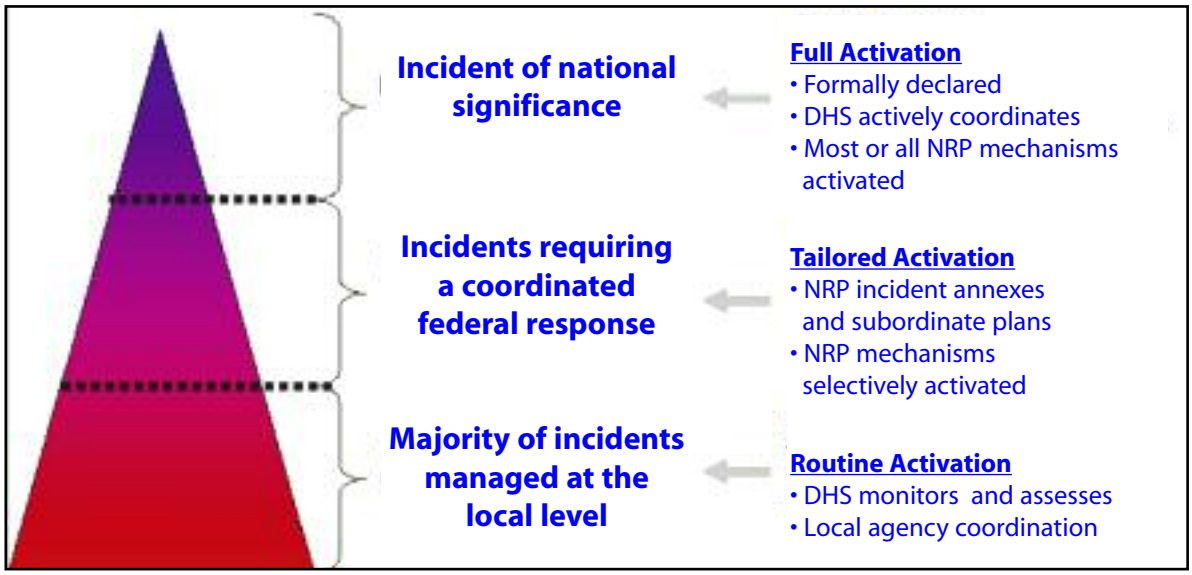


Figure 2: The NRP "Notice of Change." Clarifying National Response Plan applicability. USCG graphic.

officer, giving the PFO additional Stafford Act authorities and eliminating the pre-notice ban on "dual-hatting" the PFO.

- Multiple joint field offices may be established for regional incidents (like Katrina), with subordinate forward command posts called area field offices.
- The Department of Justice will be the sole coordinating agency for ESF – 13 (Public Safety and Security).
- The NRP catastrophic incident annex (and catastrophic incident supplement) will apply to any catastrophic incident (rather than solely to "no-notice and short-notice" incidents as in the pre-notice National Response Plan).

Even with these clarifications, however, a fundamental problem may still exist. As HSC's report so accurately concluded: "the joint field office staff and other deployed federal personnel often lacked a working knowledge of the National Incident Management System or even a basic understanding of Incident Command System principles. As a result, valuable time and resources were diverted to provide on-the-job ICS training to federal personnel assigned to the joint field office. This inability to place trained personnel in the JFO had a detrimental effect on operations, as there were not enough qualified persons to staff all of the required positions. We must require all incident management personnel to have a working knowledge of NIMS and ICS principles."[6] Unless the changes and clarifications are fully implemented in the field, the notice of change will have no effect.

The Homeland Security Council, through the lessons learned report, launched a multifaceted initiative to improve NRP implementation, including training, exercises, and procedure reviews. As the National Response Plan letter of instruction itself makes clear, however, a cornerstone of effective NRP implementation is a set of good, detailed implementing procedures for key mechanisms. DHS published the standard operating procedure for the joint field office (JFO SOP) in April 2006, as a set piece with the notice of change. Weighing in at a mere 72 pages, the JFO SOP (version 8.3) also contains detailed procedural annexes specifying how ESFs will merge into NIMS/ICS sections; how detailed information sharing plans will be established and executed during the response; and how federal response strategies will be synchronized, integrated, and deconflicted on a daily basis.

In June 2006, Mr. Gil Jamieson, the predesignated principal federal officer for the Gulf Coast region, convened key federal emergency support function personnel at the JFO in Baton Rouge. With the assistance of the DHS office of grants and training, Mr. Jamieson led a hurricane-based functional/command post exercise. Following that exercise, FEMA's regional directors and federal coordinating officers around the country sponsored similar familiarization sessions, principally through their respective regional interagency steering committee meetings. As these efforts show, it is not enough to have a good plan on paper; it must be vigorously implemented to make a difference.

The changes and adjustments discussed above, while enhancing the nation's preparedness for catastrophic response, were intended as interim improvements in advance of the June 1st start of the 2006 hurricane season. A more thorough and detailed analysis of the NRP and its annexes was launched in early November, by a team led jointly by FEMA and DHS. It will involve active participation of all federal agencies involved in catastrophic response, along with state and local government and private sector partners.

Between now and March 2007, this expanded NRP review will focus on resolving 14 major issue areas identified in the Townsend Report.

About the authors:

CDR Jeff Gafkjen served as a member of the Department of Homeland Security writing team that developed the National Incident Management System and was one of the principal authors of the National Response Plan.

CDR Penoyer previously served as chief of Contingency Planning within the Department of Homeland Security's operations integration staff. He also served with the Preparedness Directorate, which developed the notice of change to the National Response Plan. He was one of the principal authors of the joint field office standard operating procedure. He is currently assigned as chief of prevention operations at USCG Sector Baltimore.

Endnotes:

[1] "A Failure of Initiative: The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina," February 2006

[2] "The Federal Response to Hurricane Katrina: Lessons Learned," February 2006.

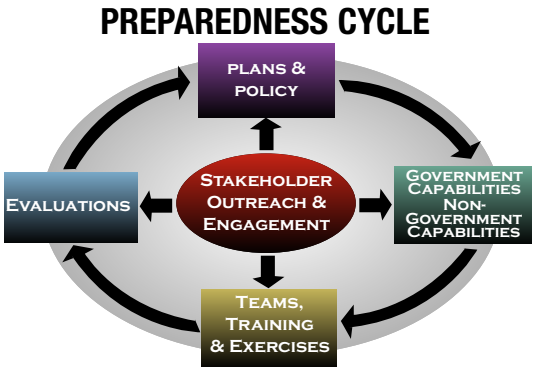
[3] The NRP, Notice of Change to the NRP, NRP Quick Reference Guide, JFO Activation and Operations Standard Operating Procedures and the JFO Field Operations Guide can be found at www.dhs.gov/nrp.

[4] "The Federal Response to Hurricane Katrina: Lessons Learned," February 2006, p. 53.

[5] Ten of the eleven topics addressed in the Notice of Change to the National Response Plan are based wholly on recommendations in the HSC's Lesson's Learned report. See The Federal Response to Hurricane Katrina: Lessons Learned, February 2006, references as follows: Topic A, p. 42 & 53; Topic B, p.42, 47, 53, and 90; Topic C, p. 43; Topic D, p.53, 72, and 88; Topic E, p.92-93; Topic F, p. 18-19; Topic G, p. 53; Topic H, p. 91-92; Topic I, p. 72, 82, and 89; Topic J, p. 58 and 102; Topic K originated from organization changes with the Federal Emergency Management Agency.

[6] "The Federal Response to Hurricane Katrina: Lessons Learned," February 2006, p.53.

The Preparedness Cycle



A mechanism to enhance operational response.

by CDR Mark Cunningham
Chief, Contingency Planning and Force Readiness, Sector San Francisco

and CDR Andrew Tucci
U.S. Coast Guard Office of Incident Management and Preparedness

How well is your organization prepared for the contingencies that it is required to respond to and mitigate? What if your organization's operational excellence is dependent upon others outside your organization? What is your definition of a "good response"? Who ultimately decides if your organization performed well during a response? These questions are not easy to answer.

Experienced response managers can identify individual strengths and weaknesses within their own organizations. It is much more difficult to identify strengths and weaknesses in the context of a multi-agency response, where one must also take into account the variables associated with a particular contingency, such as geographic limitations, weather, jurisdictional issues, political environment, media focus, and incident scope. It is very easy to retreat, therefore, to a position where one's focus is more on readiness and less so on preparedness.

Readiness or Preparedness?

"Readiness" is a measure that is typically applied to a specific unit, or units within an organization. For example, a fire team at a chemical manufacturing plant may be required to provide each fire fighter with three self-contained breathing apparatus (SCBA) devices. The "readiness" measure in this example would be determined by periodic inspections of the SCBA inventory. This measure might be one of several that provide an overall readiness indicator. These readiness measures are certainly important, but do little to determine whether that fire team is prepared for dealing with fire contingencies at the facility.

"Preparedness" is a term that is used by many response organizations, yet is not standardized with regard to the full suite of activities necessary to successfully prepare for a response. Following the *Exxon Valdez* incident and during implementation efforts for the Oil Pollution Act of 1990, the Coast Guard was grappling with the concept of preparedness as it relates to large oil spills.

A team of response policy managers at Coast Guard headquarters developed what has been coined as "the preparedness cycle." The preparedness cycle has its basis in M.G. Brown's[1] situational assessment theory and is patterned after Malcolm Baldridge's quality improvement principles. The cycle is an intuitive process that begins with stakeholder engagement to create sound plans and policies; identifies the capabilities needed to implement those plans; tests those plans and capabilities through training and exercises; and then captures the lessons learned from those exercises to improve the plans. It is applicable to all contingencies, especially those that require a multi-organization response. Used properly, it will greatly enhance Incident Command System (ICS) decision making and field performance.

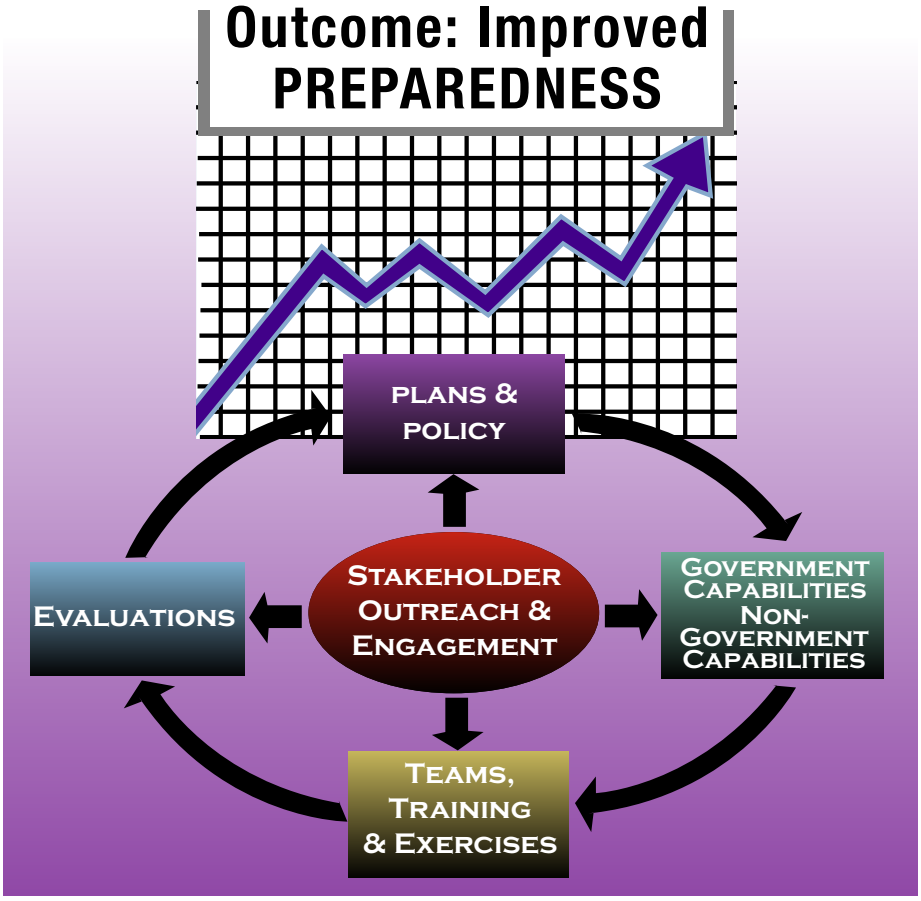


Figure 1: The preparedness cycle represents a process of discrete preparedness activities. It is a continuous process of assessment and adjustment, while focusing on stakeholder engagement in all of the preparedness activities. USCG model.

Operational excellence during a response is directly related to the level of preparedness activities performed beforehand. Consequently, it's important to accurately define preparedness so that the comprehensive efforts of all levels of government, industry, and stakeholders can work with a common view of the desired end state, develop interoperable capabilities, and achieve the best response possible. Moreover, a commonly held and well defined view of preparedness can provide the construct around which organizations can focus their limited resources by investing in the right level of distinct preparedness activities, with the goal of increasing the likelihood of a successful response.

The preparedness cycle (Figure 1) is actually a series of discrete, yet interconnected activities that contribute to continually improving response readiness. By considering the full range of preparedness activities as a system, it is likely that these important functions will be consistently prioritized through balanced resource allocation. It will also ensure that the "lessons learned" are actually learned. By understanding how critical elements of preparedness are linked, public and private response managers can focus their attention and limited resources on maintaining current system strengths and shoring up weaknesses in preparedness.

The preparedness cycle includes the following interconnected components:

- stakeholder outreach and engagement,
- plans and policy,
- capabilities,
- team training and exercises, and evaluations.

Stakeholder Outreach and Engagement

In the response realm, success is determined by stakeholders and is not under the control of any one organization or lead agency. It is hard to imagine any contingency that does not require two or more organizations to work in concert with each other. Therefore, at the center of the cycle is stakeholder outreach and engagement. It is meant to illustrate the significance of stakeholder input in influencing all of the elements of the cycle. It also infers that planners must solicit input from stakeholders and incorporate

their concerns into all preparedness activities.

Stakeholder outreach activities at the national (or corporate) level facilitate formal partnerships and appropriations. The National Response Plan is a good example of national-level stakeholder engagement. In its creation, 32 departments and agencies came together to clearly define their responsibilities and capabilities that would be brought to bear on incidents of national significance.

At the regional level, we build joint regional response plans through consensus and commitment of resources. At the local level, stakeholder outreach and engagement is conducted in a number of ways. First, we address internal stakeholders, such as cooperating and assisting agencies, by building consensus-based contingency plans—area contingency plans and area maritime security plans, for example. Then we address external stakeholders, which can be broadly defined as potential victims of a particular contingency, by seeking their concerns and priorities, and then managing their expectations for what kind of support and assistance they would receive.

A special category of stakeholder, the media, serves as the primary and, in some cases, the only means in which the public, elected officials, and stockholders view our performance in managing a contingency. It is both prudent and necessary to engage the media before incidents occur, via proactive media relations programs. This might include involving the media in local area exercises and other venues. This will foster the development of professional relationships, and help the media understand the extensive effort required by the response community to prepare for incidents, as well as the limitations of actual response operations.

Plans and Policy

One of the most important aspects of stakeholder outreach is defining the local risks for any particular contingency into the relevant plans. Plans and policy must, therefore, include the concerns of all stakeholders, and identify the resources needed to meet those stakeholder-derived objectives. Moreover, to be useful during an actual response operation, plans and policies must include decision and job aids, organizational structures, and other details necessary to facilitate a response.

In the context of the preparedness cycle, plans must be living documents that are highly accessible to the internal and external stakeholders they affect. Greater plan accessibility fosters increased scrutiny and improvement. As stated earlier, virtually any contingency requires two or more organizations to manage it. Our contingency plans must be developed with our stakeholders, and serve as joint contingency plans thereby serving as that "single sheet of music" from which we operate.

Capabilities

There are two broad categories of capability that are necessary to successfully respond: government owned and nongovernment owned. The preparedness activities associated with developing and maintaining these capabilities are expansive. For example, each of the government agencies that are responsible to assist in a response must ensure that their respective resources (people, money, equipment, infrastructure, platforms) meet the needs identified in the contingency plan for different scaled events. Looking at the Coast Guard as an example, one can see that this element of preparedness includes developing core competencies and specialty skills through training; maintaining equipment and infrastructure at peak operating efficiency; and matching money and billeting to meet the agency's responsibilities.

Many times, government-owned resources are multimission, in that they are expected to perform a wide range of operations and respond to a number of contingencies. The key readiness issues with multimission resources include transition efficiency and sustainability.

For most contingencies, the bulk of our nation's capabilities are owned by the private sector. Certain nongovernmental organizations also provide specialized capabilities, resources, and expertise. In some cases these nongovernment capabilities must be assured by government through regulations, agreements, and guidelines. Private sector resources are often times dual hatted, in that they are obligated to be prepared to respond to incidents that occur within an industry and geographic region, and may also be called upon to respond to other types of incidents, or incidents in other regions. An important preparedness issue for contracted private resources is in their ability to meet their obligations when having to respond simultaneously to multiple incidents.

Team Training and Exercises

Once the policy plans and capabilities are in place, they must all be tested, to ensure their effectiveness. This brings us to the next preparedness activity: Developing teamwork through exercises and joint training opportunities. The obvious benefit to exercises is in the evaluation of how effectively capabili-

ties and plans address a given contingency. Equally important is the benefit of exercises and joint training in building cohesiveness and sense of team among the various responding stakeholders. Incident Command System training should be done jointly whenever possible, and not just within the confines of our own organizations.

Exercises must be planned with care. While equipment deployment and worst-case scenarios must be part of any exercise program, there is a danger in trying to plan and conduct very large scale exercises that simultaneously attempt to test all aspects of a particular contingency, or to combine multiple contingencies in one exercise. Also, exercises should not be used as a substitute for training that might better be accomplished through another forum. Exercises should be planned and used as key components in improving overall preparedness, and in evaluating specific components of a contingency plan.

Evaluations

The final preparedness activity that closes the cycle and ensures continual improvement is evaluations. This can be summed up as the collection and implementation of lessons learned and best practices to improve plans, policy, and capabilities. Evaluations should be conducted by comparing the exercise to objective standards, not simply asking participants vague, subjective questions about "how it went."

Once the lessons learned are captured, they must be incorporated into new plans. This may suggest additional stakeholder outreach, drive new capability requirements, and will certainly result in future exercises to confirm that preparedness has improved, which continues the cycle. The preparedness cycle, always in motion, strives to better prepare government and industry.

About the Authors:

CDR Mark Cunningham has served in the U.S. Coast Guard for 16 years, including 10 years in port operations and emergency management. He has also served in staff assignments at Coast Guard headquarters, developing national policy for response, exercises, and contingency planning. He holds undergraduate degrees in Business, Law Enforcement, and Resource Management and a Master's degree in Environmental Analysis.

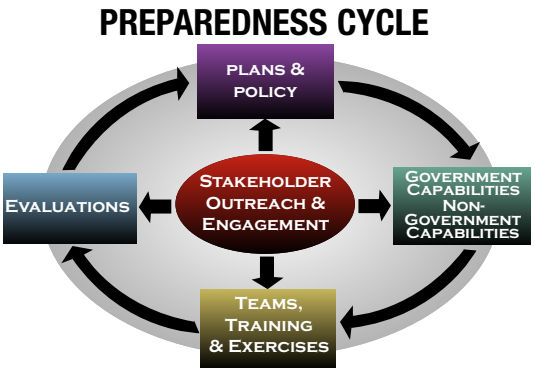
CDR Drew Tucci is currently assigned to U.S. Coast Guard Office of Incident Management and Preparedness. His previous assignments include the Office of Resource Management within the Prevention Directorate; Coast Guard Marine Safety Office Puget Sound, Seattle, Wash.; Marine Safety Office Portland, Maine; Marine Safety Office Juneau, Alaska; and Coast Guard Group Ketchikan, Alaska. CDR Tucci holds a Master's degree in Marine Affairs from the University of Washington.

Endnote:

[1] Brown, M.G. 1996. "Keeping Score: Using the Right Metrics to Drive World-Class Performance," Quality Resources, Krause Organization Ltd., New York, N.Y.

USCG photo by PA3 NyxoLyno Cangemi.

A Measure of Readiness



The preparedness standards and measurement system.

by CDR Andrew Tucci
U.S. Coast Guard Office of Incident Management and Preparedness

Semper Paratus. By its very motto, the U.S. Coast Guard announces that it is and always has been a leader in preparedness and response. The excellence in mission execution the world has come to expect of the Coast Guard in search and rescue, oil spills, natural disasters, and security and law enforcement situations is due to robust preparedness systems and the skill, courage, sweat, and dedication of our people. This reputation has been hard earned, yet is easily reversed. The chaotic and multidimensional nature of a marine oil spill or other disaster is the perfect environment for finding and exploiting overlooked or under-exercised aspects of any preparedness system.

To ensure success in the future, we can not rely on piecemeal or subjective assessments of our preparedness. We must measure preparedness in a way that enables commanding officers and planners to allocate resources, build confidence among stakeholders, and demonstrate to the public at large that the Coast Guard is prepared to execute the very best response possible. Within the realm of oil spill response, the Coast Guard now has this ability through the preparedness standards and measurement system.

Why Measure Preparedness?

The nation's oil spill preparedness system is tested primarily through exercises and the preparedness for response exercise program (PREP). Despite their strengths, exercises provide a single view of preparedness—a line of position, if you will—when what is needed is a fix. Also, exercises have their limitations. They are usually planned well in advance, trained for, rehearsed, and scripted. Therefore, they can lack the urgency of real events. Decision making is always easier when resources and reputations are not really at stake.

Most importantly, exercises are not well suited to a broad, in-depth analysis of the factors that constitute the overall readiness of a response community. Exercises tend to focus on the mechanics of a plan, but will likely overlook the role of stakeholders, their participation, and other key issues of the plan itself. A rigorous exercise evaluation can determine what went well from what did not. However, it is hard to compare one exercise with another, even given the same scenario.

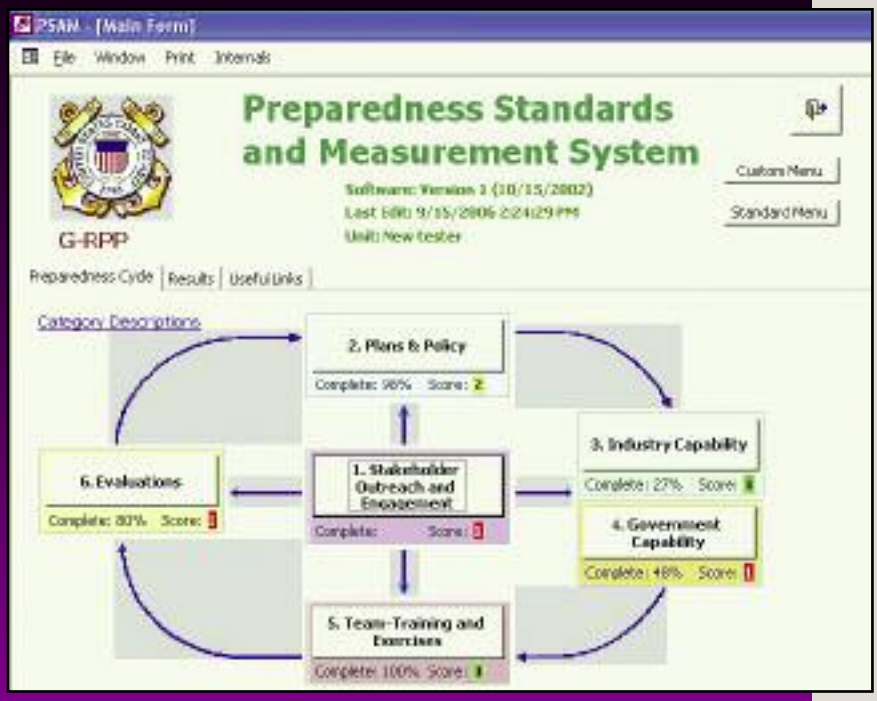
It is also difficult to distinguish between issues that impacted the exercise, and those that actually would have been key to the success of a real response. An evaluation of the PREP system by Tonya N. Fish[1] found the system to be generally effective, but in need of some improvements, particularly with respect to how exercises were evaluated and how lessons learned were recorded and acted upon. Foreseeing the need for a preparedness measurement system, Fish also recommended that quantitative measures be incorporated into exercises to promote the detection of weaknesses and to measure improvements after changes are made.[2]

Measurement is increasingly used in a wide variety of fields, in part because society does not have the economic, environmental, or human resources to waste on unproductive efforts. Within the business community, Mark Brown[3] advocates careful selection and application of metrics to improve business performance. Looking specifically at disaster preparedness and response, Tierney et al[4] advocate measurement to improve performance and ensure preparedness. This will attract the continued attention of policy makers and stakeholders. Lee Ben Clark criticizes disaster preparedness that includes unwarranted assumptions and lacks realistic, objective evaluations. He states, "From a practical point of view, preparedness should be easier to

Continued on pg. 52

Interactive Preparedness Standards and Measurement System

To access the PSAMS system, go to \\hqsms-hqfs1\users\atucci\public. For those outside the Coast Guard, email the author at: Andrew.E.Tucci@uscg.mil for the latest version of the system. In most cases, a few select members of the sector response department and planning staff should be able to complete the system in a few hours. Ideally, appropriate members of the area committee and oil spill response organization representatives could be included to improve both accuracy and buy-in for the results.



STAKEHOLDER OUREACH & ENGAGEMENT

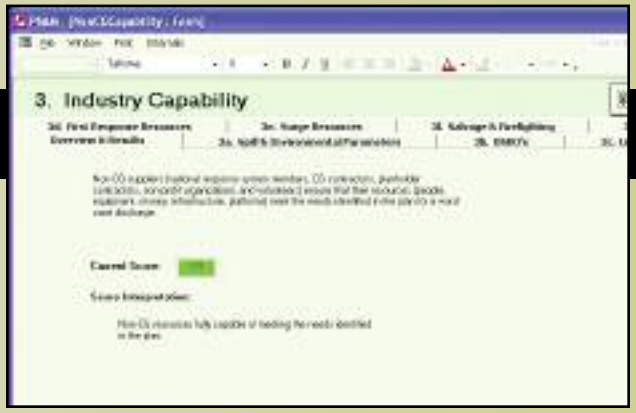
The first and central element of the preparedness cycle is stakeholder outreach and engagement. The system lists various types of internal and external stakeholders and asks what portion of them are involved in planning (i.e. area committee) activities, and to what extent their concerns have been incorporated into the area contingency plan. This portion also specifically addresses the media. Use of the media is a key step in communicating with some stakeholder groups and to setting expectations with the public as a whole.

PLANS & POLICY

Plans and policy are measured primarily through a matrix that maps topics within a plan, such as dispersants, shoreline clean up, and claims, with questions about how well each of those topics are addressed. Included is a requirement for the plan to specifically address the organization structure to manage that particular topic.

This portion of the system also evaluates the linkage between planners and responders, the inclusion of the best available science in planning, and includes a comprehensive list of spill related publications and documents.

Interactive Preparedness Standards and Measurement System



INDUSTRY CAPABILITY

The system addresses industry capability by asking the user to input the volume and type of oil for the worst-case scenario, and then calculates the recovery and other requirements based on vessel response plan standards. The system also addresses lightering, salvage, fire fighting, and other special needs.

GOVERNMENT CAPABILITY

The government capability section focuses on Incident Command System and other training requirements. It includes a tool that enables planners to list all of the ICS positions they will need to fill during a contingency and identify what agency or organization will fill them.

TRAINING & EXERCISES

Team training and exercises uses the preparedness for response exercise program system as a standard for the number and type of exercises that an area committee should be conducting. It also includes a "team work survey" that can be used after an exercises, actual event, or training session to evaluate the cohesiveness of a spill management team.

EVALUATIONS

Finally, the evaluations portion measures factors such as how often evaluations are done; whether or not evaluations are conducted against an objective standard; and what portion of "lessons learned" are actually incorporated into a revised area contingency plan.

promote if its effectiveness can be demonstrated empirically."[5]

Finally within government, the Government Performance and Results Act of 1993 seeks to "shift the focus of government decision making and accountability away from a preoccupation with the activities that are undertaken to a focus on the results of those activities, such as real gains in employability, safety, responsiveness, or program quality."[6] The president of the United States directed the establishment of readiness metrics and measurable priorities to "strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies."[7]

The Preparedness Standards and Measurement System

The main purpose of the preparedness and standards measurement system (PSAMS) is to provide federal on-scene coordinators with an additional and more detailed assessment of their readiness than that provided by exercises. When combined with exercises, oil spill response organization evaluations, and other existing techniques, the PSAM system can provide improved confidence in the level of preparedness within a response community.

The PSAM system is made up of a series of questions and data fields, related to each component of the preparedness cycle. The system is intended to evaluate an area contingency plan and committee as well as the public and private personnel and equipment that would be brought to bear for a major oil spill. The standards it uses are both regulatory, such as 33 CFR 155, and Coast Guard policy, such as ICS training requirements. In cases where no formal standard existed, the development team, a diverse group of response experts from the Coast Guard and industry, set standards based on their professional expertise. The preparedness standards and measurement system uses the "best response" model developed by Kuchin and Hereth,[8] which favors stakeholder-driven planning and ICS as the proper way to actually conduct and manage a response incident.

What Can PSAMS Do For You?

Compared to exercises, which can conservatively take many hundreds of work hours to plan, conduct, and evaluate; a small group of people can complete an initial evaluation in about half a day. Since the data can be saved, and only a portion of it will change over time, subsequent evaluations are even easier to complete.

If appropriate area committee representatives take part in completing the evaluation, the system can serve as an objective tool for discussing a wide range of preparedness issues, identifying gaps, and building consensus on solutions. Because the system provides scores for each segment of the preparedness cycle it can help an area committee determine where additional efforts are most needed.

The system can also help demonstrate to external stakeholders and the public at large that the response community is taking preparedness seriously. The systematic, methodical approach of PSAMS lends credibility to statements, however well reasoned and sincere, from response and planning professionals about their overall state of preparedness. Because the system can quantify preparedness, and, by conducting multiple assessments, demonstrate improvements over time, it can give the public, Congressional representatives, and other important parties confidence in the efforts of the Coast Guard, other agencies, and the private sector.

About the Author:

CDR Drew Tucci is currently assigned to U.S. Coast Guard Office of Incident Management and Preparedness. His previous assignments include the Office of Resource Management within the Prevention Directorate; Coast Guard Marine Safety Office Puget Sound, Seattle, Wash.; Marine Safety Office Portland, Maine; Marine Safety Office Juneau, Alaska; and Coast Guard Group Ketchikan, Alaska. CDR Tucci holds a Master's degree in Marine Affairs from the University of Washington.

Endnotes:

[1] Fish, Tonya N., "Organizational Learning in the Preparedness for Response Exercise Program," University of Washington Libraries, 1997.

[2] Fish, Tonya N., "Organizational Learning in the Preparedness for Response Exercise Program," University of Washington Libraries, 1997, p. 63.

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[5] Clarke, Lee Ben, "Mission Improbable, Using Fantasy Documents to Tame Disaster," Chicago, University of Chicago Press, 1999.

[6] GAO Website, Reports on the Government Performance and Results Act, www.gao.gov/new.items/gpra.

[7] Homeland Security Presidential Directive 8, December 17, 2003.

[8] Kuchin, J. & L. Hereth, "A Balanced Scorecard for Evaluating Success," *Proceedings of the Marine Safety Council*, Vol 56 No. 2.

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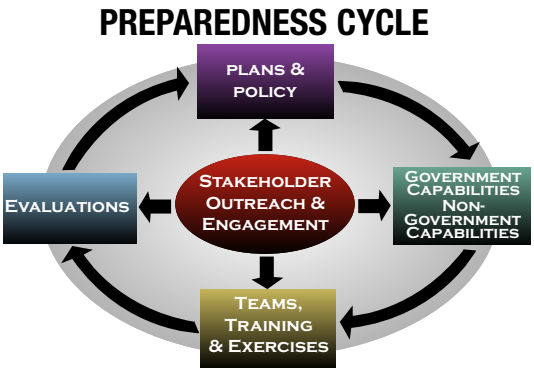
Best Response and ICS



by CDR Andrew Tucci,
U.S. Coast Guard Office of Incident Management and Preparedness

Preparedness and response are best viewed as two sides of the same coin. A rational planning system will prepare responders to achieve a specific result. The response will, as much as possible, follow a predetermined plan. A response operation should be evaluated on how well it met the goals and objectives reflected in the plan.

Figure 1 demonstrates how different activities, groups, and resources respond to an incident, and how the plan for a marine oil spill incident is shaped and driven by the stakeholders. At the heart of the diagram is the Incident Command System, which manages the spill incident and links the plan to the actual response operations.

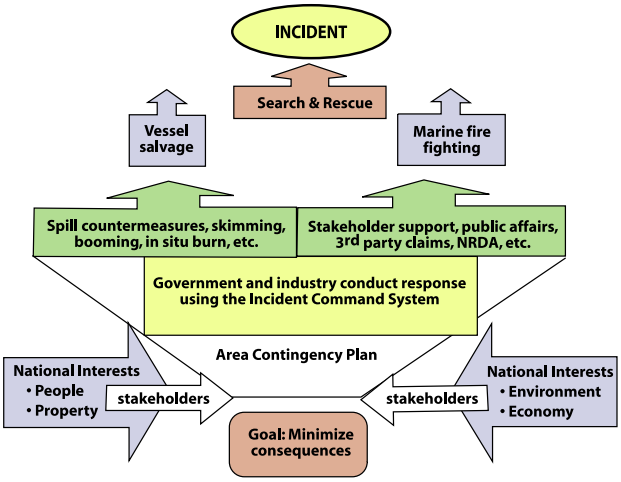


Figure 1: Integrated best response and planning model.

At the top of the diagram is search and rescue, because it will always be the first activity in any response. Vessel salvage and marine firefighting are next, because these activities are necessary to stabilize the situation. These efforts will dominate the early stages of response, even as other activities are simultaneously planned for, staged, and executed.

While search and rescue, salvage, and fire fighting take place under the direction of the unified command, they also each generally have extensive internal standard operating procedures and technical specialists. Furthermore, they will often have an organizational culture distinct from the more routine spill management operations. For these reasons, they are represented as separate from the other spill management functions; although this is not intended to indicate that they operate outside the direction of the unified command.

Once the situation is stabilized, the bulk of the response activities will take place. Most of these activities will take place simultaneously and continuously throughout a response effort. On the left are spill countermeasures, such as skimming, shoreline clean up, and wildlife recovery. On the right are response activities that do not directly affect the spill itself, such as public affairs, addressing third-party financial claims, conducting natural resource damage assessments, and contact with specific stakeholders.

Industry and government personnel manage the spill using the Incident Command System structure. They establish priorities based on national interests as reflected by stakeholder input. Ideally, this input is incorporated into the area contingency plan before a spill occurs. The alternative is for spill managers to try and obtain and incorporate this input during the crisis, or be forced to ignore those concerns altogether.

Job aids, standard operating procedures, and resource lists needed to enable the response managers to achieve those stakeholder-driven priorities must also be included in the area contingency plan. While this example uses an oil spill situation and area contingency plan, the model of using the Incident Command System to manage all aspects of a response operation and linking those activities to a stakeholder-developed plan is equally valid for any contingency.

The Coast Guard Contingency Exercise Program

Integral to Coast Guard preparedness.

by CAPT Wayne C. Dumas
Chief, U.S. Coast Guard Office of Contingency Exercises

The Coast Guard's Office of Contingency Exercises works collaboratively with the Department of Homeland Security (DHS) Preparedness Directorate, other DHS agencies, and other Coast Guard commands to plan, test, evaluate, and improve the Coast Guard's ability to conduct its missions. An organization's ability to respond is rooted in preparedness.

Preparedness is cyclic, and begins with an assessment of the requirements of an appropriate response and the current capabilities of a force to do so. A plan is then developed to ensure that response forces and procedures will mitigate the contingency requirement. The plan specifies the resources and procedures that are required and the training or qualifications needed to ensure optimal response to the event or incident. Finally, an exercise is designed, executed, and evaluated to test the plan and capabilities of forces to carry out the planned procedures.

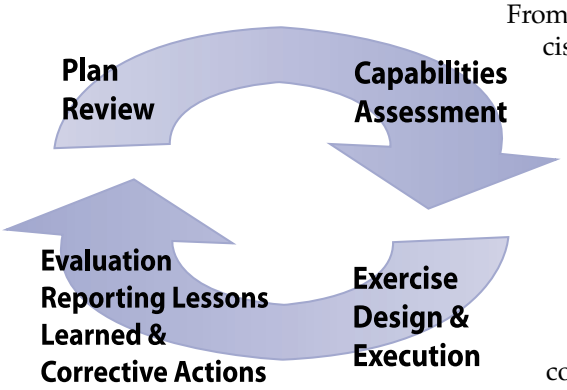


Figure 1: The preparedness cycle.

From an event or exercise after-action report, lessons are recorded and analyzed, and corrective actions assigned to improve the plans and procedures, thus completing the cycle (Figure 1). The USCG Office of Contingency Exercises helps coordinate and support the preparedness process at multiple levels within the Coast Guard, DHS, and our maritime partners.

Community-Based Exercises

The Coast Guard's preparedness for response exercise program (PREP) for oil and hazardous substance spill exercises, an outgrowth of the Oil Pollution Act of 1990, began the concept of "community-based" exercises. A community-based exercise brings together all of the stakeholders needed to prosecute an issue, respond to a contingency, and recover from an event. An area maritime security committee is an excellent example of a community-based approach. In this paradigm, leaders and responders from federal, state, tribal, local agencies, and industry representatives form a unified working group to address port security issues (plans, exercises, prevention and protection, responses, recovery) for a specific port.

Port-level planners have been encouraged to combine the objectives for several contingencies into one exercise, since holding too many exercises can lead to fatigue and weakened involvement by all of the pertinent port stakeholders. But, in many cases, the same community of federal, state, tribal, and local responders and members of the private sector will come together for major contingencies such as:

- natural disaster,
- mass rescue,
- antiterrorism,
- oil and hazardous substance pollution,
- military outloads,
- alien mass migration, and
- civil disturbance.

It's easy to see that very similar community groups, perhaps with the addition of some different industry partners, would be needed in an exercise involving a significant maritime security incident, large pollution case, or a mass rescue operation. The objectives for each of these incidents could be linked into one exercise. However, we exercise to test, evaluate, and improve plans and capabilities. Force-fitting too many dissimilar objectives or participant requirements into one exercise may dilute its effectiveness.

Exercise Planner and Community Training Programs
Following the successful model of the PREP exercise program, the Coast Guard has developed exercise support teams with exercise specialists to assist the port communities with their exercises; promote exercise standardization and completion of the exercise cycle; and provide exercise process training for control staff, evaluators, and role players. As time and resources allow, the teams may include on-site Incident Command System familiarization training for community participants to enable them to assimilate into a unified command structure and be more effective members.

The Coast Guard offers its members and those of the interagency within the Department of Homeland Security, a four-week contingency preparedness planner's course, a one-week contingency preparedness planner's senior course, and a two-week on-scene coordinator crisis management course. These courses help to prepare planner, exercise, and response staffs to design contingency plans and exercises; execute and evaluate exercises or actual events; and complete the respective cycles of preparedness and exercises. Standardized and thoroughly approved approaches, efficient and proven processes, and follow through are hallmarks of these courses.

Completing the Cycle
Prior to the recent reorganization of Coast Guard headquarters, Coast Guard exercises were conducted and coordinated through several program offices and at various levels of the service. Exercise and planning functions were consolidated into two offices, the Office of Contingency Exercises and the Office of Incident Management and Preparedness. Both offices now serve under the Assistant Commandant for Response. The result has been closer linkage between plans and exercises and a single focus to complete the preparedness cycle.

The coordination and oversight of all exercise activity from a single program office is imperative to ensure standardization in design, execution, after-action, and follow-up tracking of mitigation activities to inform plan and capability improvements.

A Team Approach
Stretching from Coast Guard headquarters to the field units in our nation's ports and waterways, the development of contingency plans and the exercising of those plans takes a team approach. Each level of the Coast Guard (headquarters, area commands, districts, sectors/Captains of the Port) has responsibility for all or portions of the main contingencies.

Exercises are therefore conducted at each of these levels in a layered fashion, to ensure seamless compatibility and comprehensiveness of plans and capabilities to meet the requirements of each contingency. Some plans are exercised quarterly, annually, or in three-year cycles. These exercises may require a full-scale effort with full testing of equipment and procedures. Others may only require a table-top exercise to walk through or discuss how responses would be conducted.

What is very important is that the lessons learned from an exercise or actual event be reported, evaluated, and analyzed, and remedial actions taken to improve either the plans or the capabilities. After each event or exercise lessons learned, after-action reports inform the planning process for the next layer in the organization. The same is true for those exercises conducted by or with the private sector. Proprietary issues aside, it is important to capture best practices and lessons learned, so that all responsible parties can improve their ability to contribute to the safety and security of our nation and the maritime environment.

Exercise Support Teams
A key component of the Coast Guard's enhanced exercise program is the formation of exercise support teams. Teams of three or four trained exercise subject matter experts have been created to help the sector commanders/Captains of the Port and area maritime security committees or area contingency committees design, execute, evaluate, and report on exercises or real-world events. The teams also work to ensure that corrective actions are identified and tracked to completion for any gaps or deficiencies in contingency plans or prevention, response, and/or recovery procedures.

These exercise support teams have been strategically placed: three at the Pacific Area Command in Alameda, Calif.; six at the Atlantic Area Command in Portsmouth, Va.; and three at Coast Guard headquarters. Additionally, an exercise coordinator position has been added to the Coast Guard district planning and exercise staffs to support regional and port-level exercises.

SUPPORT AND FACILITATION	
Plans Review and Analysis	Concept and Objectives Meeting
Initial Planning Conference	Mid Planning Conference
Final Planning Conference	Hot-Wash and De-Briefs
Evaluator and Control Staff Training	Participant Indoctrination and ICS Training
After-Action / Lessons Learned Report Development Meeting	
EXERCISE MANAGEMENT	
Exercise Control Staff	Exercise Simulation Cell (SIMCELL)
Exercise Evaluation Data Collection Staff	VIP / Observer Program
Exercise Communication System & Modeling	
CREATION OF EXERCISE MATERIALS	
Exercise Plan	Control Simulation Plan
Evaluation Plan	Player Handbook (SITMAN)
After-Action Report	
FOLLOW-UP	
Corrective Actions (RAMP)	Participant Feedback

Direct support to industry-led exercises will be as resources allow.

Figure 2: The range of services provided by exercise support teams.

The area exercise support teams will focus on port-level exercises in each of our major port mission areas (security and terrorism prevention, oil and hazardous substance pollution response, natural disaster response and recovery, mass rescue operations). They will provide regional support to the combatant commanders (for example, NORAD and U.S. Northern Command, U.S. Transportation Command, Joint Forces Command), and will provide regional support for national-level exercises sponsored by the Department of Homeland Security.

The national exercise support teams, deployed out of Coast Guard headquarters, will focus on interagency exercises (for example "spill of national significance" or SONS, which in 2007 will be a joint Coast Guard/EPA/FEMA and multiple central states exercise) and national-level exercises sponsored by the Department of Homeland Security. The national exercise support teams will also promote consistency and standardization in exercise support delivery by supporting port-level exercises across the country.

OFFICE OF CONTINGENCY EXERCISES AT A GLANCE

- Exercise policy and guidance to USCG field commands
- Lessons learned (exercise or event) review, evaluation, analysis and reporting
- Manage USCG exercise budget and resources
- Reporting and tracking of remedial actions
- USCG oversight and coordination for national-level exercise participation
- Promote preparedness and exercise cycle completion to improve plans and capabilities
- USCG National Exercise Schedule and input to the DHS National Exercise Schedule
- Maintenance of the Contingency Preparedness System (CPS) planning and reporting system
- Exercise support team standardization and training and support to field commands
- Program manager for the international pollution contingency exercise program
- Report to DHS and Congress on USCG exercises
- Plan and coordinate with the interagency for preparedness and exercises
- Promote planner and exercise specialist career development and training within the USCG
- Contingency planner/exercise and crisis management course quota management

Coast Guard sector commands, area maritime security committees and industry-led exercise developers can expect a significant level and variety of support service options from the exercise support teams (Figure 2). The level of support will often depend on resource availability and will be negotiated by the team leader and the port sector command.

Each exercise support team will be composed of three or four exercise subject matter experts who have been trained in the Incident Command System and National Incident Management System; joint field office standard operating procedures; the Coast Guard's contingency and exercise planning and execution procedures; and will experience cross-region and cross-contingency on-the-job training over time. The teams will also be trained and familiar with the DOD planning system, joint operation planning and execution system. Teams will be directed by a team leader and include an evaluation leader, a control and simulation manager for the control staff for exercise injects and role playing, and logistical coordination. In some cases, an additional exercise planner or information specialist will be available for the team.

Department of Homeland Security National Preparedness Task Force Exercise Program

Within the national preparedness task force, part of

the Preparedness Directorate of DHS, reside the department's exercise office, which focuses on national level exercises and exercise scheduling and senior leader participation among all of its agencies. The department also sponsors exercises, such as the 2006 hurricane season preparedness exercise series, and the training of principal federal officials and their staffs.

National Exercise Schedule

The Department of Homeland Security Preparedness Directorate is responsible for maintaining and coordinating for the national exercise schedule. The schedule is updated annually at a conference held in Washington, D.C., and projects five years of national-level exercises.

OFFICE OF CONTINGENCY EXERCISES

With more than 100 national-level, combatant commander, regional, port-level, and Coast Guard internal exercises that the Coast Guard participates in at various levels annually, the USCG Office of Contingency Exercises must provide the single focal point for those efforts.

Each year the number and scope of exercises increases. The Coast Guard will conduct more than 140 exercises, mostly at the port level, during 2007. For that reason, the Coast Guard Office of Contingency Exercises is exploring ways to design and execute multiple contingency plan objectives or force capabilities within an exercise series that reduces the total number of exercises without diminishing the ability to adequately test and evaluate plans. The exercise goal for the future is to exercise smarter, not more often.

With the thousands of exercises conducted by various departments of federal, state, and local governments and the private sector, deconfliction of exercise events is a monumental task. The national exercise schedule focuses on those exercises that significantly impact the National Operations Center and involve senior leadership in the federal government.

Current efforts are being directed at combining major agency exercises into two large exercise series each year to reduce the impact on participants. There has been considerable discussion of creating federal region exercise schedules to coordinate state and federal interagency-led exercises.

About the author:
CAPT Wayne Dumas is the "plankowner" chief of the Office of Contingency Exercises, having previously served on the headquarters staff in the Port Security Directorate and the Pacific Area Maritime Homeland Security planning team. CAPT Dumas was the "plankowner" commanding officer of Port Security Unit 313 in Tacoma, Wash., and was chief of operations and plans for Harbor Defense Command Unit 113, Seattle, Wash., where he planned numerous naval coastal warfare exercises and overseas deployments.

USCG Photo by PA1 Alex Worden

National Exercise Program Update

by LCDR Kimber Bannan
Coast Guard Liaison, DHS Preparedness Office of Grants and Training

The 2002 National Strategy for Homeland Security directed the establishment of a national exercise program to prepare officials at the federal, state, local, and tribal levels to prevent, respond to, and recover from acts of terrorism. In 2003, Tom Ridge, then secretary of the Department of Homeland Security directed formation of the national exercise program (NEP).[1] This is the department's principal mechanism for training and exercising officials at all levels of government, as well as members of the private sector, and, at times, our international partners.

The NEP has developed common policy and guidance and has established collaborative management processes and tools to link its partners and stakeholders nationwide. Lessons learned and peer-validated best practices identified through exercises and actual incidents are now available to the homeland security community through lessons learned information sharing at www.LLIS.gov, a secure web-based portal.

Top officials (TOPOFF) full-scale exercises have tied together participants from the local through the international levels of government, testing the capacity of their plans and procedures to respond to complex terrorist attacks.

In October 2003, DHS released the national exercise program implementation plan, which established five strategic goals for the program:

1. Meet the requirements of the National Strategy for Homeland Security, the "Homeland Security Act of 2002," applicable homeland security presidential directives, or other legislative or executive requirements.
2. Provide periodic training and exercises for national leaders and their staffs and the organizations and systems they lead.
3. Achieve and sustain national preparedness by ensuring that proficiency can be measured against consensus performance standards, and performance-based assessments can be made across all levels of government against a range of hazards and threats that pose the greatest risk to homeland security.
4. Ensure programs at all levels of government are synchronized.
5. Administer the program within the framework of the National Incident Management System.[2]

In addition to the range of NEP-sponsored exercises and activities, the growing number of preparedness exercise activities significantly exceeds the capacity of DHS to provide participation and support. Thus, one priority in the near term will be to realistically simulate unified federal, state, local, and tribal terrorism prevention and response architectures in non-NEP exercises and training events.

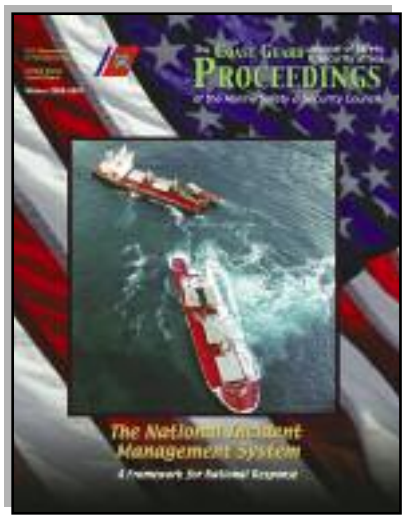
The first phase of this effort will be the exercise simulation/response cell pilot program, to ensure DHS decisions, mechanisms, and guidance are accurately portrayed and exercised in all exercises. Other means to provide realistic training without considerable investments in time and resources include communications or connectivity drills, in which participants rehearse the execution of communication flows, notifications, and processes.

Looking to the future, the NEP will continue to execute a highly effective suite of exercise activities and serve as a process to test for innovative approaches to enhancing preparedness capabilities across all levels of government.

About the author:
LCDR Kimber Bannan has served in the U.S. Coast Guard for 13 years. LCDR Bannan has served at a variety of units including the Pacific Strike Team, Marine Safety Office Wilmington, the Container Inspection Training and Assistance Team, and Sector Lake Michigan.

Endnotes:
[1] http://www.dhs.gov/dhspublic/.
[2] http://www.dhs.gov/dhspublic/.

Survey available online: www.uscg.mil/proceedings



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PROCEEDINGS Magazine, Winter 2006-07

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Reader's Survey

Top Officials Exercise Series

Learning the lessons before the test.

by Mr. Joe Pancotti
U.S. Coast Guard Exercise Coordination and Support Division

Experience is the hardest of teachers. That adage was aptly demonstrated in our recent history, in the aftermath of the terrorist attacks of September 11, 2001 and Hurricane Katrina. The events of 9/11 put us on notice that we can be attacked with massive and dire consequences. Hurricane Katrina exposed weaknesses in our nation's response and recovery capabilities. Both showed that we, as a nation, were not where we wanted to be in our ability to manage catastrophic events.

Even events before September 11, 2001, such as the bombings of the World Trade Center, Murrah Federal Building, Khobar Towers in Saudi Arabia, and the U.S. Embassies in Tanzania and Kenya, showed that some of the more difficult challenges we face are to prevent, deter, and defend against the acquisition and use of weapons of mass destruction by terrorist groups.

A TOPOFF participant posing as a plague victim is prepared for transport to the hospital. DHS photo.

To prepare for such an event, Congress directed that an exercise be conducted with the participation of all key personnel (top officials, thus the name TOPOFF), who would be involved in the consequence management of a terrorist event. Congress recognized that a national-level exercise would energize efforts to improve domestic preparedness. Thus, the TOPOFF exercise series was born.

TOPOFF 2000

The first TOPOFF exercise, TOPOFF 2000 (or T1), was cosponsored by the Department of Justice and the Federal Emergency Management Agency. This exercise was conducted from May 17, 2000 to May 23, 2000, and was designed to assess the nation's consequence-management capabilities. It tested federal, state, and local responses to simulated, coordinated attacks using chemical and biological agents.

Two state venues were chosen for TOPOFF 2000. The state of Colorado/Denver metropolitan area experienced a simulated, clandestine release of a contagious biological warfare agent, while the state of New Hampshire/Portsmouth seacoast region experienced a simulated release of a chemical warfare agent at a public event via an improvised explosive device. Fifteen federal departments and agencies and approximately 30 state and local agencies participated. Major lessons from this exercise included:

- the need for better coordination and unity of effort among responding departments and agencies,
- the need for a common operating picture,
- improved information sharing and analysis, and
- better training for consequence managers and responders.

TOPOFF 2

The Department of Homeland Security (DHS) was

created in the aftermath of the 9/11 terrorist attacks. Responsibility for the TOPOFF exercises then fell to the new department. Public law 106-553 authorized TOPOFF 2 (T2). Unlike TOPOFF 2000, which was a single, no-notice event, T2 was designed as an open exercise in which participants were introduced to the scenario through a series of activities conducted prior to the full-scale exercise.

Seminars were conducted that explored such topics as emergency public information, response to radiological dispersal devices (RDD), bioterrorism, and command and control. A large scale game was conducted to explore intermediate and long-term recovery issues. Top government officials from 25 federal, state, and local departments and agencies, and the Canadian government explored intergovernmental issues relating to terrorist attacks on the United States.

The T2 full-scale exercise, was conducted from May 12 to May 16, 2003 and was co-sponsored by DHS and the Department of State. Forty federal departments and agencies, 47 state and local agencies, and 21 Canadian departments and agencies participated. The state venues chosen for this exercise were Seattle, Wash. and Chicago, Ill.

Seattle experienced the simulated explosion of an RDD while Chicago had to deal with the simulated release of pneumonic plague. Major lessons from this exercise included:

- balancing the safety of first responders with rescuing victims;
- clarifying the roles and responsibilities of the principal federal official; and
- the value of international, private sector, and non-profit contributions to terrorism event response.

Again, coordination and unity of effort among responding agencies was problematic, however, the new National Response Plan was being drafted at that time to address that and many other issues.

Other Homeland Security Measures

Federal law and various management directives strengthened the mandate to continue the TOPOFF series. During the planning process for T2, the Homeland Security Act of 2002 was passed. It gave the secretary of DHS the responsibility for coordinating federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies.

Master control cell operations during a TOPOFF command post exercise. DHS photo.

A Coast Guard member works in the unified command center in Connecticut during the TOPOFF 3 exercise. DHS photo.

In February 2003, Homeland Security Presidential Directive (HSPD) 5, directed the secretary to develop and administer a National Incident Management System (NIMS) and a National Response Plan. In addition, the secretary was tasked to coordinate with state and local government officials, as well as private and non-government sectors to ensure adequate planning, equipment, training, and exercise activities. Homeland Security Presidential Directive 8 states that federal assistance will support state and local entities' efforts including planning and training exercises for major events, as well as capability building for prevention activities related to terrorist attacks. HSPD-8 directs the secretary to develop a multiyear national homeland security preparedness-related exercise plan. The TOPOFF exercise series then became the cornerstone of the department's national exercise plan.

T3

The TOPOFF 3 (T3) full-scale exercise was the most comprehensive terrorism response exercise ever conducted in the United States. T3 took place from April 4 to April 8, 2005, completing a two-year cycle of

seminars, planning events, and exercises. Canada and the United Kingdom conducted simultaneous, related exercises, providing an excellent opportunity for international cooperation, networking of key responders, and sharing information on concepts of emergency operations.

More than 200 federal, state, local, tribal, private sector, international agencies and organizations, and volunteer groups participated. Union and Middlesex Counties in New Jersey and New London, Conn. were chosen as the U.S. venues. T3 marked the first time that the NRP and NIMS were used as a framework and approach to response and incident management.

Major lessons from this exercise included consequences of the elevation of the Homeland Security Advisory System; entitlement differences under Stafford Act declarations; information-sharing problems, caused by circular reporting; lack of uniform reporting guidelines; and stovepiped information systems, as well as inconsistencies between federal and state responses for the protection of critical infrastructure and key assets.

State police work in the unified command center in Connecticut during TOPOFF 3. DHS photo.

TOPOFF and the Coast Guard

The Coast Guard has consistently maintained a significant presence in TOPOFF. Each TOPOFF full-scale exercise provided those few occasions where the entire chain of command is available to participate in an exercise. We have been able to continually refine the critical incident communications protocol that has been instrumental in getting information rapidly from the field to our senior leaders.

An urban search and rescue team responds to a simulated explosion site in New London, Conn. during TOPOFF 3. DHS photo.

Coast Guard senior leaders have become familiar with how the national response options matrix is used to decide on appropriate courses of action. In general, TOPOFF has been useful in clarifying and training individuals throughout the chain of command in their roles and responsibilities in a terrorist attack. TOPOFF provides opportunities to test all levels of plans, policies, and procedures.

Because of the improved interagency cooperation brought about by TOPOFF, our individual and collective competencies have been enhanced. Finally, through TOPOFF, as well as other exercises, we can find gaps and planning weakness that can be rectified through the Coast Guard's remedial action process.

Overall, the TOPOFF exercise series provides an opportunity for incident management organizations and personnel to participate in realistic exercises that are multidisciplinary, multijurisdictional, and multisector, to improve integration and interoperability, and optimize resource utilization during incident operations.

DHS Secretary Chertoff pointed out, "in dealing with a catastrophic event, no single entity, level of government, or government as a whole can do it alone. We have to work together from the private sector to the public sector, individual citizen all the way to the people in Washington, D.C."[1] Hopefully, through TOPOFF, collectively we can learn the lessons before the next big test!

About the author: *Mr. Pancotti retired form the Coast Guard after 20 years of service. He is one of the first certified master exercise practitioners in the Coast Guard. As a current member of the Exercise Coordination and Support Division at headquarters, he has been a controller, senior evaluator, and project officer for various TOPOFF exercises.*

Endnote:

[1] "Transcript of Press Conference with Secretary of Homeland Security Michael Chertoff on the TOPOFF 3 Exercise."

In the Wake of the Quake

The spill of national significance exercise '07 gets ready to rumble in the Heartland's fault zone.

by PA2 L.F. Chambers
U.S. Coast Guard Fifth District

In the early morning of June 19, 2007, disaster will strike the United States. An earthquake will rumble across the center of North America. The area, already saturated by a wet spring, will experience massive flooding, as rivers overflow their banks, dams give way, and pipelines burst. At the same time, a major oil spill will occur in the Great Lakes. The damage from these incidents will be extensive, affecting major population centers and inland trade routes.

This is the fictional scenario that will occur during the spill of national significance (SONS) '07 exercise, scheduled for June 19-28, 2007. SONS 07 will bring together first responders from several participating states and 16 federal departments and agencies. Under the National Oil and Hazardous Substances Pollution Contingency Plan, the Coast Guard; the Environmental Protection Agency; and other federal, state, and local responders will be testing their response to the oil and hazardous substance releases from just such a dynamic scenario.

The Exercise

A "spill of national significance" is defined as a rare, catastrophic spill that greatly exceeds the response capabilities at the local and regional levels. This exercise is congressionally mandated by the Oil Pollution Act of 1990, which in turn revised the regulations under 40 Code of Federal Regulations Part 300.

The exercise focus for the Coast Guard and the Environmental Protection Agency will be to mitigate the oil and hazardous substance discharges and to minimize threats to the public health and the environment. As described in the National Oil and Hazardous Substances Pollution Contingency Plan, the Coast Guard or the EPA will also communicate with affected parties and the public, and coordinate with federal, state, and local resources to manage the incident.

The overarching scenario will include damage to oil storage facilities; ruptures to pipelines; landslides and floods; and damage to buildings, river routes, roads, and communication networks along the Mississippi River Valley and the Great Lakes.

Objectives

Based on the overall objectives of the exercise, each participating agency was encouraged to develop supporting objectives that take into account the concerns and priorities of the scope of the exercise and the objectives of the participating organizations. The following are the major Coast Guard objectives for SONS 07:

1. Evaluate the nation's ability to implement the National Incident Management System and the National Response Plan.

2. Evaluate the effectiveness of interagency coordination in response to a U.S. Coast Guard/Environmental Protection Agency-managed SONS involving multiple regions, states, and local jurisdictions.

3. Assess the viability, compatibility, and coordination mechanisms of all appropriate plans, including the National Response Plan and the National Oil and Hazardous Substances

Pollution Contingency Plan, to support a SONS response.

4. Evaluate the availability and adequacy of national, regional, and local response resources in accordance with appropriate response plans and procedures.

5. Assess the ability to conduct recovery, remediation, and infrastructure restoration. Evaluate the effectiveness of the nation's and individual agency's notification and communication systems, processes, and procedures.

Participation

"There will be four Coast Guard sectors participating: Lake Michigan, Upper Mississippi River, Lower Mississippi River, and Ohio Valley. EPA and FEMA regions four, five, six, and seven will also participate," says LCDR Lindsay Weaver, SONS exercise coordination and support team leader, U.S. Coast Guard Office of Contingency Exercises. "The four EPA and FEMA regions contain the entire Midwest and Southeast United States. This will be the largest SONS exercise ever," adds Weaver.

Ironically, the idea for this SONS exercise was conceived well before Hurricanes Katrina and Rita. It is to be the first exercise for inland waterways, using a natural disaster as the catalyst for the response. The players will have an opportunity to apply some of the lessons learned in the aftermath of those storms, as well as test many of the plans that have been developed since.

In the post-Katrina United States, readiness and cooperation in disaster response has never been more pressing. The spill of national significance exercise has evolved with that in mind, and will provide salient information for the nation's response planners.

The lessons derived from this exercise will help federal, state, and local governments plan for future catastrophes. The Coast Guard and the EPA also plan to achieve their response, recovery, and restoration objectives with regard to oil spills and hazardous materials releases, and apply lessons learned to improve our nation's contingency plans.

The major exercise area will be in and around the New Madrid Fault Zone. The fault lies between 5 and 25 kilometers below the Missouri River Valley, and was created by continental shift millions of years ago.

In 1811 a major earthquake, which was centered near New Madrid. Mo., was felt almost everywhere in the young United States.

According to the Center for Earthquake Studies at Southeast Missouri State University, there is a 25 percent chance that another earthquake will strike this area by 2040.

About the author:
PA2 L.F. Chambers is assigned to the USCG Fifth District in Portsmouth, Va. His NIMS and ICS experience ranges from the Athos I *oil spill in Philadelphia to Hurricane Katrina operations in Louisiana.*

Contributing to this article:
LCDR Lindsay N. Weaver is currently assigned to the USCG Office of Contingency Exercises. She was previously assigned to the Office of Response at USCG headquarters, and to Marine Safety Office New Orleans, La., where she was in charge of pollution response investigations, marine transportation facility inspections, and domestic vessel inspections.

Secure Ports Across the Nation

An overview of security exercises with a special focus on the maritime sector.

by LCDR Oziel Vela
U.S. Coast Guard Pacific Area Maritime Security Plans and Exercise Coordinator

and LT Shawn Essert
U.S. Coast Guard Office of Contingency Exercises

The unofficial beginning of the Coast Guard's maritime security exercise program came with the final approval of the area maritime security plans on July 1, 2004 as mandated by part of the Maritime Transportation Security Act (MTSA) of 2002. The program at that point was left to the individual area maritime security committees and was led by federal maritime security coordinators. Initial exercises included a wide interpretation of the pursuant regulations that ranged from force protection to counterterrorism elements. Guidance provided in "Navigation and Vessel Inspection Circular (NVIC) 9-02 Change 2, Enclosure 4" provided the framework for the official area maritime security training and exercise program, known as AMStep.

AMStep

AMStep is the mechanism by which area maritime security committees and federal maritime security coordinators will continuously improve security preparedness in the port community. It is an integral part and a strategic implementation of the Department of Homeland Security's homeland security exercise and evaluation program with regard to the maritime sector.

Rooted in long-standing Coast Guard exercise policy and procedures, AMStep aligns to support the National Preparedness Goal and the National Strategy for Maritime Security. Through a structured approach, AMStep focuses all exercise efforts, both public and private, on improving the area maritime security plans and individual vessel and facility security plans of the nation's largest seaports.

Building upon our history of strong relationships, the Coast Guard worked together with area maritime security committee members to develop comprehensive area maritime security plans. These antiterrorism plans fall under the umbrella of security plans required by MTSA and as a result of the terrorist attacks on September 11, 2001. These plans serve as the basis of all maritime security exercises and, as a result, are continually improved and strengthened.

PortSTEP

Even while NVIC 9-02 was being finalized and AMStep was taking shape, the Coast Guard joined forces with the Transportation Security Agency in the fall of 2004 to implement a security exercise pilot program that would cross all transportation modes that intersect at ports. This effort, known as the port security training and exercise program (PortSTEP), is a three-year, multimillion dollar exercise program that, through the Coast Guard and the port community, embarks on an intermodal, multimodal approach to security exercises. PortSTEP endeavors to include both

"Our nation's seaports are vital to the economic health of this country," says CAPT Frank Sturm, deputy director of the Coast Guard's Office of Inspections and Compliance. "Through these exercises and other programs, we will be continually testing and evaluating how ready we are to deal with a threat to our ports."

public and private port stakeholders, of the port infrastructure that are not regulated under MTSA 2002 (for example rail and highway transport), in addition to the members of the area maritime security committee.

PortSTEP exercises are designed to meet the requirements outlined in Coast Guard NVIC 9-02 and are developed, planned, and executed following exercise guidelines similar to those used in AMStep. The program has since highlighted the numerous complexities and challenges created by the interdependencies between surface and maritime transportation, requiring out-of-the-box thinking regarding exercise design and execution.

Personnel from CG Group/Air Station Astoria and Portland's emergency response agencies gather at the unified command established as part of the "Columbia Challenge 06" exercise. USCG photo by LCDR Oziel Vela.

At the end of three years of PortSTEP exercises, 40 of our nation's seaports will have participated in and taken advantage of this unique pilot security exercise program. With the Transportation Security Administration's successful transition of the final program across all transportation sectors, the future looks bright with respect to joint, multimodal exercises.

CAPT Patrick Gerrity, Captain of the Port and federal maritime security coordinator in Portland, Ore., briefs Special Agent Dana Kreeger, Federal Bureau of Investigations, after receiving an intelligence bulletin during the Columbia Challenge 06 exercise. USCG photo by LCDR Oziel Vela.

Other Exercises

Many of these exercises have been successfully linked to other contingency exercise programs such as the national preparedness and response exercise program (NPREP). In fact, the federal maritime security coordinator in Portland, Ore. recently conducted the first maritime security exercise under AMStep, combined with a government-led oil pollution response, NPREP exercise. The exercise, "Columbia Challenge 06" proved the significance of having a team of federal, state, and local law enforcement agencies and port stakeholders working together. Each was able to execute their roles and responsibilities under the maritime security plan and area contingency plan, which highlighted the importance of sharing a common readiness and preparedness goal.

Although there are several valid reasons why individual contingencies will continue to be exercised under focused sets of guidelines, the Coast Guard continues to work with the Department of Homeland Security and the Department of Defense to combine exercises, where appropriate, to pursue common goals and objectives, and to alleviate the burden on field units.

Many AMStep and PortSTEP exercises have been conducted over the past two years with great success and, from time to time, some mild discomfort. As a result, these exercises have illuminated several areas to improve our security within the port communities across our nation. From simply increasing the level of familiarity with the area maritime security plans to better implementation and understanding of the Incident Command System throughout the port, our exercise program appears to be crossing the threshold to achieve the desired outcome: secure ports across the nation.

About the authors:

LCDR Oziel Vela has served at MIO New York, MSO San Juan, MSO Corpus Christi, ITD RTC Yorktown, MSO Ponce, and U.S. Coast Guard Pacific area.

LT Essert has served the U.S. Coast Guard in the marine safety and security program at MSO Morgan City, MSD Houma, MSO Chicago, and the Pacific strike team, as well as a previous tour at CG headquarters. He is a prior-enlisted marine science technician and 1998 graduate of the Coast Guard Officer Candidate School.

Lessons Learned

A summary of the DHS hurricane exercise series.

by CDR Michael Hunt
Chief, U.S. Coast Guard Exercise Policy Division

In an effort to better prepare the East Coast and Gulf Coast of the U.S. for hurricane season, the Department of Homeland Security (DHS) sponsored a series of dynamic, interagency preparedness exercises in May and June of 2006. The exercises included the participation of federal and state agencies and the private sector. The exercise format gave participants an opportunity to identify strengths and weakness in their preparedness and improve from the lessons learned.

Program Overview
There were table-top exercises in six regions, a full-scale exercise in Louisiana, and a catastrophic assessment task force (senior officials) exercise in Washington, D.C. The table-top exercises were conducted in New London, Conn.; New York, N.Y.; San Juan, Puerto Rico; Philadelphia, Pa.; Atlanta, Ga.; and New Orleans, La.

The goals of the program were to:

- provide a forum to consolidate the lessons learned from federal and state after-action reports;
- ensure that state and territorial emergency management officials have input into how the lessons learned are implemented;
- identify and communicate best practices;
- increase coordination among federal response agencies, states, territories, tribal nations, local jurisdictions, nongovernmental organizations, and the private sector; and
- identify planning and policy improvements that can be implemented in advance of the hurricane season.

The exercises focused on the integration and coordination of different response disciplines like fire, public works, medical, private industry, and emergency management.

Exercise Overview
Each exercise arranged the participants into several meeting areas, including a separate room for each state, a joint field office section, a principal federal official (PFO) section, and a Department of Defense section.
The objectives at each exercise were:

- emergency public information and warning;
- citizen protection: evacuation and/or shelter-in-place protection;
- communications;
- mass care; and
- critical resource logistics and distribution.

The exercises were conducted in three modules: pre-landfall, landfall/immediate recovery, post-landfall/recovery. During each of these phases, the participants were at their respective sections and were talked through the scenario by a facilitator. During the exercises, the participants were encouraged to move from one section to another to discuss ways to resolve issues that were beyond their capability. After each phase, all participants were brought to a plenary ses-

sion, where a spokesperson for each group summarized their play and issues. There was one conference at the end of the exercise where participants related their most significant issues.

Lessons

The candor of the discussion between principal federal officials and senior state officials was the primary benefit of these exercises. Prior to the start of this hurricane exercise series, there were five PFO teams predesignated to cover the East and Gulf Coast regions. The PFO teams participated in the exercise for their region. The exercises provided opportunities for each level of government to analyze their capability to respond to the scenario and communicate to others the gaps.

Key benefits were:

- power restoration, mitigation process is in place;
- debris removal (contracts);
- public notification/dissemination;
- prepositioning of supplies within state;
- public works (contracts are in place);
- National Incident Management System (NIMS) training is progressing.

Primary concerns were:

- need mechanism to provide evacuation for special-needs citizens;
- need more planning to address how the evacuation from one state will impact neighboring states, including traffic flow, shelter capacity, and medical care;
- concern about competition for contractors between agencies, especially from a regional perspective;
- need long-term shelters and temporary housing;
- need improved capability to deliver medications and food supplies;
- need for equipment to conduct search and rescue;
- need better community education regarding hurricane preparedness; and
- need for all agencies to understand the Incident Command System (ICS).

Lessons specific to private sector were:

- business continuity plans that would allow many private sector entities to continue operations and remain self-sufficient during an emergency;
- need to integrate private sector into emergency operations centers;
- need for training on NIMS/ICS and National Response Plan; and
- need for government to include private sector in warning and evacuation planning.

These hurricane exercises highlighted key preparedness issues and showed where participants need to focus their efforts. The exchange between multiple levels of government, especially between the PFOs and states was lauded at all the exercises. The inclusion of the private sector ensured that this vast capability and the vast needs were better understood. Looking to the future, these exercises are examples of how other regions of the country could improve preparedness through similar exercises.

About the author:

CDR Michael Hunt has served for 16 years in the U.S. Coast Guard as a deck watch officer, marine inspector, marine casualty investigator, pollution responder, contingency planner, and chief of port operations. He is a 1990 graduate of the Coast Guard Academy and a 2005 graduate of the George Bush School of Government and Public Service at Texas A&M University.

USCG photo by PO Robert Reed.

The Coast Guard Contingency Preparedness System

An online system of plans, exercises, lessons learned, and remedial action.

by CDR Jeff Hughes
Chief, Coast Guard After Action Division

What if studying the response effort to Hurricane Floyd (1999) identified the need for a more unified approach to air coordination during mass rescue that produced revised response plans that, in turn, provided a more efficient rescue of thousands of people during the next hurricane season? What if a man overboard incident in 2005 led to a change in service-wide training policy that produced a more highly skilled rescue swimmer who saved a shipmate's life during a similar incident in 2006? What if the lack of situational awareness during an antiterrorism exercise in 2003 led to the development of a new Coast Guard communications protocol that alerted operational forces to interdict a coordinated maritime terror attack in 2008?

The Coast Guard, like other successful organizations committed to continuous improvement, has long recognized the value of recording issues identified during the conduct of operations, training, and exercises. By answering "what if" questions, we learn from those events and are able to incorporate those lessons into improved plans, policies, and procedures.

The Coast Guard has put that power in the hands of every service member through an online application, known as the contingency preparedness system (CPS). The contingency preparedness system provides transparency of the preparedness cycle across the entire service and empowers self-improving behavior.

The Online System

CPS is a web-based application, composed of several modules that together house, link, and support the tracking of plans, exercises, lessons learned, and remedial actions (Figure 1). This data may be viewed

View at http://llintra.comdt.uscg.mil/cps/

Figure 1: The online contingency preparedness system. USCG graphic.

at http://llintra.comdt.uscg.mil/cps/. More than 300 after-action reports and over 2,000 lessons learned have been posted to the contingency preparedness system since 2001.

If you are working on a plan or contingency-related project, there is a good chance that a plan has already been developed or lessons learned/best practices have been collected on a similar project. Take advantage of the insights and experiences of those who have gone before by searching CPS before you begin your next project.

The System Modules

The first module of the contingency preparedness system documents Coast Guard plans (Figure 2). Each plan has a data card that contains basic data, such as the responsible unit, the approving command, the contingency being addressed, the reference that requires the plan, and a hyperlink to an electronic copy of the plan. The data card also indicates the date

the plan was approved, the date the plan was last reviewed, the date it was last revised, the date it was last exercised, and the date of the next planned exercise.

Figure 2: CPS Coast Guard plans module. USCG graphic.

This module allows commanders at any echelon to quickly view the status of all plans in their area of responsibility, or to actually view a specific plan, all from one site. This could be particularly useful in synchronizing efforts across levels of command, when considering a response during a critical incident communications conference. The contingency preparedness system currently documents approximately 263 plans across all contingencies.

The second module of CPS (Figure 3), the concept of exercise (COE), provides the planning basis for exercises and establishes a Coast Guard-wide exercise calendar. The COE lists important information regarding an exercise, such as objectives, participants, funding requirements, the type of exercise, and the dates the exercise will be conducted. Most importantly, the concept of exercise should be linked to a contingency plan that is contained within the plans database. The purpose of conducting exercises, after all, is to evaluate plans and our ability to implement them. This connection will populate the date last exercised/date of next planned exercise blocks within the plans database. Exercising is a key element that indicates the validity of a plan.

Figure 3: The concept of exercise database. USCG graphic.

Figure 4: CGSails database of after action reports and lessons learned. USCG graphic.

The third element, CGSails (Figure 4), is the database of after-action reports and lessons learned. These reports are linked to plans and exercises, as appropriate. It is this database that contains all Coast Guard lessons learned. Reports to CGSails are required for any event that meets one or more of the following criteria:

- Coast Guard involvement in a national or foreign operation or contingency response conducted with joint armed forces, multinational forces, or other federal government agencies;
- Coast Guard participation in a response or exercise involving suspected terrorist activity or suspected chemical, biological, radiological, nuclear, or high explosive materials, weapons, or devices;
- Coast Guard participation in an exercise involving international coordination with the Department of State;
- Coast Guard participation in a National Response Plan response;
- oil spill or hazardous materials release requiring an on scene coordinator report to the national response team, or for which an incident-specific preparedness review report has been conducted;

- Coast Guard planned exercises and other exercises wherein there is significant Coast Guard participation;
- as directed by the operational commander; or
- as directed by the commandant.

Reports are required to be submitted within 21 days from the end of an exercise or operation. Reports are to be reviewed and validated by the developing command, prior to submitting the report into CGSails. Units (plus their district and area CPS coordinators) are notified when their approved report is released into the database.

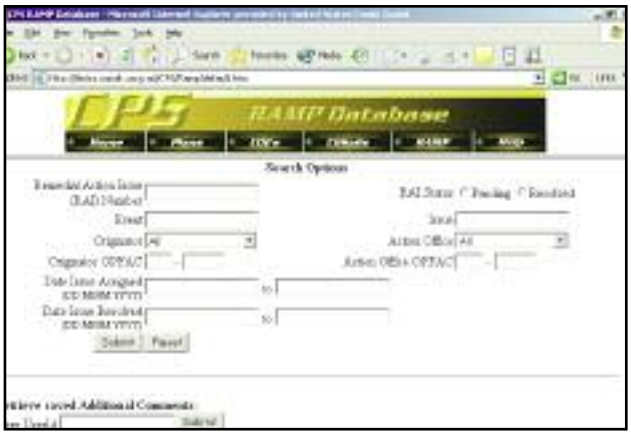

Figure 5: The remedial action management program module. USCG graphic.

The last and newest module of the contingency preparedness system is the remedial action management program, or RAMP (Figure 5). Within this module, commands and personnel are assigned responsibility for taking action on issues identified during an operation, exercise, or training event that should be changed to ensure more effective future operations. This is the critical link that focuses our efforts on institutional learning and plan improvement. CPS associates RAMP issues directly with plans highlighting outstanding issues linked to a plan (Figure 6).

Follow-up

The responsibility for a remedial action management program issue is a collaborative assignment between the unit, the after-action division, and the unit that accepts responsibility for the action item. Action can be assigned to the appropriate level of the organization from the unit to the Department of Homeland Security. The end result should be revised and improved plans, policies, or procedures.

We continue to improve the contingency preparedness system application by identifying and addressing shortcomings and making the system as user friendly as possible. We are investigating the programs of other DHS components and identifying aspects of their systems that may be beneficial to our after-action reporting. For instance, FEMA uses trained facilitators from a centralized command to collect and enter lessons learned instead of relying on individual units.

Another capability enhancement we are pursuing is the ability to accommodate classified plans and lessons learned. We know the best way to achieve maximum use of the system is to ensure it meets the needs of those it is designed to support.

Be part of the continuous improvement cycle and help the rest of the service learn from your plans, exercises, and experience. Use the contingency preparedness system.

About the author:

CDR Jeff Hughes has served in the U.S. Coast Guard for 21 years. He is currently assigned to the joint staff, Operational War Plans division. Other assignments have included service on three cutters. He has held the titles of contingency preparedness program manager and liaison to the chief of naval operations. CDR Hughes holds a Master of Arts degree from the U.S. Naval War College and a Bachelor of Science degree from the U.S. Coast Guard Academy. CDR Hughes has received the Coast Guard Meritorious Service Medal, three Commendation Medals, and three Achievement Medals, among other awards.

Plan	Short Title	RAMP Issues	Command	Review Date	Contingency
Port Heavy Weather Plan for Northeast and Eastern Central Florida	SECTORJAXINST 16600.1	Communications with 210' WMECs in Port Canaveral Remain in Port Requests Canaveral Barge Canal Safety Zone Port Assessment Teams	07-33231 CG MSO JACKSONVILLE	06 Apr 2006	NATURAL DISASTER

Figure 6: Example of a remedial action management program issue.

Managing International Preparedness

The adoption of ICS principles.

by LCDR Paul Lattanzi
U.S. Coast Guard Office of Incident Management and Preparedness

In 1967, the *Torrey Canyon*, the world's first oil supertanker, struck Seven Stones Reef off the southwest coast of England, broke apart, and spilled her cargo into the sea. An estimated 31 million gallons of oil were released, which had an immense environmental impact on an extensive area along the coasts of England and France.[1] This event awakened citizens and governments to the environmental and economic risks of transporting hazardous cargos on the world's waterways. As a result of this spill, the International Maritime Organization (IMO) drafted the 1973 "International Convention for the Prevention of Pollution from Ships" (MARPOL) and many nations, including the United States, drafted domestic regulations governing preparedness and response to oil and hazardous substances releases.

Since the sinking of the *Torrey Canyon*, there have been many more international and domestic pollution incidents that have had a significant impact on the preparedness and response to oil and hazardous material releases. The most significant include the *Argo Merchant* in 1976, the *Amoco Cadiz* in 1978, *Exxon Valdez* in 1989, the *Erica* in 1999 and the *Prestige* in 2002.[2]

Because oil spills do not respect international boundaries, the U.S. Coast Guard has a vested interest in coordinating with its international partners and neighbors to prevent and respond to future spills. Also, the "United Nations Convention on the Law of the Sea" and several other conventions call on nations to cooperate in oil spill prevention, preparedness, and response.

Preparedness

The U.S. Coast Guard is a leader within the international oil spill preparedness community. Through the Office of Incident Management and Preparedness, the Coast Guard participates in the multinational groups of IMO and the Arctic Council and manages joint response plans with Canada, Mexico, and Russia. Further, the Office of Incident Management and Preparedness maintains assistance agreements with Panama, the British Virgin Islands, and Bermuda.

At the IMO, the Coast Guard works to set international preparedness and response standards as a member of the IMO "Oil Pollution Response Convention of 1990" (OPRC) Marine Technical Group, which provides recommendations to the marine environment committee.

The United States has long recognized the need to form cooperative agreements with its neighbors. In 1972 the "Great Lakes Water Quality Agreement"[3] was signed between the United States and Canada, committing each nation to the protection of the Great Lakes water basin ecosystem. Pursuant to this agreement, the U.S. Coast Guard and Canadian Coast Guard created the "Canada-United States Joint Marine Pollution Contingency Plan"[4] (CANUS), which extends the plans and preparation for joint response to include the Atlantic, Pacific, and Arctic borders between the two nations.

The CANUS plan has five geographical annexes that provide specific guidance for fulfilling requirements for planning, training, exercising, and responding to oil and hazardous substance incidents. The Coast

Guard Office of Contingency Exercises and Training coordinates efforts with the Coast Guard district offices bordering Canada, to ensure each geographical annex is exercised on a biennial schedule, ranging from table-top to full-scale exercises.

Similar to our international borders to the north, the United States Coast Guard and the Mexican Navy have created and agreed to "The Joint Contingency Plan Between the United Mexican States and the United States of America Regarding Pollution of the Marine Environment by Discharges of Hydrocarbons or other Hazardous Substances"[5] (MEXUS). The MEXUS plan outlines an Incident Command System-based joint response system and identifies agencies from both Mexico and the United States that will provide support during a pollution incident.

In February of 2003 two regional annexes, MEXUS-GULF and MEXUSPAC,[6] were signed, providing specific operational information to fulfill training and response requirements The USCG and Mexican Navy have established an excellent rapport and enjoy a collegial working relationship as they work to fully implement the MEXUS plan and its annexes and hone response capability through joint response exercises. Under the auspices of the MEXUS plan, the Mexican Navy played a prominent role in the California spill of national significance exercise[7] in 2004.

Beyond our immediate bordering nations, the United States Coast Guard recognizes its leadership role in the Western Hemisphere, and has offered oil and hazardous substance release planning and response assistance to a number of partner nations. In this category, none is more prominent than Panama. Working with the Environmental Protection Agency and other members of the national response team, the Coast Guard has established and maintains an assistance agreement with the Panama Canal Authority, offering planning and preparedness expertise as well as response capabilities to prevent and respond to an oil, hazardous substance, or radiological incident in this strategic waterway. A senior Coast Guard officer is embedded with the Panama Canal Authority as a liaison[8], and exercises are conducted between the national response team and the Panama Canal Authority on an annual basis (Figure 1).

Response

In addition to engaging in planning, preparedness, and exercise activities, the Coast Guard shares its significant spill response expertise with other nations when pollution incidents occur. The U.S. Coast Guard has provided responders, equipment, and expertise from the national strike force to assist in the response to the *Prestige* off the coast of Spain, the *Erica* off the coast of France, the *Tasman Spirit* in Pakistan, and the *Jessica* in the Galapagos Islands, to name a few.[9] Recent assistance provided during the 2005 grounding of the *Santa Emma* in New Brunswick, Canada earned the Gulf Strike Team the Canadian Coast Guard's highest recognition, the Commissioner's Commendation.[10]

The assistance that the U.S. Coast Guard has provided, be it response or sharing of technical expertise, has earned significant good will from the international community and has created opportunities for further collaboration with partner nations.

Sharing of Incident Command System Principles

In 1996, the U.S. Coast Guard formally adopted the National Interagency Incident Management System/Incident Command System as its response management system for response to oil and hazardous substances releases. The significant benefit of

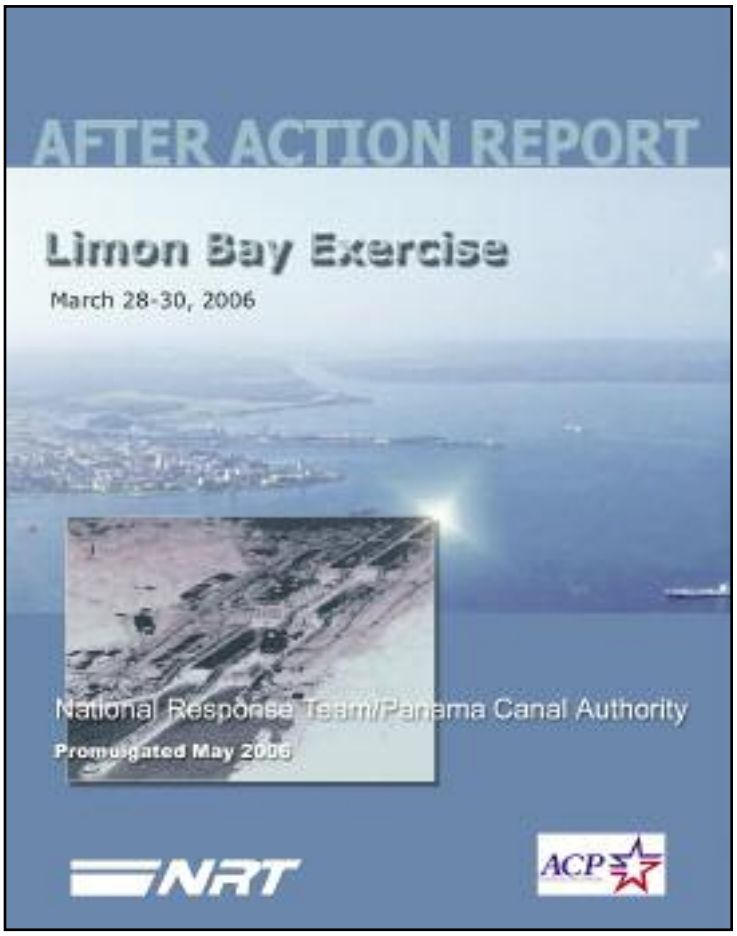

Figure 1: After-action report. USCG graphic.

Figure 2: The Incident Management Handbook has been promulgated in several languages. USCG graphic.

having all responders using the same response management system was noted during the events of September 11, 2001. As a result, the president mandated through Homeland Security Presidential Directive 5 that all U.S. government departments and agencies follow the ICS principles in future response.

Similarly, when two international parties come together to prepare for or respond to a pollution incident, the proficiency of the response is greatly enhanced when both parties use the same response management system. This is especially beneficial, when the universal language of the Incident Command System helps to overcome language barriers.

Since 1996, the Coast Guard has encouraged acceptance of the Incident Command System by its international partners. To date, the Coast Guard has translated and promulgated the Coast Guard's Incident Management Handbook (Figure 2) into French, Russian, Spanish, Norwegian, and Arabic.[11] This handbook has been readily accepted and the ICS principles initially adopted by many in the international oil spill community.

The adoption of ICS has been quicker in nations with nascent or no response management systems. In the case of Canada, it has stood fast by its well developed and long-standing Response Management System (RMS). The U.S. and Canadian Coast Guards have completed a comparison study and found RMS and ICS to be compatible. The two Coast Guards practice the use of both systems during joint exercises, to ensure familiarity with each system.

As the global economy and international trade continue to grow, so does the risk of large-scale, international pollution incidents. As this risk grows, so does our responsibility for good stewardship of the world's oceans. Large spills, such as those resulting from the *Exxon Valdez* or *Prestige* incidents have not only devastating ecological effects, but also produce significant economic and political repercussions.

In all pollution incidents, especially ones involving more than one country, it positively affects the response if each responding party is familiar with the other's response management system. It is even better when each party uses the same management system. Regardless of which management system is used, planning and exercising in preparation for an international response is the key to future success.

About the author:
LCDR Paul Lattanzi graduated from the United States Coast Guard Academy in 1995 and has served in positions as a deck watch officer on the cutter Diligence *and as a commercial vessel inspector in Seattle and Guam. Following graduate school at Tufts University, LCDR Lattanzi was assigned to the Office of Incident Management and Preparedness.*

Endnotes:
1. www.imo.org
2. http://cgcentral.uscg.mil.
3. www.epa.gov/glnpo/glwqa/index.html.
4. www.ec.gc.ca/regeng.html.
5. www.epa.gov.
6. www.uscg.mil.
7. www.sons-program.org/SONS/SONS_07.nsf/mainpage?OpenForm.
8. www.uscg.mil.
9. http://cgcentral.uscg.mil.
10. www.ccg-gcc.gc.ca.
11. http://cgcentral.uscg.mil.

You're Grounded!

The grounding of a passenger vessel prompts large-scale response effort.

by LTJG Nick Barrow
Public Affairs Officer, U.S. Coast Guard Sector Portland

and Ms. Amy Gaskill
Pacific Region Fisheries Resources External Affairs Specialist, U.S. Fish and Wildlife Service, USCG (ret.)

A river cruise ship goes hard aground on a rocky ledge outside the main navigation channel of the Columbia River, near Portland, Ore. The vessel floods and begins to list to port. Onboard are 260 passengers and crew, and more than 35,000 gallons of diesel fuel. It is a mild morning in early spring, but the weather is notoriously unpredictable in the lower Columbia this time of year, and sunset is in seven hours. Many of the passengers are elderly and cannot debark to shore. The chill of the air, combined with the cold water temperature make the onset of hypothermia a rapid certainty for any person who falls overboard. This is not a drill.

Despite making the Columbia River voyage more than 100 times since being built in 2001, the 360-foot *Empress of the North* took an unexpected and nearly disastrous turn recently, and Sector Portland was ready to answer the call. The grounding occurred near Washougal, Wash., just 20 miles east of Portland, Ore. The vessel would remain there for 54 hours, and motivate a multi-agency response that captured the attention of thousands (Figure 1).

ICS in Action

Coast Guard units from Station Portland and Air Station Astoria were immediately dispatched to the scene by the commander, Sector Portland CAPT Patrick Gerrity. In keeping with the Incident Command System (ICS) process, a fully functional unified command was established within two hours of the initial notification at Sector Portland, made up of members from the U.S. Coast Guard; Washington Department of Ecology; Portland Fire Bureau; and the owners of the Empress of the North, American West Steamboat Co. At the height of this response, more than 30 people were working together at an incident command post, pooling expertise from

Figure 1: The *Empress of the North* (left) transfers passengers and non-essential crew to its sister ship, the *Queen of the West* (right) as an HH-60J from Air Station Astoria flies overhead, monitoring the incident. Response boats from Station Portland and the Multnomah County Sheriff's office are also on scene to assist with the transfer. USCG photo by PA1 Amy Gaskill, USCG (ret).

Figure 2: CWO4 Eric Olson approaches the *Empress* to assess the vessel's condition, as plans were being developed to transfer passengers. LT Zeke Lyons (seen on the bridge wing), a marine casualty investigator, obtains information from the bridge. USCG photo by PA1 Amy Gaskill, USCG (ret).

various fields, including incident management, mass search and rescue, naval architecture and salvage, and marine casualty investigations. The incident quickly became a high-visibility media event, tapping all local and regional outlets and several national and international press markets.

With sunset fast approaching, and status reports indicating progressive flooding, the unified command quickly set objectives and developed an incident action plan, focusing on the mass rescue operation for the 180 passengers and 80 crew first. The greatest challenge was finding the right search and rescue platform to safely transfer hundreds of people off the vessel. This necessity and the talents of the unified command team brought forth its first of many innovative solutions to this three-day response.

Right across from Sector Portland's Base and only a thirty-minute transit away from the grounded vessel, the *Queen of the West*, sister ship to the *Empress of the North*, had just completed a scheduled dry dock maintenance period. The owner, American West Steamboat Co., agreed to offer the services of the *Queen of the West* as a rescue vessel. The unified command directed the ship and a mooring barge into position alongside the *Empress of the North* (Figure 2).

With sector responders and Portland Fire on scene, 240 persons were safely transferred from the barge to the 230-foot *Queen of the West* (Figure 3), accounted for, and delivered to a designated triage area, where a medical team was standing by. Remarkably, no injuries to passengers, crew, or rescue personnel occurred during the rescue. Twenty crew members remained on board to man critical positions, taking continuous soundings of tanks to monitor flooding and ship stability, and keeping vital power and navigation systems on line.

The Incident Action Plan Shifts Gears

With the search and rescue phase of the response complete, the unified command set new incident objectives, focused on the pollution threat. Although no sheen on the water was reported after the grounding, the wind and current were "working" the vessel harder onto the river bottom, stressing the hull and possibly contributing to the uncontrolled flooding. Confirmation of fresh water in several voids, located under the ship's fuel tanks, added to the urgency to remove the fuel quickly and prevent an oil spill. Doing so would not only reduce the potential for environmental damage, but also lighten the ship, so that it could be pulled off the river bottom.

The operations section chief requested assets from Marine Safety and Security Team 9110 from Seattle, for safety zone enforcement and deployment of their remotely operated vehicle (ROV). From the decks of the *Empress of the North*, the ROV was used to check the hull below the waterline, providing a unique opportunity to view damage that was allowing water to fill three voids. The visual inspection also confirmed that the fuel tanks remained intact and free from damage.

Meanwhile, as the ICS planning and operation section refined the IAP and tactics, the logistics section coordinated in securing equipment to lighter the ship of its fuel. Sector personnel recommended a coordinated release of water from the Bonneville Dam, located upriver of the vessel to assist the salvage tugs now enroute to the scene. A quick phone call to the Army Corps of Engineers secured its assistance, and brought the talent and capabilities of yet another agency into the first ever dam-assisted response on the Columbia River.

Final Salvage, Repairs

Sector Portland pollution responders oversaw the successful offloading of 30,000 gallons of marine diesel fuel from the vessel by the end of the second day, and the stage was set for the final salvage phase of the response, when two tugs pulled the vessel from the ledge. This was made possible by removing

passengers and fuel, and the extra water released from the Bonneville Dam that raised water levels on scene approximately one foot.

Under its own power, the *Empress of the North* went into dry dock in Portland, Ore. to assess damage. Just three weeks later, the hull was fully repaired, passed Coast Guard inspections, and the *Empress of the North* was returned to service.

Preliminary Investigation

Coast Guard investigators at Sector Portland determined that several factors contributed to this casualty, the most significant of which was simply a poor meeting location on the river. "The *Empress of the North* had to maneuver out of the channel in order to avoid a tug and barge traveling up bound, which had been set off course by wind and currents," says LT Zeke Lyons, a marine casualty investigator at Sector Portland. "The operator of the *Empress* tried to slow the vessel to let the tug and barge pass, but was unable to slow it enough to keep the vessel from ending up on Ough Reef." The *Empress of the North* has since made changes to its standing orders and operations to reflect that there are certain parts of the Columbia River where it shall not meet other vessels.

Vessels transiting up and down the Columbia River routinely call out their locations on the radio so they can anticipate meeting situations and react accordingly. Sector investigators found out, however, that there is no actual standard or list of call out locations on the river. Personnel from Sector Portland and the Columbia River marine industry are currently working together to fix this problem to prevent future incidents.

An Interagency Success Story

The value of extensive prior interagency coordination and application of NIMS/ICS were highlighted during the response. The agencies that responded to the *Empress* had, ironically, just that week completed "Columbia Challenge," a three-day full-scale terrorism and environmental-response drill (see related article). This drill was used to evaluate local area contingency plans; federal, state, and local industry response plans; and communications compatibility.

This provided an opportunity for all stakeholders to meet and understand the capabilities and resources that each would contribute during an actual incident. "The successful actions during this case can be directly attributed to exercises like Columbia Challenge, which we conducted just prior to the *Empress* grounding," says CAPT Gerrity. "I am very proud of the relationships we have established with our partners on one of the busiest river systems in the country."

About the authors:

LTJG Barrow is a 2005 graduate of Officer Candidate School. His first assignment was Sector Portland, where he is currently the Ports, Waterways, and Coastal Security officer and the public affairs officer. He is a 2003 graduate of the University of Nevada, Las Vegas.

PA1 Gaskill served on active duty from 1990 until 1999. She is a 2004 communications graduate from Marylhurst University. She currently works for the U.S. Fish and Wildlife Service, as the Pacific Region Fisheries Resources external affairs specialist. She retired in November 2006 from the Coast Guard Reserves, with 22 years of service.

Figure 3: MST1 Lucia Mack assists passengers with special needs during the passenger transfer. A barge was placed between the *Empress of the North* and the *Queen of the West* to safely facilitate this process. USCG photo by PA1 Amy Gaskill, USCG (ret).

Nautical ENGINEERING Queries

1. Which of the following statements is correct concerning the "flash point of a liquid"?

Note: Flash point is the lowest temperature at which a liquid produces sufficient vapor to form an ignitable mixture that can be ignited by an external source, but is immediately extinguished. This is a result of the rate of vaporization of a liquid at the flash point is usually insufficient to maintain the presence of a continuous quantity of an ignitable mixture.

A. It is lower than the ignition temperature.
Correct Answer: The flash point is the lowest temperature a flammable liquid can form an ignitable mixture and burn when ignited by an external source. The rate of vaporization at the flash point is usually insufficient to maintain continuous burning. If the flammable liquid is heated to a much higher temperature, the vapors produce at the liquid's surface will continue to ignite without needing the application of an external source of ignition. The temperature at which the vapors self-ignite is referred to as the ignition temperature, and it is higher then the flash point temperature.

B. It is the temperature at which a substance will spontaneously ignite.
Incorrect Answer: Certain substances, such as animal and vegetable oils, create their own heat due to slow oxidation, and if kept in a poorly ventilated area, will self-ignite when the ignition temperature of the oil is reached. This process of slow oxidation and self-ignition is known as spontaneous ignition (combustion).

C. It is the temperature at which a substance, when ignited, will continue to burn.
Incorrect Answer: The fire point is the temperature at which a liquid will produce sufficient vapor and when ignited by an external source, will continue to burn. The fire point lies between the flash point and ignition temperature of a flammable liquid.

D. It is the temperature at which the released vapor will fall within the explosive range.
Incorrect Answer: The flammable vapor of a liquid must mix with the air in a certain proportion to produce an ignitable mixture. The flammable, or explosive range, is the percentage of gas or vapor in the air that forms an ignitable mixture. The explosive range of a gas or vapor lies between the Lower Explosive Limit (LEL) and the Upper Explosive Limit (UEL). The LEL is the smallest percentage of vapor mixing with air that will form an ignitable mixture. If the percentage of vapor is below the LEL, the mixture is considered too "lean" to support combustion. The UEL is the greatest percentage of vapor in air that will support combustion. If the percentage of vapor in the air exceeds the UEL, the mixture is considered too "rich" to support combustion. The combustible gas indicator is utilized to measure the percentage of flammable vapor in a closed or confined space.

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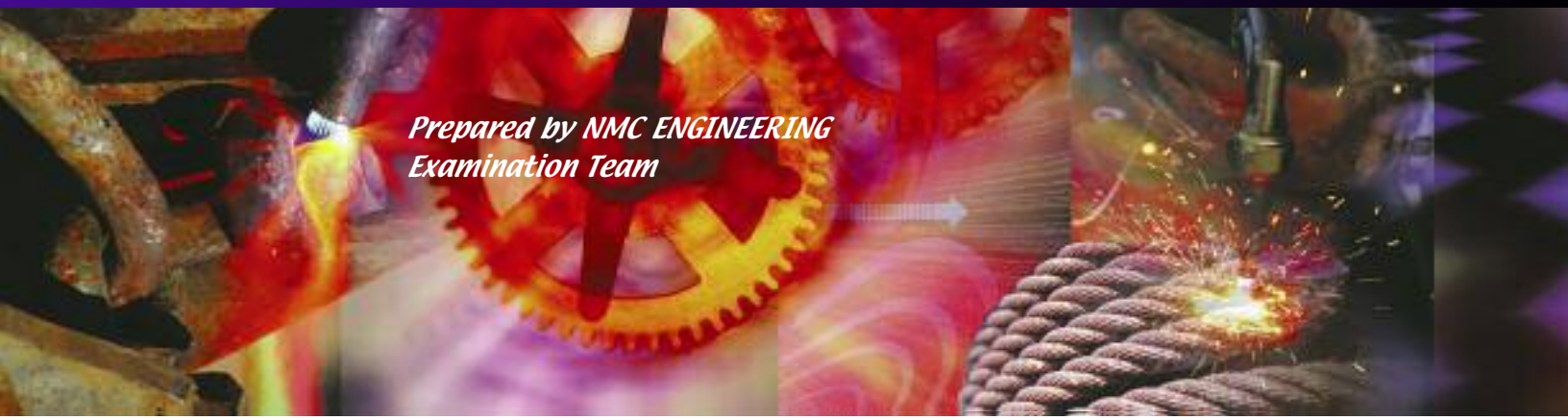
2. Which of the following statements represents the Coast Guard Regulations (46 CFR) applicable to the equipment required in a fireman's outfit?

A. The flashlight must be of an approved three cell fire proof type.
Incorrect Answer: Regulations neither specify the flashlight to be two or three cell, although it is to be of an explosion-proof construction, (not fire-proof).

B. The assembled lifeline shall have a minimum breaking strength of 1500 pounds (683.8 kg).
Correct Answer: 46CFR 96.35-5 (d) specifically makes the statement that "The assembled lifeline shall have a minimum breaking strength of 1,500 pounds."

C. The combustible gas indicator hose must be 100 feet (30.48m) in length.
Incorrect Answer: The Fireman's Outfit is not required to include the use of a combustible gas indicator. However, in lieu of a flame safety lamp, the vessel may carry an oxygen depletion meter (Refer to 46 CFR 96.35-10 (a)).

D. All protective clothing must be electrically non-conductive.
Incorrect Answer: 46 CFR 96.35-5(f) states that ONLY the boots and gloves are required to be electrically non-conductive. 46 CFR 96.35-5 (h) states that "Protective clothing shall be of material that will protect the skin from the heat of fire and burns from scalding steam. The outer surface shall be water resistant."



3. When normal operating pressure is applied to the hydraulic oil in a high-pressure system, the oil _____.

Note: Viscosity is a measure of the internal resistance (friction) of a fluid to flow, and is affected by changes in pressure and temperature. A fluid that flows easily is said to have a low viscosity, and a fluid that flows slowly has a high viscosity. Liquids are considered as non-compressible under normal or low pressure conditions. However, when subjected to elevated pressures, the fluid volume decreases approximately one percent per 1000 psi. Hence, extreme hydraulic pressures will decrease volume and the "space" between the liquid molecules, which increases internal resistance, and therefore increases the viscosity.

A. viscosity will increase
Correct Answer: The viscosity of a fluid increases as the pressure on the fluid increases. An increase in pressure decreases the volume of the fluid, and the space between the fluid molecules is reduced. The molecules cannot move as easily, and the viscosity increases.

B. viscosity will decrease
Incorrect Answer: Viscosity of a liquid decreases the internal spacing between the molecules increases which reduces its internal resistance.

C. volume will increase
Incorrect Answer: When pressure is applied to the hydraulic oil, the volume will be decreased. At atmospheric pressure, a fluid is considered to be incompressible.

D. floc point will increase
Incorrect Answer: Floc point is the temperature at which the waxy material that is ordinarily contained in oils, begins to solidify and separate from a lubricating oil. The floc point is usually a consideration for lubricating oils used in systems such as refrigeration units.

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4. Hydraulically servo-operated, automatic, change over valves, utilized in a two ram hydraulic steering gear, serve to _____.

A. allow an alternate main pump to start in the fully loaded condition thus developing immediate full torque
Incorrect Answer: The main pumps must start in an unloaded condition. The servo-operated automatic change-over valves as referred are held in a spring positioned by-pass mode while the pump is stopped. When the main pump starts, an auxiliary pump also starts and develops pressure, which overcomes the spring force to shift the valve from the by-pass position and aligns the main pump to the hydraulic system.

B. prevent either main pump from being hydraulically motored when idle by cross pressure flow
Correct Answer: The servo-operated automatic change-over valves are held in a by-pass condition by a spring while the pump is stopped, which prevents the pump from being hydraulically motored by cross pressure flow.

C. prevent both units from operating simultaneously which could result in doubling the flow of oil and pressure leading to over pressurization of the system
Incorrect Answer: There are a limited number of systems which require temporary quick output response. In response, both units may be run simultaneously and discharge to the same actuator. The result is for the oil flow rate through the system to double, and to also understand that an action of this nature would exponentially raise the indicated pressure of the system. It must also be kept in mind that by design the rudder is required to move from 35° on one side of the centerline to 30° on the other side in not more than 28 seconds. Accordingly, this type of action is unnecessary as increasing the rate of rudder movement would not contribute to increasing the safety of the vessel at this point, even during an emergency turn; the vessel's forward speed would become more crucial.

D. all of the above
Incorrect Answer: "B" is the only correct answer.

Nautical DECK Queries

1. The American consul has asked the master of a vessel bound for a port in the U.S. to transport a destitute seaman back to the U.S. Which action may the master take?

Note: A consular officer is required to provide, for a destitute seaman of the United States, subsistence and passage to a port of the United States in the most reasonable manner, at the expense of the United States Government and subject to regulations prescribed by the Secretary of State. A seaman, if able, is required to perform duties on the vessel giving the seaman passage in accordance with the seaman's rating.

A. He is normally required to take the seaman.
True. A master is normally required to take a destitute seaman on board at the request of a consular officer and transport the seaman to the United States.

B. He may refuse to take the seaman if the seaman has a contagious disease.
True. A master is not required to carry a destitute seaman if the seaman is known to have contracted a contagious disease

C. He may refuse to take the seaman if it will violate the Certificate of Inspection.
True. A master is not required to take a destitute seaman if by doing so; the act would exceed the manning allowed on the COI.

D. All of the above
Correct Answer: Choices A, B and C are all correct statements.

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2. After an IOPP certificate is issued to an inspected vessel, how many other surveys of the vessel's pollution preven tion equipment are conducted during the period of validity of the certificate?

Note: Each U.S. oil tanker of 150 gross tons and above and each other U.S. ship of 400 gross tons and above; that engages in voyages to ports or off-shore terminals under the jurisdiction of other parties to MARPOL 73/78 must have onboard a valid International Oil Pollution Prevention (IOPP) certificate. An IOPP certificate is valid for five years.

A. None
Incorrect: Periodic surveys are required throughout the five years the certificate is valid.

B. One
Incorrect: During the period of validity of the certificate, one intermediate survey is conducted as close as practicable to 24 months from the date of issuance of the certificate in addition to the two annual surveys.

C. Two
Incorrect: During the period of validity of the certificate two annual surveys are conducted as close as practicable to 12 months and 36 months from the date of issuance of the certificate in addition to the intermediate survey.

D. Three
Correct: Two annual surveys and one intermediate survey are required during the five year validity period of the IOPP certificate is required.

3. Which publication would give detailed information on the commercial vessel traffic reporting system for connecting waters from Lake Erie to Lake Huron?

Note: The information required to be passed on to the Vessel Traffic Reporting System (VTRS) includes Radio listening watch, Radiotelephone equipment, English Language, Traffic Reports, Reporting Points, Report of impairment or other hazard and Exemptions.

A. United States Coast Pilot – Great Lakes #6
Incorrect: Coast Pilot Great Lakes #6 contains general reference to a VTRS for that area but only identifies 33CFR 162.130 through 162.140 and does not contain the specific information that may be found in 33 CFR regarding the VTRS that encompasses the connecting waters from Lake Erie to Lake Huron.

B. U.S. Coast Guard Light List – Vol. VII
Incorrect: Coast Guard Light Lists contain information on Coast Guard maintained aids to navigation, such as lighthouses, buoys, and day markers. It does not contain any information regarding any VTRS.

C. Code of Federal Regulations – Title 33
Correct Answer: Details of the VTRS for connecting waters from Lake Erie to Lake Huron are found in the 33 CFR, Part 162.132.

D. The appropriate Great Lakes Navigation Chart
Incorrect: The chart contains a note that identifies VTRS call-in points and direction of vessel movement. It refers to Coast Pilot #6 and Canadian Notice to Mariners for additional information. The chart, however, does not contain detailed information regarding the VTRS and is located only in Title 33.

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4. Which space(s) is (are) deducted from gross tonnage to derive net tonnage?

Note: Gross tonnage is the entire internal cubic capacity (volume) of the ship expressed in tons of 100 cubic feet to the ton, except certain spaces which are exempted such as spaces on or above the line of the uppermost complete deck, passenger spaces, open structures, open space between the shelter deck and the next lower deck, and water ballast spaces. Net tonnage is the total volume of cargo carrying capacity of the vessel.

A. Companions and booby hatches
Incorrect: Companions and booby hatches are located on or above the line of the uppermost complete deck and are covers to protect stairways or ladder ways leading to spaces below and, therefore are exempted from gross tonnage calculations. They are not included in a vessel's gross tonnage, and therefore, cannot be a deduction. 46 CFR 69.117(b)(2)

B. Chart room
Correct Answer: A deductible space must be used exclusively for, and be reasonable in size for its intended purpose. The chartroom is a space for keeping charts and nautical instruments for plotting the vessel's course and is a space that is included in the calculation of a vessel's gross tonnage. Since a chart room is included in the calculation of the vessel's gross tonnage, it is a deductible space when calculating the net tonnage of a vessel since it does not add to a vessel's cargo carrying capacity. 46 CFR 69.119(e)

C. Open structures
Incorrect: Open structures are structures that are located on or above the line of the uppermost complete deck that are under cover (sheltered) but open to the weather, such as a covered exterior passageway, and are exempted from gross tonnage calculations. They are not included in a vessel's gross tonnage, and therefore, cannot be a deduction. 46 CFR 69.117(d)

D. All of the above
Incorrect: Answer "B" is the only correct answer to this question.

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