



Mass Casualty

Planning, Evacuation & Lessons Learned



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Editor's Notes

By James D. Hessman, Editor in Chief



JL Smither, one of several distinguished professionals featured in June's "roundup" issue, points out that the near-miss Hurricane Dean of August 2007, which caused the "almost" evacuation of numerous Texas communities – can provide some valuable lessons learned. If, that is, honest and detailed after-action reports spell out what went right, what went wrong, and what happened that was not anticipated.

Another near miss, the terrorist attack that never happened – i.e., the failed Times Square bombing attempt by Faisal Shahzad – is examined closely by Neil Livingstone, an internationally respected expert in terrorism and counterterrorism. His stern but unavoidable verdict: Shahzad was a bungling amateur, so the United States was lucky this time around. That type of near miss was avoidable, though – and, most Americans would agree, totally unacceptable.

Also in this issue is a detailed **DP40 Summary Report** on the use of social media in disaster response prepared by Joseph C. Becker, the American Red Cross's senior vice president of disaster services, and summarized by John Morton, senior advisor. DP40 members and DPJ readers agree in general on their answers to most of the questions asked. But there are a few notable differences and, of greater importance, several significant questions raised by both groups, particularly in the field of liability.

The inevitability of future terrorist attacks against the United States is examined in considerable detail by Vayl Oxford, former director of the Domestic Nuclear Detection Office, who spells out the urgent need for a comprehensive "Nuclear Forensics and Attribution Act" as the necessary first step in: (a) preventing a future nuclear attack against the U.S. homeland; (b) dealing with the aftermath, if prevention fails (as it well might); and (c) determining what group or nation launched the attack. That would be only a start, though. The executive and legislative branches of government would be well advised to heed Oxford's cogent advice and implement his recommendations as soon as possible.

Richard Schoeberl provides a glimmer of hope in his discussion of how the United States and its allies are preparing to deal with the aftermath of a CBRNE incident. His comments on the United Kingdom's multinational 2005 Atlantic Blue exercise, which took years of planning and involved an estimated 10,000 operational personnel, are particularly worth reading, and remembering.

Also included in this monthly printable issue are insightful articles by: Raphael Barishansky, who reports on the difficulties facing healthcare institutions as they attempt to formulate doable and affordable continuity-of-operations plans; Steven Grainer & Patricia Snead, who offer helpful advice (from a Virginia Case Study) on the establishment of state-managed evacuation shelters; Kay Goss, who provides an all-star list of various states (Ohio, Texas), cities (Pittsburgh, Washington, D.C.), and private-sector as well as government agencies (the U.S. Fire Association, the National Institute of Standards and Technology) that are transforming Best Examples into Best Practices in their efforts to strengthen and improve domestic security; and Joseph Cahill, who presents a heartfelt reminder about the "secondary" victims of mass-casualty incidents – namely, the families of first responders and other victims who die in the line of duty while helping others.

Adam McLaughlin does double duty in the issue, with: (1) his Special Report on a massive multi-agency VBIED (vehicle-borne improvised explosive device) training exercise carried out earlier this year at the New Jersey Maritime Terminal; and (2) four States-of-Preparedness updates on recent domestic-preparedness events in the great states of California, Idaho, Oregon, and Texas.

About the Cover: Susan Collins uses her magical touch to combine the lethal fury of an ocean tornado storm (iStock Photo) with the massive evacuation by Texas citizens from Padre Island and Corpus Christi just prior to the havoc caused by Hurricane Bret, a force four storm that made landfall in the southeastern corner of the state in late August 1999. (FEMA News Photo by Dave Gatley.)

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COOP Planning Becomes Major Concern for Healthcare Facilities

By Raphael M. Barishansky, Public Health



For the uninitiated, a continuity of operations or “COOP” plan can be intimidating to understand, develop, and operationalize. The process may seem daunting, but a solid understanding of what is entailed and who should be involved can simplify the process significantly.

COOP allows for the continuation of the essential functions of government departments or agencies during any incident or emergency that may disrupt normal operations. COOP addresses the recovery of critical and essential government operations in the event of an emergency. The disruption could be short-term – caused by a power failure, for example – where possessing a backup capability (e.g., systems, personnel, processes, and files) might quickly resolve the situation. It also could be longer-term, though – perhaps in the wake of a natural disaster when services are affected for several days or, in some cases, weeks. In either case, the rapid availability of an effective COOP plan facilitates the performance of a health department’s functions both during and after an unforeseen emergency or other situation that may interrupt normal services.

A health department’s COOP plan can be activated during any type of emergency or disaster that affects staffing levels with the understanding that, depending on the outside entities and organizations likely to be involved, help may not be available for some period of time (usually ranging from a minimum of 48 hours to perhaps several weeks). The overarching goal remains the same, though: to determine how to keep critical functions going when the staff and/or usual healthcare facilities available are “out of commission” for any of several reasons.

The development and retention of adequate COOP capabilities requires substantial effort. For that reason alone, COOP plans should be developed and maintained using a multi-year attitude and process – which should, among other things: (a) outline the progression the agency will follow to designate essential functions and resources; (b) define both short- and long-term COOP goals and objectives; (c) forecast budgetary requirements; (d) anticipate and address possible problem areas and potential obstacles; and (e) establish planning milestones.

“Doability” Trumps Theoretical Every Time

It is important that COOP not simply be a paper plan. Arrangements must be made to guarantee the availability of the space and equipment needed – for alternate-site operations, for example. Without actual buildings and equipment – not to mention staff – COOP plans might be perfect in theory, but would be operationally worthless in a real time of crisis.

In the field of public health entities, a COOP plan offers guidance for health departments on practices that will make the continuation of critical services possible

even with a limited number of staff as well as, if and when necessary, the shifting of some staff from non-critical services to other higher-priority functions. There are many elements involved with the effective development and implementation of an effective public health COOP plan, including but not limited to the following:

Creating a plan and procedures that address all-hazards assumptions – This primarily entails assembling the optimum members of a planning team: decision makers who fully understand the department and its capabilities as well as its truly critical functions.

Identifying critical functions and services – This element consists of: (a) identification of the services each public health program provides, on a regular basis, in a specific branch or division within the health department; (b) categorization of each public health program's service, usually under one of the so-called "4Rs" – Reinforce, Run, Reduce, and Remove – in order to reduce or remove as many non-essential services as possible; and (c) ranking and prioritizing the order of importance of the health services needed in each program during times of emergency.

Identifying key personnel and orders of succession – This requires clearly outlining who will be responding during one of the aforementioned emergencies and what role that person (or persons) will play. A critical element here is to select the minimum number of local health department staff needed to carry out the services needed to continue in an emergency. (Additional points to consider include informing employees of the plan, ensuring that those employees have been properly trained, and planning for high employee absenteeism – as well as determining the feasibility of at least some staff working from home.)

Providing data support systems/vital records as well as identifying alternate facilities – This means locating specific public health entities that have significant physical plants available to house multiple functional units.

Identifying communication systems and emergency lists – This may be one of the last steps of the COOP planning process, but it is also one of the more crucial. Communication systems that will remain functional even when a large-scale emergency strikes must be identified

and tested well in advance. In addition, emergency contact lists must be comprehensive – e.g., information about accounts, banks of record, landlords, insurance agents/companies, public works entities, media outlets, telephone companies – and constantly updated.

The COOP plan also should include an overall inventory list – e.g., all assets including their dates of purchase, initial cost, and identification/serial number – and a current list of employee contact information (including home phones, cell phones, and local addresses).

These are some but by no means all of the factors that must be taken into consideration when establishing an effective, and workable, COOP plan. The most important factor, though, is to ensure that the departmental leadership fully understands the need for and purpose of

a COOP plan, and makes development and implementation of the plan a high priority. One final point: COOP must be a "living" plan, which means that its procedures and processes must be not only updated but also practiced on a regular basis.

A health department's COOP plan can be activated during any type of emergency or disaster that affects staffing levels with the understanding that, depending on the outside entities and organizations likely to be involved, help may not be available for some period of time (usually ranging from 48 hours to perhaps several weeks)

Raphael M. Barishansky, MPH, is currently the Program Chief for Public Health Emergency Preparedness for the Prince George's County (Md.) Department of Health. Prior to establishing himself in this position, he served as Executive Director of the Hudson Valley Regional EMS (Emergency Medical Services) Council, based in Newburgh, N.Y. A regular contributor to various journals, he can be reached at rbarishansky@gmail.com.

When Time Stops: Family Support After a Mass-Casualty Incident

By Joseph Cahill, EMS



A plane slams into a skyscraper, a coal mine explodes, a deep-water oil platform sinks – and, for those with loved ones in or close to the site, time stops. As long as the search for possible survivors continues, family members hold their

breath and wait.

When a mass-casualty incident (MCI) occurs, there is always more than one group of victims. Obviously, the first group includes those persons killed or seriously injured in the incident. The second group, however – the families of those in the first group – is often overlooked. The basic responsibilities of the agencies and organizations that respond to mass-casualty incidents are, quite correctly, focused primarily on those who are injured or missing; for practical, legal, and moral reasons, though, they also must address the needs of the secondary victims – the families of those killed, injured, or missing.

The most important priority, in such situations, is assuring those families that the best possible care is being provided for the injured victims – and the most careful search is being made for those missing. However, such assurance can come only from the receipt of accurate information. The dissemination of incorrect, or incomplete, information is almost always worse than having too little information available. The families of those injured or missing have a rightful expectation that the information they are provided about their missing or injured loved ones is the best, most accurate, and most recent information available. Once that basic trust is broken, it is very difficult to recapture.

The Time Factor & Family-Support Considerations

The response-and-recovery operations following a catastrophic mass-casualty incident may stretch on for days, weeks, or even months. Long-term incidents that occur in the community often do not need complete logistical family support, however; other events, such as airliner crashes, by their very nature often include many victims from outside the local area. The families of victims will often come to the scene, or to other incident-response facilities, in search of answers.

Victims' families hold a special status – they may, for example, justifiably be made privy to information that

has not yet been widely released. However, although family members cannot be allowed to impede the rescue or recovery process, it is important to keep in mind, at all times, that they too are victims.

When it becomes clear that the response to an incident is likely to stretch over an extended period of time, a special facility should be established for family members just as soon as possible. Such facility should include, at a minimum, a family support area with a meeting room large enough for all concerned family members to be briefed at one and the same time. Additional space also may be required – for clergy, mental health personnel, law enforcement and medical examiner interviews, and the print and broadcast media, as well as for other purposes.

Other recommended capacities/capabilities should include housing, feeding, and medical support. Families will have the same needs as anyone else – food, shelter, and safety. Emergency-management teams sometimes, but not always, take care of these needs for the families of victims, but more often than not it is the entity responsible for the incident – e.g., the airline – that assumes responsibility for such costs.

The benefits derived from establishing and maintaining a special facility in the aftermath of a mass-casualty incident not only help the families involved but also ease the work of those involved in the response efforts. When an important public announcement related to the incident is ready, for example, gathering the families together becomes a much simpler task. Equally important is risk reduction – if families can depend on a specific location or meeting site as a reliable source of information, they are less likely to put themselves in harm's way by showing up at the incident scene, for example, or at the nearest firehouse or police station or other staging point for responders and/or investigators. Finally, there are also some efficiencies of scale to be gained by having all families present at a single facility.

Joseph Cahill, a medicolegal investigator for the Massachusetts Office of the Chief Medical Examiner, previously served as exercise and training coordinator for the Massachusetts Department of Public Health, and prior to that was an emergency planner in the Westchester County (N.Y.) Office of Emergency Management. He also served for five years as the citywide advanced life support (ALS) coordinator for the FDNY - Bureau of EMS, and prior to that was the department's Division 6 ALS coordinator, covering the South Bronx and Harlem.

NIMS/ICS Case Study: Evacuation & State-Managed Shelters

By Steven Grainer and Patricia Snead, Fire/HazMat



Since the inception of the National Incident Management System (NIMS) in 2003, many state and local agencies have grudgingly undertaken the NIMS training required for a “NIMS compliance” evaluation. For many agencies, those efforts were initiated primarily to ensure that their state or locality would be eligible to continue receiving federal funds under the Homeland Security Grant Program. For others, NIMS has provided an opportunity to look at new and different ways to help prepare for and/or respond to unique challenges – including several directly confronting nontraditional emergency response agencies.

In Virginia, the Department of Social Services (VDSS) found itself confronted in 2007 with a challenge that provided an opportunity both to apply the NIMS principles and to incorporate federal ICS (Incident Command System) policies into agency preparedness plans for major emergency situations. Under the leadership of then-Governor Timothy Kaine, VDSS was designated as the state agency lead for the State Managed Shelter Initiative. In that role, VDSS was tasked to coordinate the establishment and manage the operation of State Managed Shelters (SMSs) during a State of Emergency necessitating massive evacuations to protect the public.

What this means, essentially, is that, if the governor directs a “mass evacuation,” the state would then open, staff, and manage a number of large-capacity facilities throughout the Commonwealth to augment local capacity for the care and shelter of the evacuees affected by the order.

A Continuing Focus On Tidewater & the D.C. Area

The purpose for the creation of SMS is reasonably simple: (a) to ensure a safe and orderly evacuation, and provide continuing protection, for large numbers of citizens suddenly displaced by an evacuation order; and (b) to address a deficit in local shelter capacity both inside and outside the area directly affected. SMS is focused in particular on evacuation orders in two regions: the Hampton Roads (or Tidewater) region, which is vulnerable to hurricanes; and the National Capital or Northern Virginia regions, which are at risk of major terrorist threats. Combined, those two regions are home, or host, to millions of residents as well as seasonal visitors.

The net effect of these actions has been to drive the VDSS to thoroughly assess its own emergency management needs. The need to implement a system that will enable the agency to rapidly and effectively react or respond to evacuation and shelter situations became clear. After careful analysis of the command and management needs (a primary NIMS component), agency emergency managers determined that use of a NIMS strategic approach would best serve the needs of the citizens by providing the necessary framework for establishing and managing SMSs.

After completing the ICS core classes (through the Department of Fire Programs) and evaluating several options, the VDSS emergency management cadre – Emergency Manager Patricia Snead, Senior Planner Frank Williamson, State Shelter Planner Michelle Pope, Planning Specialist Barbara Rustin, and COOP Planner Renee Wentworth – set out to address the challenges of organizing to lead the SMS program for a wide array of potential emergency scenarios.

“During a declared State of Emergency,” according to VDSS Emergency Manager Patricia Snead [a co-author of this article], “the governor may order the opening of State Managed Shelters primarily to supplement local, in-region or out-of-region, sheltering capacity in support of mass evacuations. An SMS event may occur with or without notice and could start as a complex event or a simple event and expand. Therefore, three incident management strategies are being pursued.”

In the event a single SMS site must be opened to supplement local sheltering capacity within a specific region, a unified command structure will be used to provide on-scene incident command capability at the host institution – which might typically, but not always, be a pre-identified state-supported institution of higher education. Partner agency roles and responsibilities are spelled out in a site-specific plan. In this instance, each agency would receive resource coordination/support through their normal channels and/or respective ESF (Emergency Support Function) responsibilities at the Virginia Emergency Operations Center. In the case of VDSS, the ESF 6 Emergency Assistance Team would coordinate resource requirements for those functions identified within the plan.

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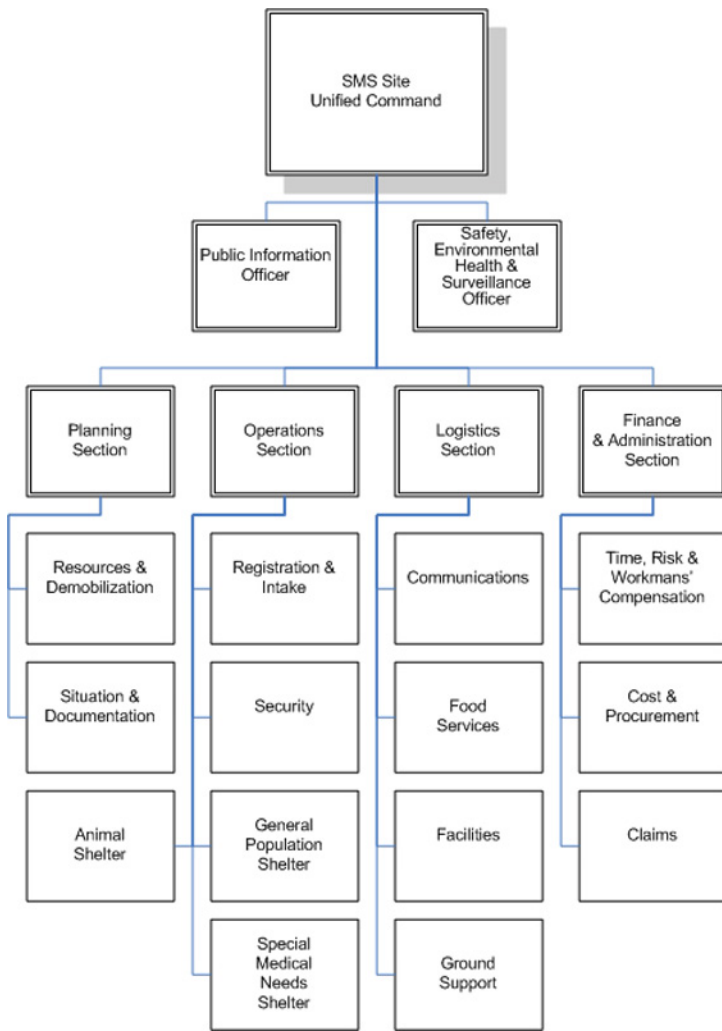
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Hope Helps – But Planning Is Mandatory

As in so many other aspects of life, emergency planners should always “*Hope* for the best, but *plan* for the worst.” Recognizing that many situations will be fluid and that difficult conditions may continue to both expand and deteriorate, VDSS and its partner agencies have continued to develop strategies for the management of “worsening situations.”

Again, according to Snead: “Should an event continue to expand and become more complex, partner agencies are developing a strategy to move the Unified Command function to pre-identified Incident Command Posts (ICPs) in the state with each SMS site becoming a branch within an Incident Complex organizational structure. In this situation, a senior representative of the host institution would be designated as the Branch Director, with each agency sending teams to carry out their responsibilities as spelled out in the site-specific plans. ... [Those] plans will be modified [if needed] to reflect this expansion strategy and corresponding structure once the details have been addressed.” Training for facility staff and management personnel will be provided when those details have been formalized.

Figure 1 shows the command and management framework developed for a regional or “Single SMS” operation.

According to Snead, “Should the event expand and the opening of several sites become necessary, the agency may activate its crisis management team and form an Area Command (AC) to provide overall coordination of and supervision over the multiple locations. Partner agencies may elect to operate through their respective channels/ESFs and provide an agency representative to the AC or send an agency Incident Commander to the AC, at which time it would function as a Unified Area Command (UC). If agencies participate as a member of the UC, resource coordination would be carried out in accordance with their agency’s delegation of authority to their Area Commander.”

It should be noted that the individual shelter (or site) management would remain essentially the same. The AC structure provides the integrated and coordinated management framework needed for operation of two or more shelter sites.

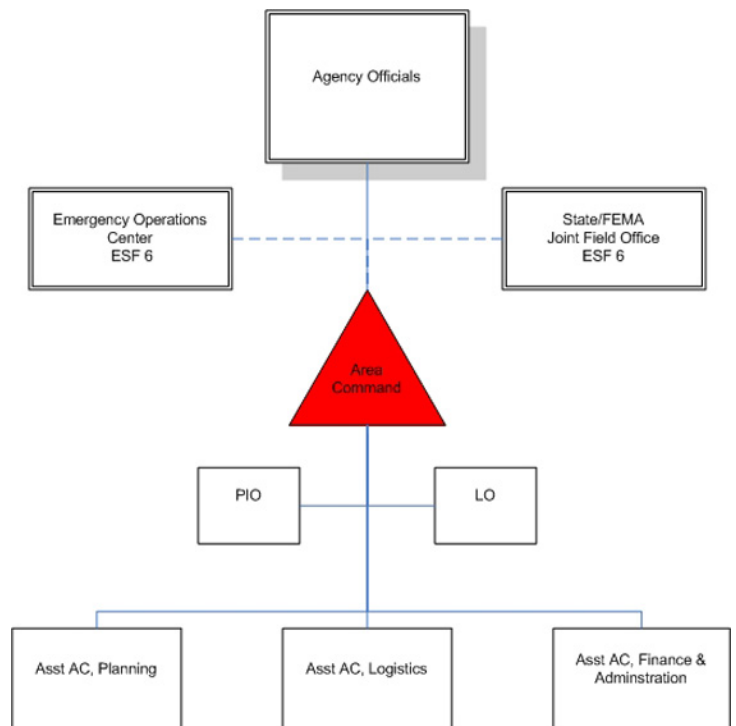


Figure 2 indicates how a single SMS organization would be expanded to reflect a broader management framework - if needed

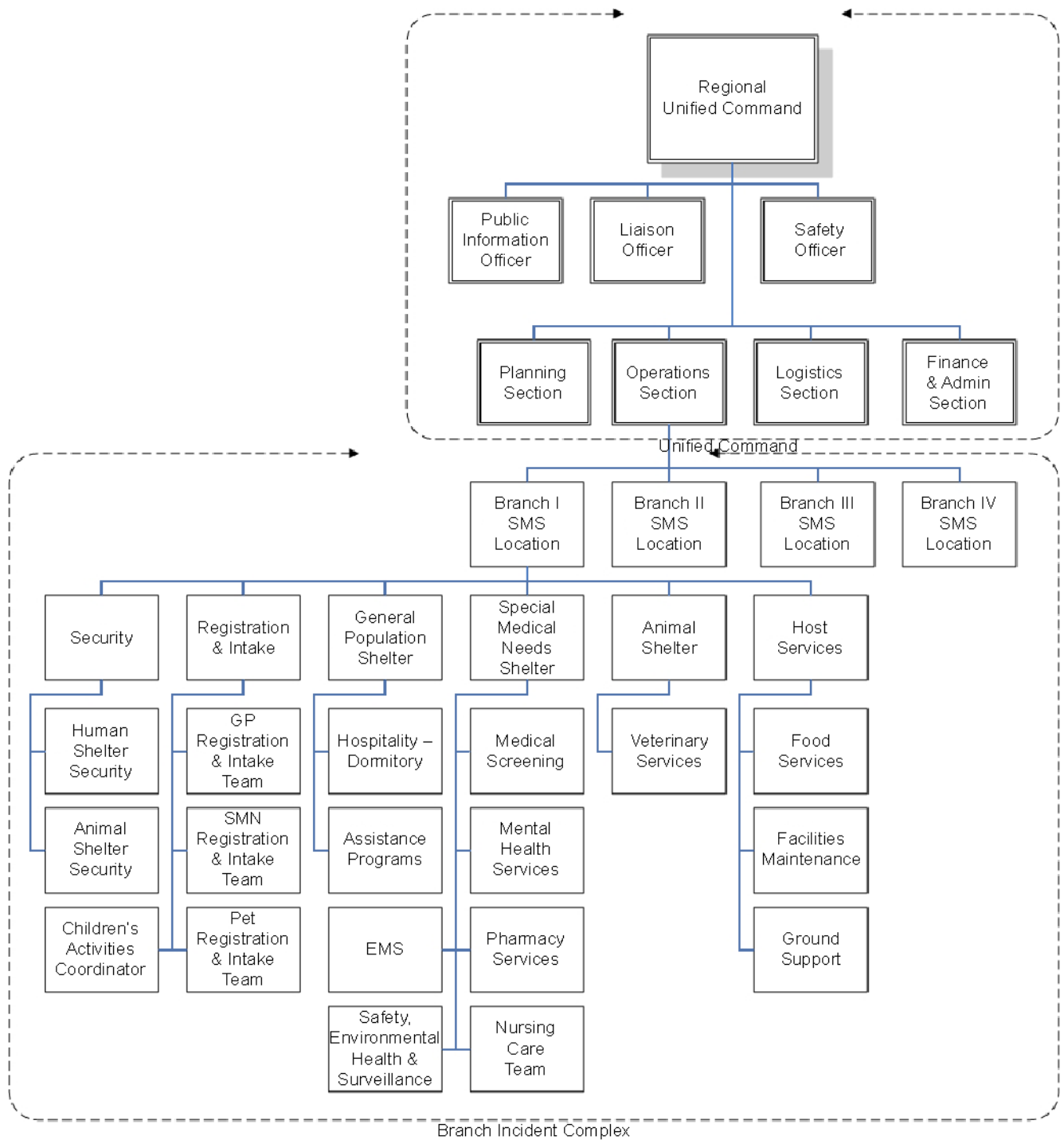


Figure 3 shows the broader framework incidents in which the shelter-management needs continue to expand.

Once again, in Snead’s words, “Presently, five Regional Unified Commands are being developed and incident management cadres assigned and trained.” The capability for future expansion is already in place. However, as is often the case, funding and time constraints will determine the pace of organizational development. Should the necessary funding and manpower authorization become available in order to mirror the Commonwealth’s seven

Emergency Management Regions or seven Homeland Security Preparedness Regions, the next step for implementing a comprehensive strategy and system for mass care and sheltering operations will be underway.

The NIMS guidelines have undoubtedly presented implementation challenges for many organizations. Adapting to and adopting at least some of the NIMS principles has

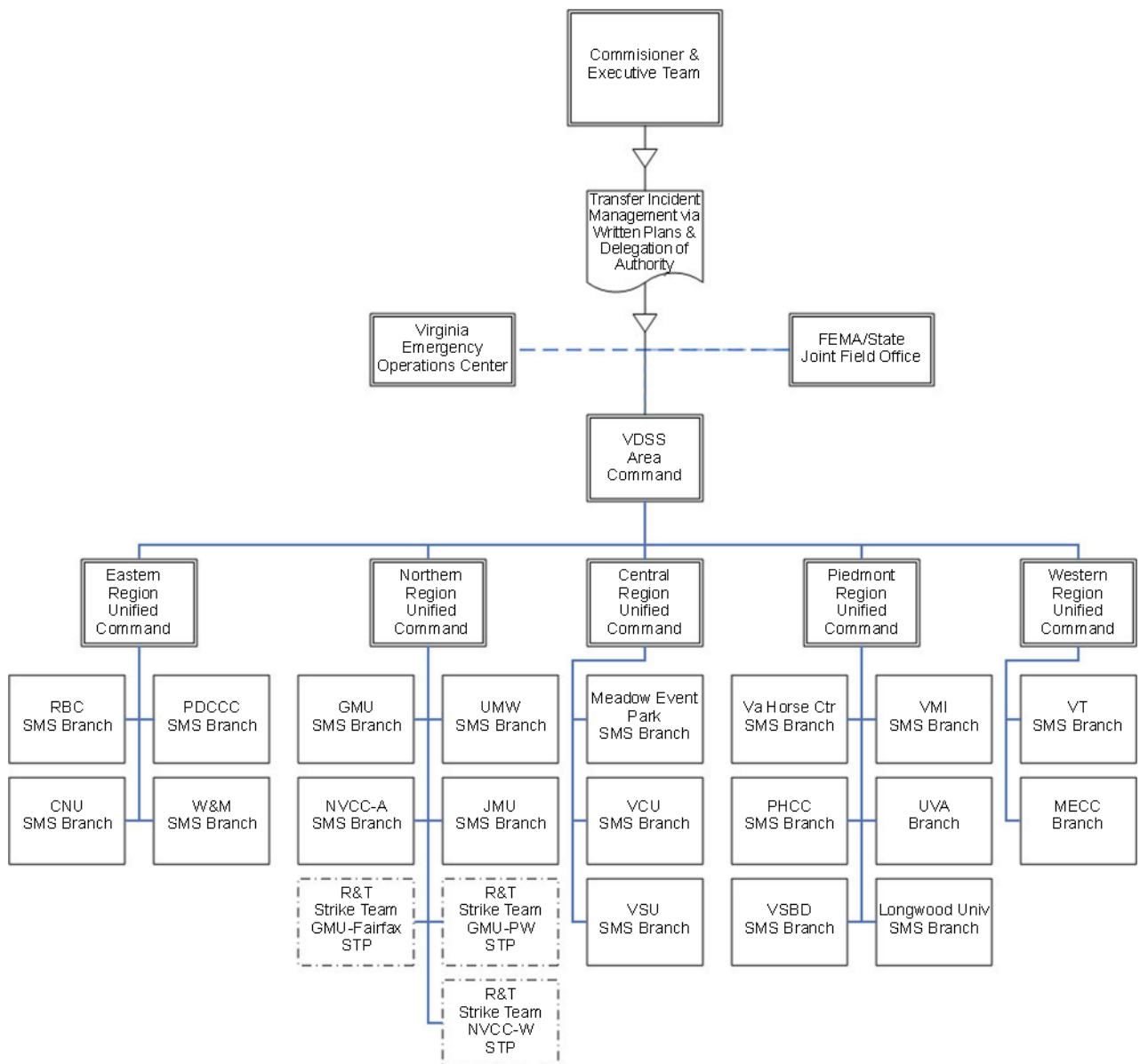


Figure 4 shows the projected organization for the multi-region management of the human services – shelter, mass care, and feeding assistance – managed under the VDSS concept of operations.

frustrated some organizations and government entities. However, as shown in the developmental efforts of the Virginia Department of Social Services, NIMS can provide a viable template of the support efforts needed to improve preparedness and response capabilities under all potential conditions. Recognizing that the ICS and NIMS policies and guidelines provide a standardized but flexible template for preparedness as well as response, Virginia’s development of an organizational framework for the SMS system can serve as a helpful example of how NIMS can be not only a requirement but also a valuable asset.

Steven Grainer (pictured) is the chief of IMS programs for the Virginia Department of Fire Programs. He has served Virginia fire and

emergency services and emergency management coordination since 1972 in assignments ranging from firefighter to chief officer. As a curriculum developer, content evaluator, and instructor, he currently is developing and managing VDFP programs to enable emergency responders and others to achieve NIMS compliance requirements for incident management.

Patricia Snead is the Emergency Manager and Emergency Coordination Officer for the Virginia Department of Social Services in Richmond, Virginia. After graduating from Radford College and completing additional study at Virginia Commonwealth University and the University of Richmond, Patricia worked in various fields – including quality control, training, staff development, and policy and planning – in local and state government before becoming the VDSS Emergency Manager in 2003. She also has managed the Individual Assistance grant program for 14 presidentially declared Commonwealth disasters.

The Times Square Bombing Plot: What It Means For America

By Neil C. Livingstone, Viewpoint



The facts of the Times Square bombing plot are well known. A lone terrorist by the name of Faisal Shahzad, age 30, drove a 1993 Nissan Pathfinder – which he had purchased on Craigslist for \$1,300 in cash – into Times Square on 1 May 2010, then abandoned it. Vendors and passersby noticed when the car started smoking and quickly alerted the police. Officials later discovered propane, firecrackers (M88s), some inert fertilizer, and gasoline inside the vehicle.

Against the backdrop of one of the largest manhunts in U.S. history, Shahzad tried to flee the country, booking a seat on an Emirates Air flight departing from New York’s John F. Kennedy airport and paying in cash for a one-way ticket to Dubai. Despite the fact that buying a one-way ticket in cash was in the original terrorist aviation threat profile dating back more than 30 years, it apparently did not raise any suspicions among the Emirates counter staff or other employees.

And, in another breathtakingly incompetent administrative lapse, the U.S. Transportation Security Administration (TSA) required airlines to check the no-fly list only once a day. Although Shahzad’s name had been placed on the list the day before, the airline reviewed the list against its passenger manifests earlier in the day – as was consistent with its normal procedures – but did not check it again to ensure that purchasers of last-minute tickets were not on the list. Thus, the plane had already pulled back from the gate when a sharp-eyed Customs and Border Protection agent found Shahzad’s name on the manifest of the Emirates Air flight. Shahzad was immediately arrested and subsequently arraigned on five federal charges in U.S. District Court in New York.

During questioning by the FBI, Shahzad, a naturalized American citizen, claimed that he had been provided

with support, including approximately \$7,000 in cash, and explosives training in Pakistan. This version of events is supported by Shahzad’s travel to Pakistan in recent years and the fact that he had received 12 phone calls on his cell phone from Pakistan in the days just prior to the attack.

Shahzad Was an Amateur

First and foremost, the United States was lucky once again. The explosive device, like the clumsy device worn by the “underwear bomber” last December, did not work.

The fertilizer that Shahzad had purchased was completely safe, and not like the ammonium nitrate used in the Oklahoma City bombing; moreover, the M88 firecrackers would not have served as proper detonators. There also are reports that Shahzad had not fully turned on the propane tanks and the vehicle was therefore not filled with the volatile gas – which otherwise could have been initiated with a single spark. Moreover, there was no shrapnel in the vehicle. Had Shahzad constructed a truly professional explosive device, such as those seen so frequently in Iraq and Afghanistan in recent years – and filled the vehicle with ball bearings, scrap metal, and nails – hundreds, or even thousands, of people could have been killed or injured in the Times Square area.

His device was, therefore, more of an incendiary than a bomb. Nonetheless, it still could have created a huge bang, shattering windows throughout Times Square, and the falling or flying shards of glass could have produced a large number of casualties.

Using the vehicle’s VIN number, authorities quickly linked it to the original owner, who had sold it to Shahzad. The owner, fortunately, still had the phone number that Shahzad had used to make contact with him, and that number was in fact traced back to Shahzad. Now that they had a name, the investigating

Despite the fact that buying a one-way ticket in cash was in the original terrorist aviation threat profile, it apparently did not raise any suspicions among the Emirates counter staff or other employees; and, another breathtakingly incompetent administrative lapse: the TSA required airlines to check the no-fly list only once a day

authorities showed the owner of the Nissan a recent photo of Shahzad, and he confirmed that Shahzad was in fact the person to whom he had sold the vehicle.

The FBI put surveillance on Shahzad but lost track of him on his way to JFK International on Tuesday. Surveillance is always difficult, particularly if one does not want to tip off the subject. Helicopter surveillance also is restricted because of congestion in the New York City area, and there is some question as to whether the FBI had enough ground resources available to ensure that Shahzad would not give them the slip. Nevertheless, it is almost unbelievable that they would lose track of a fugitive, and suspected terrorist, such as Shahzad.

In short, Shahzad was not only an amateur, but an incompetent one – who was so flustered after leaving the Nissan in Times Square, for example, that he even forgot to grab the keys to his getaway car, which was parked a short distance away.

What Is the Significance of Shahzad's Plot?

Faisal Shahzad seems to be connected to the Pakistani Taliban, known as the Tehrik-i-Taliban Pakistan (TTP), a fact confirmed

by U.S. Attorney General Eric H. Holder Jr. This is an alarming development because heretofore the TTP, unlike Al Qaeda, had not tried to target the United States directly (except overseas – i.e., in Pakistan and Afghanistan). The Shahzad plot seems quite likely, therefore, to be just the opening salvo from a deadly and well-financed terrorist movement that has been reeling in recent months from U.S.-sponsored drone attacks on its leadership and members in Pakistan (especially in North and South Waziristan), complemented by brutal ground offensives by the U.S.-backed Pakistani government.


Some in the U.S. intelligence community believe that the TPP leadership now realizes: (1) that the Times Square plot was too ambitious; and (2) that they are planning other attacks, especially against soft targets like shopping malls, office buildings, and transportation systems – probably in U.S. cities other than New York and Washington, D.C. – where security is less pervasive and law-enforcement agencies do not have the resources, training, and/or expertise as in the two cities that were attacked on 9/11. Among the TPP's targets in Pakistan have been government officials (including Benazir Bhutto, the nation's first female prime minister), convoys, security checkpoints, military complexes, and buildings used by the Pakistani Federal Investigation Agency (FAI) and various police agencies.

In the future, it can be expected that TTP operatives sent to or recruited in the United States will be better trained and financed than Shahzad was. Ultimately, one or more of those operatives will carry out a successful attack against a target in this country – which might well be followed by many additional attacks. In that context, the Times Square plot should be seen as a much needed wake-up call for U.S. intelligence and law-enforcement agencies throughout the country. The TTP has expanded its relationships and alliances with other terrorist groups in recent months, including Al Qaeda, and it would come as no surprise to see some type of a joint operation mounted by the TTP and one or more other jihadist terrorist organizations in the foreseeable future.

Dr. Neil C. Livingstone, chairman and CEO of Executive Action LLC and an internationally respected expert in terrorism and counterterrorism, homeland defense, foreign policy, and national security, has written nine books and more than 200 articles in those fields. A gifted speaker as well as a writer, he has made more than 1300 television appearances, delivered over 500 speeches both in the United States and overseas, and testified before Congress on numerous occasions. He holds three Masters Degrees as well as a Ph.D. from the Fletcher School of Law and Diplomacy. He was the founder and, prior to assuming his present post, CEO of GlobalOptions Inc., which went public in 2005 and currently has sales of more than \$80 million.

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DomPrep Survey

The Use of Social Media in Disaster Response

Prepared by Joseph Becker, Senior Vice President, Disaster Services, American Red Cross; Summarized by John F. Morton, DP40



“There has been a lot of discussion in the disaster sector on the use of social media and mobile applications for preparedness and response,” says DomPrep40 member Joseph C. Becker, senior vice president of disaster services at the American Red Cross (ARC).

In leading the ARC’s responses to recent disasters, Becker has seen the potential of social media to greatly improve the way people in need connect with those who can help. The recent Haiti response is a case in point where service improved as a result – and led Becker to question what implications such use poses for policies and procedures, both for response organizations and governments.

Cities, counties, and non-governmental organizations (NGOs) have been using social media as an additional means to interact, both prior to a disaster and during the event itself. “I am particularly concerned over how social media create an expectation for expressing need when they become the surrogate ‘9-1-1’ when regular services, voice communications, are disrupted by a disaster,” says Becker. If text services and the Internet remain intact, then the key question is how jurisdictions and rescue services can tie into texting and mobile social media applications – which the users assume will link into a back-end response system that delivers. “The problem in Haiti was that in many cases there was no mechanism for an expression of need by text to connect with organizations that could help,” says Becker.

Becker drafted this survey for the DP40 and *DomPrep* members to assess their opinions on the use of social media in disaster response. The issues are important and may require the setting of policies – particularly in view of the legal ramifications involved with regard to liability.

Key Findings: DomPrep readers and experts agree: The use of social media in disasters is increasing. But organizations and jurisdictions do not have adequate capability and scalability to connect urgent requests via social media to response units. Liability issues need to be addressed.

Survey Results

Over 60 percent of DomPrep40 members and readers say that their jurisdictions are using social media tools to some degree in disaster response.

The DomPrep40

The DomPrep40 is an interactive advisory board of insider practitioners and opinion leaders who have been asked to offer advice and recommendations on pertinent issues of the day. Focusing primarily on all-hazard preparedness as well as response and recovery operations, they will be challenged to provide quantifiable feedback that will be shared with the DomPrep audience.

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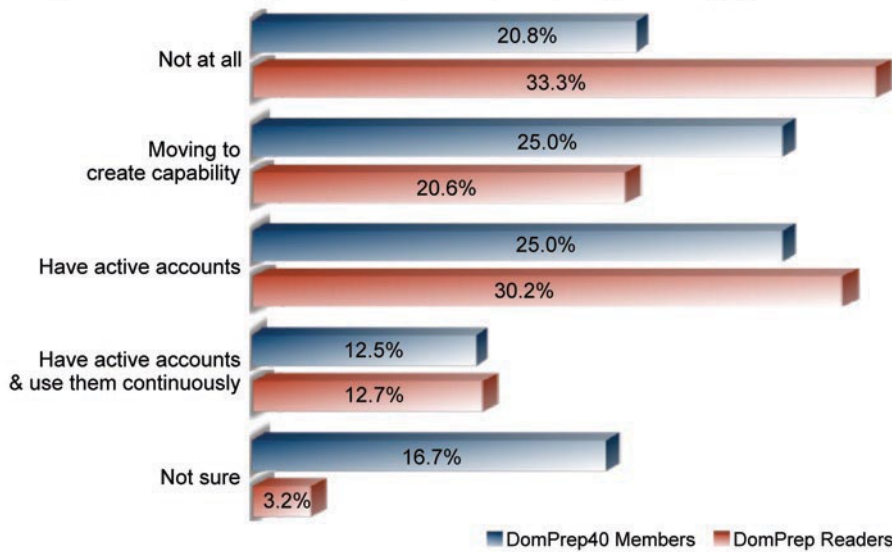
Craig DeAtley

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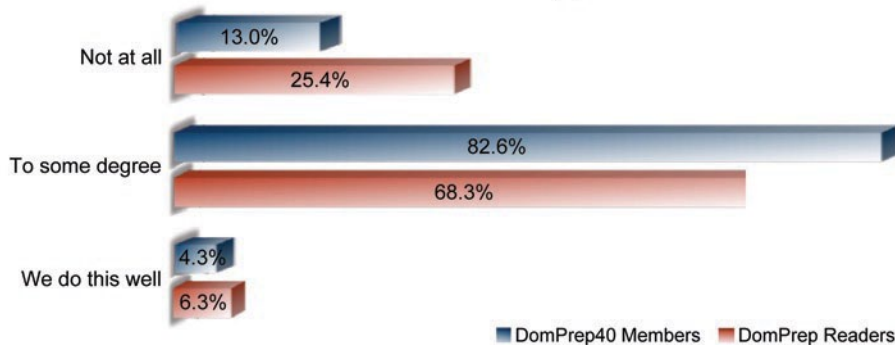
Former President, National Emergency Management Agency (NEMA), Executive Director, Ohio Emergency Management Agency

To what extent does your jurisdiction currently use social media/mobile application tools - e.g., Facebook, Twitter, Text, Blogs - to engage citizens?



More than 80 percent of DP40 members and just under three out of four readers say that their organization or jurisdiction has at least some ability to monitor social media apps.

To what degree is your organization or jurisdiction able to monitor social media applications?



The table below represents the responses of the DP40 members and the *DomPrep* readers to a series of questions. The following conclusions, based on their responses, became apparent. Approximately 90 percent in both groups say the use of social media drives the expectation among citizens that they are communicating with responders in ways that will facilitate a timely response. If true, this assumption on the part of victims in a major disaster could have seriously negative consequences if an organization or jurisdiction cannot deliver. Three out of four in both groups say that they are not aware that victims are indeed using social media to convey urgent requests for assistance. This result would indicate a belief that victims may in fact continue to rely on traditional channels such as 9-1-1. It does not, however, reflect the thinking on use and expectations if traditional channels are down – Becker’s point. A key policy issue here would be the need to address the demographic implications – responders could be drawn to map the “topography” of the disaster in accordance with the traffic generated by social media, to the detriment of urgent needs not conveyed by those without access to social media-capable devices. *DomPrep* readers agree with DP40 members on this question as well. With a tally of more than nine out of ten, both groups say that their

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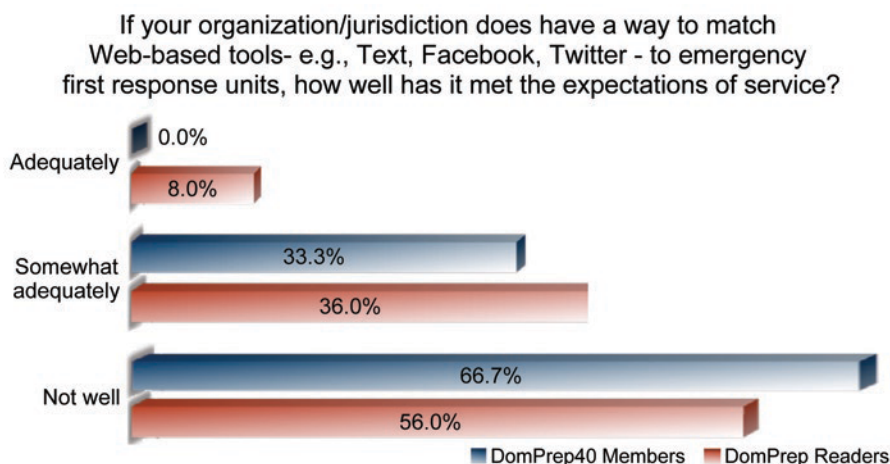
Adam McLaughlin

Preparedness Manager, Port Authority of NY & NJ (PATH)

organizations or jurisdictions do not have a way to connect urgent requests via social media to responders. Readers have validated the key finding of the DomPrep40. Agreement again, with just over nine in ten saying they are not staffed to monitor social media apps and respond in a major event. Here we have slightly more optimism among readers on this crucial liability issue. Whereas 86 percent of the DP40 say that their organizations have not considered the liability issues that might result from receiving urgent requests via social media and being unable to respond adequately, the percentage for readers totaled somewhat lower, at 77.4 percent.

	DomPrep40 Members		DomPrep Readers	
	Yes	No	Yes	No
Do you believe that the engagement of social media by an organization or government elevates citizens' expectations of both dialogue and a timely response?	87.5%	12.5%	92.1%	7.9%
In your jurisdiction, have you been aware of instances of urgent requests for emergency assistance that have been conveyed by these alternate means?	26.1%	73.9%	20.6%	79.4%
Does your organization or jurisdiction have a way to match urgent requests for assistance from Web applications to first-response units?	8.7%	91.3%	8.2%	91.8%
Is your organization/jurisdiction adequately staffed to scale its ability to monitor Web applications & respond to the large number of requests during a mass-casualty event?	9.1%	90.9%	11.1%	88.9%
Has your organization/jurisdiction explored the legal ramifications involved in receiving urgent requests for emergency assistance from Web applications if it is not currently configured to handle such requests?	13.6%	86.4%	22.6%	77.4%

Where DP40 members and readers do have a means to connect social media tools to responders, over 60 percent of both groups say it has not been done well.



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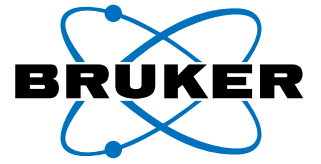
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All Hazards Evacuations: All Means Every Disaster & Everyone

By Kay C. Goss, *Emergency Management*



In the wake of two major disasters – the 11 September 2001 terrorist attacks against the United States, and Hurricane Katrina, which made landfall in southeastern Louisiana on 29 August 2005 – the American people, as well as the profession of emergency management worldwide, became more keenly aware of the lifesaving importance of being able to communicate effectively in such situations, particularly to ensure the safe passage of disaster victims, and emergency personnel themselves, out of danger zones.

Since those catastrophic events, and because of the hard lessons learned from them, U.S. emergency managers and responder personnel have been searching globally for the new technologies and techniques needed to create safer buildings, pathways, and corridors, as well as more responsive on-scene systems and capabilities to enhance both emergency evacuations and communications. Following are a few selected examples describing how various agencies and organizations at all levels of government, and in the private sector, are working to improve individual and organizational communications in various ways:

The U.S. Fire Administration, a branch of the Department of Homeland Security's Federal Emergency Management Agency – working in partnership with the **International Association of Firefighters (IAFF)** and **SAFECOM** (a multifaceted DHS communications program) – last year published a *Voice Radio Communications Guide for the Fire Service*. The Guide, which represents a huge and timely step forward in enhancing safety not only for emergency-services personnel but for everyday citizens as well, provides updated information on communications technology – including but not limited to hardware, software, policy, and procedures, as well as human interfaces – and discusses a number of critical emergency issues and concepts. As IAFF General President Harold Schaitburger said, “The safety of both firefighters and other citizens depends on reliable, functional communication tools that work in the harshest and most hostile of environments.”

Recent incidents – the terrorist attacks in Mumbai provide the most prominent example – have caused an increasing number of international hotels to consider use of emergency communications technologies in their construction and planning. Because of the types of guests – leaders from around the

world, out-of-town tourists, local movers and shakers – and events (society weddings, birthday celebrations of the well-to-do, and public-issue fundraisers and functions) – the hotels attract, the realization that the hotels themselves could become targets could no longer be avoided, particularly after other hotel attacks in Pakistan, Jordan, and Afghanistan. The search for communications technology has reached a new level in recent years among those owning and managing such large facilities and high-value targets. Giving additional emphasis to this trend is the inescapable fact that violent threats to diplomatic targets persist and have migrated over to international hotels.

New Model Building Safety Codes: The global vision of future buildings – especially tall structures – includes being: (a) increasingly resistant to fire and other hazards; (b) more easily evacuated in emergencies; and (c) safer overall. New comprehensive building and fire codes, approved last year by the **International Code Council (ICC)**, were recommended by the U.S. Department of Commerce's **National Institute of Standards and Technology (NIST)**, which recommended even stricter prescriptive changes.

The ICC recommendations were based on studies conducted by NIST on the 9/11 World Trade Center evacuation, as well as on evaluations of other evacuations during tall-building disasters and transportation accidents. One of the new requirements being followed is to make exit-path markings both more prevalent and more visible. Another is to ensure effective coverage throughout buildings for emergency responder radio communications.

The Evolution of Best Practices Into Best Examples

These national, international, and organizational improvements and recommendations have been augmented and supplemented by numerous “Best Practices” findings and requirements mandated at the state and local levels of government. Following are a few “Best Examples” instituted as a result of the Best Practices findings:

The Mid-Ohio Regional Planning Commission, using funds provided by the U.S. Department of Transportation, has developed a *Special Needs Evacuation Plan* that covers seven Ohio counties plus Columbus, the state capital. The

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Ohio planning efforts focus special emphasis on outreach requirements, including the use of multi-lingual, Braille, and sign-language translations of important information, including official announcements and other documents.

The Pittsburgh Central Business District has developed an evacuation plan that includes a wealth of information related to traffic modeling and evacuation route assessments, stakeholder coordination, sheltering needs, backup resource assessments, citizen awareness and education programs, and shelter planning. In addition, a needs assessment group evaluated such ancillary requirements as evacuation signage and traffic control, transportation, pick-up points, media, public notification, mutual-aid agreements, and – last but not least – the development and use of a personal computer-based system for the simulation of traffic flow during emergency evacuations initiated in response to all types of catastrophes, whether acts of nature or manmade.

New York City’s Office of Emergency Management and Office of Homeless Services developed plans and procedures last year for evacuation centers throughout the city; included in those plans are field guides for the operation and management of the centers, as well as “how to” advice on recommended ways to open, manage, and/or shut down an evacuation center – with special focus on center staffing, supplies, resources, and official forms and other helpful documents.

The **District of Columbia** has developed its own *Shelter and Evacuation Guide* for each ward in the city; the guides include specific routes and rules for safe evacuation, not only neighborhood by neighborhood but also street by street.

North Carolina has developed and promulgated a county-by-county special coastal region evacuation plan, based on a number of valuable lessons learned through years of hurricane evacuations. The N.C. plan – supported and facilitated by the **North Carolina Emergency Response Team, the Office of Emergency Management** (under the Crime Control and Public Safety Department), and the **North Carolina Emergency Management Association** – includes a master timeline for evacuation-and-sheltering actions, storm surge maps, evacuation processes, and various decision-making, transportation, sheltering, and public information recommendations. A special feature of the N.C. plan is its focus on the six typical phases of evacuation: preparedness, standby, decision, implementation, storm effects, and re-entry.

The State of Texas Evacuation Plan is coupled with its **Mass Care Plan** – thanks in large part to an effort led by the late Jack Colley, former State Director of Emergency Management. The plan includes not only a clear organization and assessment of responsibilities, but also a strong concept of operations – with particular focus on, among other major tasks and responsibilities: evacuation strategy and policy; data collection and analysis; evacuation preparedness activities; the implementation and conduct of evacuation operations; mass care needs and capabilities; hazard-specific evacuation requirements; communications and transportation; the state’s “special needs” populations; and multiple ESF (emergency support function) support and staffing requirements.

Lightstep Technologies And Other Private-Sector Advances

Meanwhile, scientists and inventors around the world have been working on technological solutions for the evacuation challenge. One leading example is Lightstep Technologies of Belfast, Northern Ireland, which has been working on a remarkably intelligent evacuation system for communicating with building, bus, tunnel, and train occupants to ease their safe and secure exit and evacuation from potentially major incidents, rooted in any and all hazards. Lightstep’s collaboration with the U.S. emergency management community started after 9/11, was facilitated by the **Greater Washington Board of Trade**, and has expanded throughout the country (and now overseas) in numerous meetings, seminars, and conferences; the conference schedule included a European unveiling last fall as well as the New York City Tall Buildings Conference and Asian and Middle Eastern presentations this year.

In its simplest and most straightforward approach, Lightstep’s “Highly Intelligent Evacuation System” uses light-emitting diodes (LEDs) to ease evacuation. One innovation is the PathFinder guidance system developed for installation in floors and stairways; another is an ExitFinder, which projects emergency messaging through use of a lighting system independent from the electrical system of the building (or vehicle) at risk. The system also includes both a DoorFinder and a HallFinder (CorridorFinder) for use in dangerous black-out situations.

All of these technologies are integrated with intelligent automatic-activation devices. With each and every sensor

unit continually in communication with one another, the system is designed so that, if one component fails, the remaining sensors take over to ensure that visibility is never compromised – even in heavy smoke, fire, or fog.

A Good Beginning & Better to Come

To briefly summarize: There is a growing awareness, fortunately, that the still emerging GIS (geographic information system) technologies should be: (a) integrated with other emergency management technologies – e.g., WebEOC®, E Team, and Blue 292; and (b) coupled with extensive planning, training, and exercises.

Not only throughout the United States but overseas as well, the development, writing, and promulgation of evacuation plans using highways, streets, and sidewalks are advancing rapidly and – along with the rapidly increasing use of Facebook, Twitter, and other social media – should make future evacuations not only much easier but also safer, both for disaster victims as well as for emergency responders and managers.

Moreover, with so many leading agencies, organizations, and companies working hard and doing their part to improve emergency evacuation communications for responders and all others directly affected in times of sudden disaster, a safer and more secure environment is virtually guaranteed.

Moving forward with even more robust technology and communications systems – aided and abetted by even higher standards, and increased funding – should, and undoubtedly will, take these impressive and diverse efforts to the next level – a challenge which will be widely and gladly accepted by the public, as well as by emergency managers and all other public, nonprofit, and private-sector leaders.

Kay C. Goss, CEM, possesses more than 30 years of experience – as a federal and state administrator and in the private sector – in the fields of emergency management, homeland security, and both public finance and intergovernmental operations. A former associate FEMA director in charge of national preparedness training and exercises, she is a noted lecturer as well as the author of several books and numerous articles and reports in the fields of homeland defense and emergency management.

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Needed: A Comprehensive Nuclear Forensics and Attribution Act

By Vayl Oxford, Viewpoint



There are two scenarios at the core of the U.S. Government's nuclear terrorism concerns – the aftermath of a nuclear detonation; and the interdiction of smuggled nuclear weapons or material.

The first scenario begins with a large explosion in Los Angeles that is suspected to be the result of a nuclear detonation. Although not yet confirmed, the magnitude of the damage and the resulting number of casualties suggest that it was a nuclear event. The public is demanding answers and wants the nation's commander in chief to take decisive action to respond to the apparent attack. The President directs his advisors to quickly determine who or what group perpetrated the attack and to develop options for retaliation. Unfortunately, reaching high-confidence conclusions could take several months or longer.

The second scenario involves two persons attempting to cross into Georgia at a remote border location in that former Soviet Republic. After noticing the nervous behavior of the two "suspect individuals," a border guard initiates a search of their persons as well as the vehicle – in which he identifies possible radioactive material. Subsequent technical analysis of the material confirms the finding of highly enriched uranium suitable for use in a nuclear weapon.

These scenarios are consistent with the 1,080 real-life incidents of illicit trafficking and/or unauthorized possession of radiological or nuclear materials that had been reported by the International Atomic Energy Agency (IAEA) as of 2006. Although investigations were launched in an attempt to identify the source of the materials, as well as those responsible for providing or stealing it, full accounting was never achieved in many of the cases that were investigated.

The Proliferation of Horror

The United States, and the international community at large, are facing a growing threat posed by nuclear terrorism and the proliferation of nuclear and other weapons of mass destruction (WMDs). Terrorist groups have openly stated their intentions to acquire and use nuclear weapons. Iran continues to defy the world in its pursuit of nuclear weapons, and some states already in possession of nuclear weapons represent security risks because of their own political instability. The response to this growing threat must be multi-pronged, sustained, and adaptable to the changing environment.

In light of the evolving nuclear threat, the United States has devised a layered strategy to deter and prevent nuclear attacks against the United States and its allies, and to protect its economic and political interests throughout the world. At the top level, that strategy is composed of the following elements:

- (a) *Increased intelligence collection and analysis* – focused primarily on networks, people, and materials;
- (b) *Nuclear threat reduction* – to reduce and/or secure nuclear weapons stockpiles and materials;
- (c) *Focused interdiction through the Proliferation Security Initiative* – to deny access not only to nuclear materials and weapons but also to the expertise needed to further nuclear ambitions;
- (d) *A "tiered" strategy* – to prevent nuclear weapons and/or materials from being smuggled into and used against the United States;
- (e) *Strengthened nuclear forensics capabilities* – to support attribution (i.e., identification of the probable source) and deterrence;
- (f) *Enhanced response and recovery capabilities* – to minimize casualties, should prevention fail; and
- (g) *Shared practices and capabilities* – as well as information exchange, through the Global Initiative to Combat Nuclear Terrorism (GICNT), to enhance international efforts to respond to the nuclear threat.

Nuclear Forensics, Attribution, and a Vacant Chair

This article focuses on one element of the overall U.S. strategy to combat the nuclear threat – nuclear forensics and attribution, which is also an element of the GICNT.

Several months ago (16 February) President Obama signed H.R. 730, the "Nuclear Forensics and Attribution Act," which seeks, among other things, "to strengthen efforts in the Department of Homeland Security to develop nuclear forensics capabilities to permit attribution of the source of nuclear material, and for other purposes." Major provisions of the act focus on the need for the United States to pursue expanded international agreements for forensics cooperation and to further outline

the responsibilities of the Department of Homeland Security's Domestic Nuclear Detection Office (DNDO) in the areas of nuclear forensics and attribution.

The President and the U.S. Congress should be commended for taking this forward-looking step to emphasize the importance of nuclear forensics and attribution – but there are still a number of relevant questions that must be asked before the nation can take comfort in possessing the forensics capabilities needed both to achieve its attribution goals and answer the questions mentioned above. More specifically: (1) Who or what group is responsible; (2) How confident is the United States in the information it now possesses; and/or (3) How long will it take to obtain accurate information? Here it should also be noted that the position of DNDO Director, the organization and individual assigned the daunting responsibilities described under H.R. 730, is still vacant more than 16 months after the new Administration came into office.

Before addressing the challenges confronting the nuclear forensics and attribution community (including government policy advisors), it is worth reviewing some other questions that would be raised in the two most likely scenarios previously mentioned.

Scenario 1 – Aftermath of a nuclear detonation: Who was responsible for the attack? Who can be ruled out? Who will cooperate? What information do U.S. officials now have, and what additional information is needed? How long will it take to assemble the necessary evidence to form a high-confidence determination of attribution? How do DNDO and its inter-agency partners balance the forensics and attribution efforts with the similarly important need for consequence-management activities? Are other attacks imminent? Who is in charge of the attribution effort? What are the retaliatory options?

Scenario 2 – Interdiction of a smuggled nuclear weapon or nuclear materials: What is the source of the material or weapon? Can any potential sources be dismissed? Is there another weapon and/or more material in the pipeline? Who will cooperate in the investigation? Who will gain the access to weapon design or material samples that would be needed to carry out a reliable forensics analysis? Who is in charge of the U.S. investigation – a law-enforcement agency or the intelligence community? How long will it take to determine the source?

As those questions suggest, each of the potential scenarios mentioned not only raises some serious challenges but also

involves varying levels of urgency and complexity – depending on the actual case particulars. To date, in the cases of interdiction of smuggled nuclear material, the report card is mixed – at best. In some cases, there has been a reasonable degree of cooperation with international partners, but the outcome has not always been definitive, particularly regarding the actual source of the material. In other cases, there has been less cooperation, leaving the intelligence community with more questions than answers. Moreover, the sense of urgency associated with many but not all of these cases has often been assessed as lacking in vigor – because at least some of those involved seem to believe that such smuggling cases do not pose an immediate terrorist threat.

For these and other reasons, the major challenges confronting U.S. and international officials charged with forensics and attribution responsibilities boil down to: (a) information sharing between and among U.S. agencies, and with international partners; (b) U.S. interagency cooperation (and/or the lack thereof) – which is not a surprising problem, considering the number of senior officials and varying portfolios involved – the Director of National Intelligence (DNI), the U.S. Department of Homeland Security (DHS), the U.S. Department of Energy (DOE), the U.S. Department of Defense (DOD), and the Federal Bureau of Investigation (FBI); (c) U.S. and international technical capabilities and standards; (d) U.S. nuclear forensics expertise; and (e) the formidable legislative hurdles that must be cleared.

Although the capability to achieve a rapid, high-confidence characterization of pre-detonation weapon designs or materials (and/or post-event radioactive debris) is the foundation of technical nuclear forensics, the ability to correlate the technical analysis with known material characteristics is the linchpin needed to connect forensics to attribution. The challenge facing the U.S. forensics and attribution community – and, in turn, national leaders – is therefore: (1) to determine the process needed to quickly share nuclear material characteristics throughout the international community either in the aftermath of a detonation or following the interdiction of nuclear materials; and/or (2) to develop and use the mechanisms needed to create a library of characterized material prior to a detonation or interdiction.

There are several major policy, technical, and operational issues associated with both of these options. The first hurdle requires reaching a policy determination that allows the United States to share, with other nations, information about the character-

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istics of its weapon-related nuclear materials as a necessary first step in showing good faith with international partners that this is a measure needed to combat nuclear terrorism. Because some in the U.S. government worry that sharing such detailed information will allow other nations to “reverse engineer” U.S. nuclear weapon designs, material characteristics probably cannot be shared *in advance* of an actual event. Absent an agreement to develop a materials library in advance of an event, though, the community will be left with the only other option available – namely, to share information *after* the event while simultaneously conducting forensics analysis of the pre- or post-detonation material. That option, of course, would lengthen the critical timeline needed to make an accurate determination of attribution.

The second major hurdle associated with the pre-versus post-detonation options involves the technical issues associated with consistencies of the laboratory processes used to develop material characterizations. The forensics community needs to develop validated international standards that guide the characterization process used to provide the confidence needed to correlate data in the materials library with the characteristics of the materials involved in the specific case at hand. A critical aspect of the attribution process would be to rule out, as quickly as possible, the identity of the nation or organization whose weapons or materials may have been involved. The development and use of standardized laboratory processes would contribute significantly to completion of this step.

Finally, the operational procedures for sample collection, dissemination, and analysis must be codified, exercised, and validated with international partners to ensure that, in the wake of a crisis, attribution is not encumbered by “process fouls” that challenge the chain of custody involved in a reliable technical nuclear forensics laboratory analysis.

Clear Evidence of Fumbled Opportunities

Another factor to consider is that, while the purpose of H.R. 730 is to strengthen the forensics and attribution efforts of DHS, the U.S. capability to conduct the full range of forensics and attribution responsibilities is shared by and among numerous departments and agencies, and therefore demands that the activities involved in conducting a forensics analysis be carried out both seamlessly and efficiently.

To date, unfortunately, the record of cooperation on nuclear smuggling cases is mixed, at best, and there is clear evidence of competition among agencies rather than the cooperation needed to drive the work being carried out to a satisfactory conclusion.

Moreover, there are a number of recorded cases in which at least some elements of the forensics community have been cut out of the information flow altogether.

In short, to “get it right,” there must be standardized processes in place to share information and analyses between and among the numerous intelligence, law-enforcement, and technical forensics communities involved. The demands for well prosecuted forensics and attribution responsibilities in the aftermath of a nuclear detonation will obviously far exceed those associated with “mere” smuggling cases. The United States and the world cannot afford to have competition substituted for cooperation under such crisis conditions.

U.S. and International Technical Capabilities and Standards

The forensics community also requires standardized laboratory capabilities to characterize the properties of special nuclear materials. Such capabilities must yield consistently reliable and repeatable material analyses regardless of the laboratory used. The United States strives for consistency across the technical and law enforcement communities in order to have validated analytical results that can be used for prosecution purposes as and when appropriate.

Here it should be noted that some U.S. authorities have argued that the nation’s laboratories could and should be used by partner nations in order to develop high-confidence forensics analyses. It seems very unlikely, though, that a consensus could be reached to use U.S. facilities as the gold standard. For that reason alone, the United States should plan to allow the use of foreign laboratories to conduct forensics analyses of samples collected outside the United States. More specifically, U.S. forensics officials should make use of an international forum such as the GICNT to seek standardized forensics analytical standards and processes. In addition, the United States should assess and modernize its own forensics infrastructure to maintain state-of-the-art facilities and analytical capabilities – and should urge its international partners to do likewise.

Earlier this year, President Obama announced that he will ask Congress to approve a significant increase in the fiscal year 2011 NNSA (National Nuclear Security Administration) budget request to begin upgrading that agency’s deteriorating infrastructure. Since the end of the Cold War, the nuclear weapons complex overseen by NNSA has suffered from numerous budgetary pressures as well as personnel losses. Because of continuing reductions in the U.S./Russian nuclear stockpiles,

and the end of nuclear testing, the infrastructure began to deteriorate – and a number of nuclear experts either left the laboratories on their own volition or were terminated.

The Downward Slope Changes into a Spiral

It is true that the nation's reliance on nuclear weapons has evolved – downward, usually – because the size of the nuclear threat is no longer as great as it was during the Cold War, but the need for nuclear expertise has not diminished one iota. However, NNSA budget cuts have had an unwitting impact on the same professional community that the nation relies on to assess foreign nuclear weapons programs, evaluate terrorist-improvised nuclear weapons designs, explore innovative radiation-detection concepts, conduct forensics analyses of nuclear samples, and much more. The erosion of that expertise has not only had a direct impact on all of these mission areas but has also caused a decline in the student pipeline associated with nuclear-related science and engineering. In the mid-1980s, there were over 80 nuclear engineering programs in American colleges and universities. By 2003, that number had dwindled to 29 – a more than 50 percent drop.

The United States is quickly losing the expertise needed to: (1) ensure the nation's residual nuclear stockpile is both safe and secure; (2) explore safe and proliferation-resistant nuclear energy processes; and (3) support many other national defense and homeland security requirements – including those associated with nuclear forensics. This trend must be reversed by demonstrating to students entering U.S. colleges and universities that there are still numerous meaningful and sustained careers waiting for them in nuclear-related fields.

The Executive and Legislative Branches of the U.S. Government must demand that the principal federal departments (DOE, DOD, DHS, FBI, DNI) requiring an abundance of nuclear expertise develop an integrated strategy and funding profile to reverse existing trends in the student-to-professional pipeline. In addition, Congress must work across the current appropriations boundaries to ensure that this pipeline strategy is funded at the levels endorsed in the various departments' budget requests. Funding some departments while ignoring others will not provide the collective results necessary to retain (or in some fields restore) America's scientific talent pool in this area.

Complicating the Process: Numerous Legislative Hurdles

Congress has an equally important role to play in the support of nuclear forensics and attribution. As the Senate considers

ratification of the new START treaty, therefore, it also must consider the need for the competent, sustained nuclear work force needed to support stockpile stewardship responsibilities as well as to maintain a safe and reliable U.S. nuclear weapons stockpile at the same time. In the fiscal year 2010 National Defense Authorization Act (NDAA), Congress specifically directed the development of a 10-year modernization plan that would ensure that the nuclear weapons remaining in the U.S. stockpile continue to be both safe and reliable.

However, the requirement for such a plan did not specifically call for inclusion of a budget line dealing with the nuclear expertise issues. Congress should therefore consider adding a provision in the FY 2011 NDAA that calls for a plan: (a) to restore and sustain the nuclear expertise needed to support nuclear weapon stockpile functions; and (b) to provide and maintain the expertise needed for other nuclear-related missions such as forensics and attribution. In addition, using H.R. 730 as a catalyst, Congress also should consider additional legislation that not only accounts for the interagency nature of and responsibilities for nuclear forensics and attribution missions but also directs the development of an interagency strategy and funding request. This is another area in which, as previously mentioned, Congress should work across appropriations lines to ensure that the national strategy in this field is properly considered and funded.

To briefly summarize: Nuclear forensics and attribution capabilities are critical elements of the U.S. long-range plans to defend the American homeland and deter nuclear attacks against the nation, its allies, and its global interests. The development and sustainment of such capabilities is an extremely complex issue not only because of the interagency and international issues involved but also because of the numerous technical, operational, and political hurdles that must be overcome to permit time-urgent, high-confidence attribution determinations to be reached.

There is, though, and will be, no better time than the present to confront the numerous challenges outlined above, rather than wait for a nuclear weapon to be detonated somewhere – anywhere – in the world without knowing who, or what nation or group, was responsible, and, of even greater importance, being unable to determine when another weapon might be looming just over the horizon.

Vayl Oxford is the former director of the Department of Homeland Security's (DHS's) Domestic Nuclear Detection Office (DNDO), with responsibility for developing the national strategy to combat nuclear terrorism. Prior to that, he was the special assistant for policy planning in the DHS Science and Technology Directorate and acting director of the Homeland Security Advanced Research Projects Agency.

Full-Scale Exercise: The Multiple Realities of a Complex Simulation

By Adam McLaughlin, *Exercises*



On 2 May 2010, the early morning silence was suddenly shattered by the sounds of explosions, gunfire, and sirens at the New Jersey Marine Terminal's Ports Newark and Elizabeth. Although it was "only" a full-scale exercise, or FSE, being carried out by the Port Authority of New York and New Jersey, the event brought together over 20 private-sector, local, state, and federal agencies from the surrounding region to respond to two almost simultaneous (but simulated) terrorist incidents at a particularly critical and vulnerable strip of infrastructure in the northeastern United States.

The first incident was the detonation of a vehicle-borne improvised explosive device (VBIED) at a terminal located on Port Elizabeth. Upon arrival, engines from the Elizabeth Fire Department found several fires still burning, with people trapped both inside and outside of the building. The fires were extinguished by the first trucks arriving on the scene; the trucks were augmented, though, by additional resources from the Neptune Task Force – a group of fire departments from the cities of Elizabeth, Linden, and Springfield that were equipped with specialized large-scale foam-delivery systems.

Emergency Medical Service (EMS) units from the Elizabeth Fire Department and The University Hospital in Newark also quickly responded – to establish a treatment and transportation area. They were assisted by the New Jersey EMS Task Force (NJEMSTF) and more than 50 ambulances from communities throughout the state. The NJEMSTF established a helibase at Linden Airport to accommodate the two air medical helicopters, which were provided by NorthSTAR and Atlantic Air.

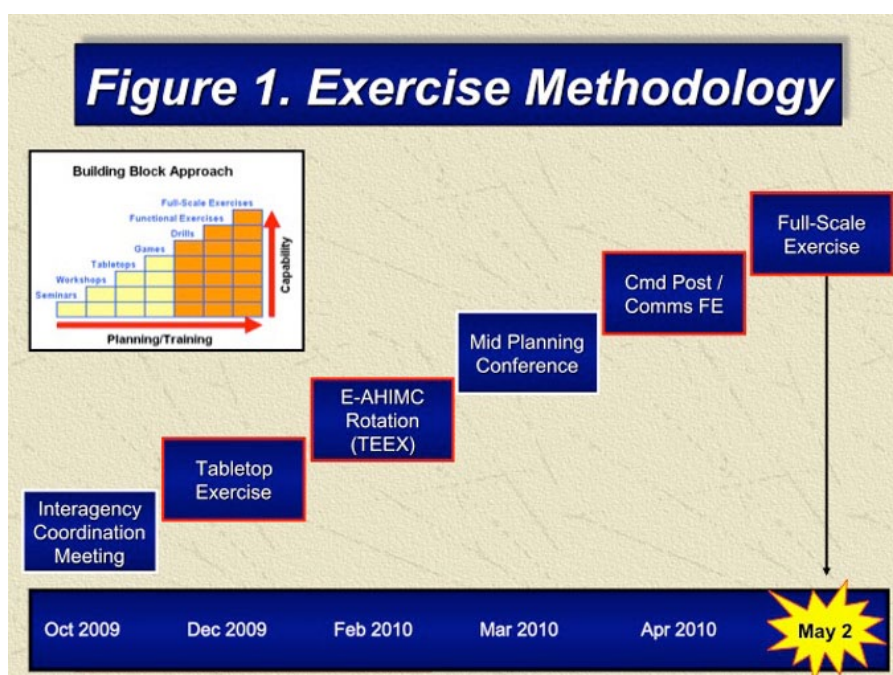
Multi-Unit & Omni-Directional Immediate Responses

The second simulated attack occurred approximately 20 minutes later at a building only a couple of miles north on Port Newark. When a terrorist failed to detonate a second VBIED, he abandoned his vehicle and ran into a nearby office building – where he started to shoot office workers. The Port Authority

Police Emergency Services Unit and the Newark Police Emergency Services Unit rushed to the building to neutralize the shooter. The University Hospital EMS also responded to the incident, to establish another treatment and transportation area, and the Union County Bomb Squad responded as well – to assess the unexploded device, working with explosives experts from the New Jersey State Police and the Federal Bureau of Investigation.

The double-incident exercise tested and validated not only the Emergency Operations Plans for the Port Authority, as well as those of the Cities of Newark and Elizabeth, but several other plans of similar nature – including but not limited to those of: (a) the Neptune Task Force; (b) the Port Security EMS Annex for Port Elizabeth/Newark; (c) the Statewide Helicopter EMS Helibase Management and Statewide EMS Staging Area Management offices; and (d) the Ambulance Strike Team/Task Force Deployment Strategy for EMS organization.

The involvement of so many offices and agencies in the same major exercise was intentional – mandatory, in fact. The Port Authority of New York and New Jersey is the gateway to the most concentrated and affluent consumer market in the world. It also is the largest port on the East Coast of the United



States, and the third largest in the entire nation. A major portion of the port complex is situated on 2,230 acres of maritime property at terminals located in Port Newark and Port Elizabeth along Newark Bay in northern New Jersey. Together, these two terminals house 92 on-site businesses on 41,000 linear feet of berthing space, and handle over 2.5 million containers each year.

Compounding the numerous challenges caused by the sheer size and volume of traffic at these ports are the multi-agency and multi-jurisdictional complexities inherent to port facilities all over the world. For example, although situated next to one another, Port Newark is located in Essex County, New Jersey – but Port Elizabeth falls under the jurisdiction of Union County. Both ports are policed by the Port Authority of New York and New Jersey Police Departments; however, the U.S. Coast Guard is designated the lead agency for maritime security.

The U.S. Department of Homeland Security (DHS) addresses the multi-agency, multi-jurisdiction challenge both in its National Response Framework (NRF) and in the guidelines for the National Incident Management System (NIMS), both of which recommend that a jurisdiction’s plans and critical infrastructure planning efforts be coordinated and integrated with and among all levels of government likely to be involved. The NRF recognizes, realistically, not only that many if not most operations start at the local level but also that – as needs exceed resources and capabilities –

state, regional, and federal assets are likely to be required as well. Using this approach means that planning must be vertically integrated to ensure that departmental and supporting agency plans fit into their jurisdictions’ plans through horizontal coordination.

Keeping the NRF/NIMS guidelines in mind, the Port Authority of New York and New Jersey’s Office of Emergency Management (PA OEM) developed a planning and exercise methodology (illustrated in Figure 1) to enhance response capabilities with a host of agencies and departments (listed in Figure 2) at the New Jersey Marine Terminal – all of which would be tested during last month’s FSE. Following procedures spelled out in the DHS’s Homeland Security Exercise and Evaluation Program (HSEEP), the first exercise was a capabilities-based tabletop drill that focused on discussing critical tasks involved in and/or related to the following target capabilities: on-site incident management, communications, information sharing and dissemination, resource distribution and management, public safety and security response, fire incident response support, WMD (weapons of mass destruction) and hazardous materials response and decontamination, emergency public information and warning, emergency triage and pre-hospital treatment, and fatality management.

Virtual & Rehearsal Exercises Prior to the “Real” Simulation

The next step in the exercise planning process was carried out at the Emergency Operations Training Center (EOTC) in College Station, Texas. The EOTC – which is operated by the Texas Engineering Extension Service (TEEX) – uses state-of-the-art simulation and computer-based technologies to train incident managers, supervisors, and jurisdiction officials in the management of a large-scale crisis through use of a unified command approach. PA OEM contracted with TEEX, using grant funds, to design a five-day jurisdictional-specific course that would culminate with a six-hour “virtual” exercise at Ports Newark and Elizabeth. More than 45 supervisors from the agencies and departments listed in Figure 2 participated in the course in early February 2010. “The TEEX experience provides the

Figure 2. Exercise Participants

- Elizabeth EMS, PD, FD (Linden, Springfield, Union Twp)
- Union County PD, Hazmat
- Newark FD, PD, OEM
- UMDNJ EMS
- NJEMSTF
- NJDCJ Regional M.E.
- NJ State Police
- CBP
- USCG
- Salvation Army
- Port Authority
 - NJMT Staff
 - PAPD / OEM
 - Risk Management
- Terminals (APM, Maher, PNCT)
- Rail (CSX, Norfolk Southern)
- NY Waterfront PD
- FBI
- ICE
- American Red Cross

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opportunity to apply our plans and procedures in situations of ‘controlled chaos’ with the people we would have to work with during a real event,” commented Lt. Steven Rotolo of the Port Authority Police Department, who served as incident commander during the FSE.

Approximately three weeks before the FSE, the participating agencies conducted a Unified Command Post and Communications Functional Exercise. The purpose of this exercise was to rehearse the planning and coordination of the unified command representatives from the various agencies that would later be working together. The rehearsal exercise also provided all of those agencies an opportunity to field-test their tactical communications capabilities one more time before the FSE. The rehearsal exercise was supported by a simulation cell that provided the injects needed to drive decision-making at the unified command post. This exercise was completed with an after-action review meeting highlighting specific deficiencies that had to be addressed before the 2 May FSE.

In April 2010, during the announcement of the formation of the Preparedness Task Force, DHS Secretary Janet Napolitano emphasized that, “enhancing preparedness across our nation requires close collaboration between all levels of government.” Nowhere else better exemplifies that reality, perhaps, than the multi-agency and multi-jurisdictional dimensions of responsibility characteristic of almost any U.S. port complex. It is largely for that reason that response plans must be thoroughly tested and validated – and frequently updated. By integrating a building-block approach to the planning and exercising of response capabilities, the plan gradually becomes a process rather than just a stack of paper that has not been: (a) accepted by all of its users; (b) tied to the resources available; and/or (c) based on valid operational assumptions.

Adam McLaughlin currently serves as the Manager of Emergency Readiness, Office of Emergency Management, for the Port Authority of New York and New Jersey. His responsibilities include both the development and coordination of Port Authority interagency all-hazards plans and the design and development of emergency preparedness exercises. A Certified Emergency Manager (CEM), he is a former U.S. Army officer – and a veteran of the war in Afghanistan – and a member of the Faculty of Senior Fellows for the Long Island University’s Homeland Security Management Institute.

Coping with Chaos: The Aftermath of a CBRNE Incident

By Richard Schoeberl, Law Enforcement



Whether from a terrorist attack or because of an accidental release, improving the means to detect and react to chemical, biological, radiological, nuclear, and/or high-yield explosives (CBRNE) incidents is an issue of grave, and growing, importance. The effects of any such incident can be devastating – and it is known that terrorist organizations have for some time been aggressively seeking chemical, biological, radiological, and nuclear (CBRN) weapons. To make matters worse, the United States has received a failing grade several times in the past on its preparedness (actually, the lack thereof) to handle such threats. To ensure that efforts to improve preparedness continue in the face of the still increasing threat, and that new technological advances continue to develop, U.S. strategic cooperation with its allies is of utmost importance, both nationally and internationally.

According to a report issued by the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, “It is well within al Qaeda’s capabilities to develop and use bio weapons.” The report also suggests that, if al Qaeda is effective in recruiting skilled bio-scientists, it will almost inevitably acquire the capability needed to develop and use biological weapons.

That possibility is as alarming as another recent report – released by the inspector general of the Department of Justice (DOJ) – which warns that the U.S. agencies responsible for coordinating, planning, and reacting to such an attack are not yet ready to carry out the duties they have been assigned. The DOJ report states specifically, in fact, that “the Department of Justice as a whole and components within the Department have not implemented adequate Weapons of Mass Destruction (WMD) response plans.” The inevitable result, the report continues, is that the Department “is not fully prepared to provide a coordinated response to a WMD incident.”

The No-Longer-Distant Cloud on the Horizon

There are numerous specific factors substantiating the need for improved preparations in dealing with a CBRNE incident – most importantly, the fact that such an attack may be looming just over the horizon. The illegal acquisition of CBRNE

materials by terrorist groups will almost certainly increase in the foreseeable future, especially with global illicit trafficking being a major money-making opportunity for organized crime. Already, according to the International Atomic Energy Authority, the trafficking of such materials proliferated significantly between 1993 and 2008. One ominous statistical example: During that time frame there have been more than 1,500 trafficking incidents – primarily involving the former Soviet Union – with a staggering 65 percent of the losses involved never recovered.

Alarming, the Internet continues to allow information about the technology behind the development of CBRNE weapons. In addition, the current lack of security for decommissioned military CBRNE materials makes the situation much worse; too many materials are left vulnerable – i.e., susceptible to theft by criminal and/or terrorist organizations. These are some but by no means all of the factors now hindering the global community's efforts to combat CBRNE threats.

As governments worldwide attempt to better prepare for such horrendous events, any improvement in preparedness should be coupled with advances in the technologies needed to detect any such event – before it happens. It is true that various government agencies have been tasked with responding to such threats, but not enough of those agencies are directly involved in actual development of the technologies needed to refine, improve, and further advance the detection and protection capabilities needed. Governments must communicate their needs in an effort to develop even better technologies.

The Need for a Truly Global/Truly Collaborative Effort

Globally, governments should also be prepared not only to prevent, pursue, and protect their cities and citizens against CBRNE attacks, but – of greater importance – to prepare for such incidents by being more deeply involved in the development of new detection technologies. Neither task can be completed well, or completely, without the other. In short, all levels of government – plus the private sector and academia – must collaborate, vigorously and on a continuing basis, to advance the technologies needed to combat the looming CBRNE threats. Governments should therefore engage academia (as well as the nation's leading "think-tanks" in this field) to secure their assistance in the scrutiny and development of the government's own efforts.

Manufacturers of new-technology CBRNE detection and warning devices are in fact making such equipment more accurate, more user friendly, and more durable – usually both smaller and faster as well. However, many manufacturers acknowledge that, although a large number of products seem to be a major breakthrough in the lab, they still might fail, unfortunately, in the field. In addition, most first responders themselves – the end users in the field – agree that using anti-CBRNE equipment only once or twice a year does not provide the frequent training really needed to become personally and professionally familiar with such detection devices. Largely for that reason, communications are beginning to improve between the manufacturers of the anti-CBRNE systems and the users.

One technology that is not completely new but seems to improve almost daily involves what is called Laser-Induced Breakdown Spectroscopy (LIBS) – an advancing technique that can be used to rapidly analyze solids, gases, or liquids with very limited, if any, damage to the sample being analyzed. Being able to detect and develop such valuable information is the essential first step to an accurate analysis of what agent is being used in the CBRNE weapon. Although the techniques used are somewhat complicated, the concept and processes involved are relatively simple. LIBS uses a laser to cut particles – typically less than a milligram from the surface of the sample is needed – and analyzes the particles to determine the elemental composition of the sample. More simply put, a high-powered laser beam is pointed at a sample and a small portion of matter begins to vaporize, emitting plasma as it decomposes. The light emitted by the plasma is composed of spectral lines characteristic of the elements present in the CBRNE weapon or device. Analysis of this light makes it possible, in most if not all cases, to determine the elemental composition of the sample.

The Essential Ingredients Of an Effective Response

Mounting a rapid response to a CBRNE attack will require, among other things, early detection and analysis of the materials that were apparently released during the attack. The detection and determination of CBRNE "ingredients" also may be based, of course, on obvious signs and symptoms from affected victims. However, the use of LIBS by first responders can help immensely in quickly and safely identifying what specific type of CBRNE agent is present. Some substances are more difficult to detect than others, but early detection of the agents actually present can assist significantly in ensuring

that effective countermeasures can be initiated in a more timely manner. To address detection techniques of potentially contaminated agents in the field, LIBS can and should prevent or at least minimize risk to the operator and also ensure that the equipment used is portable, easy to operate, and accurate.

One cautionary note: Although LIBS technologies have advanced dramatically over the past 10 years, continued improvements are needed. There are both advantages and disadvantages in using LIBS devices, but the benefits seem to clearly outweigh the disadvantages. To continue the advances in LIBS technology, it is important that all levels of government, private industry, and academia work together to ensure that LIBS capabilities move forward at least as rapidly as al Qaeda's relentless pursuit of CBRNE weapons.

A continuous effort to maintain and augment the levels of well trained and well equipped first responders is why field exercises are so essential. The nation's responses to CBRNE attacks must be tested first at the local level by, among other drills and exercises, training local emergency services units and other responding agencies, then feeding the lessons learned and identified both into operational training and into the response plans written and approved at higher levels of government.

Here it is worth noting that the United Kingdom was one of the first nations to carry out a truly comprehensive CBRNE recovery exercise – one that involved national and local government agencies as well as emergency services – to help identify issues that might arise if there were an actual attack. In 2005, the first transatlantic CBRNE exercise, code named “Atlantic Blue,” was carried out by the United Kingdom, United States, and Canada. That exercise, developed by the United Kingdom's Home Office, was an unusually ambitious project involving years of planning and more than 10,000 operational personnel.

The Atlantic Blue scenario centered on mock but large-scale incidents involving a known terrorist organization that had obtained and was using CBRN weapons. Numerous law-enforcement and other government departments, agencies, and organizations used the exercise to test their counterterrorist contingency plans. Atlantic Blue, the script for which was based on two catastrophic explosions – one in London; the other in the United States – continued for five consecutive 24-hour days and was the first-ever “live” transatlantic operation of its kind.

The Long & Winding Road To International Collaboration

Similarly coordinated efforts should be carried out internationally with academia, emergency responders, and pertinent local, state, and federal agencies all participating. And additional exercises like Atlantic Blue should be scheduled on a routine and recurring basis. The combination of allocating only a small percentage of training time (and funds) and not being familiar with new technologies to address a potentially disastrous incident will almost always result in a catastrophic response. Agencies at all levels of government therefore must not only be *overly* prepared to respond to CBRNE attacks, but ultimately should be totally familiar, through continuing drills and exercises, with the technologies needed (and now available) in addressing the numerous challenges involved.

Globally speaking, development and support must continue for a successful international effort to counter CBRNE terrorism. True international partnerships are a must, therefore, to permit governments to share: (a) the intelligence developed about the CBRNE capabilities of terrorists; and (b) their own plans, policies, and intentions to disrupt the terrorist group's efforts. Cross training between and among nations and allied naval/military and law-enforcement units also is of particular importance because the ability and willingness to pool capabilities and share best-practice techniques is one of the best and most effective ways to facilitate recovery from a CBRNE incident.

Significant progress is being made in the capabilities needed to deal with the real threats posed by a CBRNE incident. Nonetheless, many obstacles remain. Given the probable continuing evolution of terrorist capabilities, and the dangers associated with that threat, there must be a global understanding of future anti-CBRNE objectives, technologies, and priorities. Finally, in order to ensure that the world is truly ready to deal with the CBRNE threat, an approach is needed that not only includes diversity, both inside and outside the governments involved, but also that brings together academic research, private industry, and the collective capabilities of government response agencies, both foreign and domestic.

Richard Schoeberl has over 15 years of counterintelligence, terrorism, and security management experience, most of it gleaned from his career with the Federal Bureau of Investigation, where his duties ranged from service as a field agent to leadership responsibilities in executive positions both at FBI Headquarters and at the National Counterterrorism Center. During most of his FBI career he served in the Bureau's Counterterrorism Division, providing oversight to the FBI's international counterterrorism effort.

Lessons Learned From an “Almost” Evacuation

By JL Smither, Public Health

In August 2007, Hurricane Dean gathered strength in the Gulf of Mexico and aimed for the southern coast of Texas. Although the hurricane later changed course and made landfall in Mexico, authorities predicted that Texas could still be hit hard by heavy rains, storm surge, and, possibly, coastal flooding. Before Dean made landfall, President George W. Bush issued an emergency declaration for 32 Texas counties; the presidential order triggered the greatest mobilization of emergency resources in the state’s history. Since Hurricane Dean skirted Texas, however, no mass-evacuation order of similar magnitude has been necessary.

Despite the lack of an actual evacuation order, many if not quite all of the state’s emergency managers have put their evacuation plans into effect at least once – and have learned several valuable lessons from the potential shortcomings in those plans. The *2007 Hurricane Dean After-Action Report*, developed by the State of Texas Governor’s Division of Emergency Management – and available on *Lessons Learned Information Sharing* (LLIS.gov) – details the mobilization efforts carried out throughout the responding regions.

In the Rio Grande Valley, for example, emergency managers took steps to safely evacuate a large number of area residents (and some visitors, of course). Responders were deployed to staging areas, and receiving points, to await the evacuation order – which, unfortunately, did not include enough of the supplies and other resources necessary (e.g., food and sleeping facilities) to support a team of responders during an extended deployment. Because responders stayed longer than expected while waiting for the evacuation order, the supplies at the receiving areas and staging points were severely taxed. The after-action report mentioned above recommends that emergency managers stock receiving areas and staging points in quantities sufficient to accommodate extended deployments, especially when responders’ schedules are unpredictable.

Dogs, Cats, Building Materials & Other Impedimenta

As the evacuation plans proceeded, the Texas Department of Transportation assured emergency managers in the Rio Grande Valley District’s Disaster Center that all construction materials on planned evacuation routes would be removed. As it turned out, although much of the construction materials were in fact cleared, especially in the Alamo area, not *all* routes were cleared. To resolve a repetition of this problem the after-action report recommends that the State Department of Transportation continu-

ally review infrastructure improvements to quickly identify and clear construction-related impediments to traffic flow in times of an actual or potential disaster. The report also recommends that all road work should stop – preferably at least 72 hours before the onset of a severe storm that could require evacuation.

Emergency managers in the Rio Grande Valley area also recognized that they might encounter difficulties convincing some citizens to leave their homes. One major hurdle to mass evacuations is that many people are not willing to leave their pets behind. For that reason, the Pets Evacuation and Transportation Standards Act of 2006 (also available on *LLIS.gov*), requires states and local communities to include accommodations for pets and service animals in their evacuation plans.

To meet that requirement, public information campaigns in the Rio Grande Valley area encouraged pet owners to help prepare for disasters by purchasing the muzzles and/or carriers needed to transport the pets safely – but emergency managers still expected, reasonably enough, to have to provide many of those necessities. However, when preparing for Hurricane Dean, planners belatedly realized that most if not all local pet stores did not have enough of those items, and other pet supplies, needed to accommodate a mass evacuation. Had an evacuation been required, therefore, the lack of available ways to safely transport pets would have caused difficulties for the emergency responders themselves. To remedy this problem, the after-action report recommends that emergency managers collaborate with private-sector and/or non-profit pet advocacy groups *before* a disaster strikes to arrange for muzzles, pet carriers, and other supplies to be distributed at the pre-determined evacuation hubs.

Although no actual evacuation was necessary in the Rio Grande Valley during Hurricane Dean, the emergency managers documented their evacuation preparations in the *2007 Hurricane Dean After-Action Report* so that other jurisdictions could learn from their experiences. The report discusses those and other lessons in further detail.

For additional information about the After-Action Report and many other mass-evacuation documents, log into LLIS.gov.

Jennifer L. Smither is the outreach and partnerships manager for Lessons Learned Information Sharing (LLIS.gov), the Department of Homeland Security/Federal Emergency Management Agency’s national online network of lessons learned, best-practices, and innovative ideas for the U.S. homeland-security and emergency-response communities. She received her bachelor’s degree in English from Florida State University.

Idaho, Texas, Oregon, and California

By Adam McLaughlin, State Homeland News



Idaho National Laboratory & EPA Partner To Deter Water Contamination

The possibility of terrorists or criminals intentionally contaminating the nation's drinking water with pathogenic microorganisms has become a significant public health concern, according to the Environmental Protection Agency (EPA). That concern has given rise to the need to rapidly and effectively sample water to detect small concentrations of potentially dangerous microorganisms.

Analysis of water for the presence of low levels of microorganisms requires either that a large volume sample be collected and transported to a laboratory – where the sample would be concentrated before analysis – or that the sample would be concentrated in the field through the use of cumbersome, yet delicate, laboratory equipment. Either way, the concentration is needed because low levels of microbes can be more accurately detected in a concentrated sample than in a diluted one.

The transportation and handling of a large volume of potentially contaminated water is a safety concern for the transporters, the laboratory personnel, and the general public. To improve upon this situation, EPA, working in close cooperation with the Department of Energy's Idaho National Laboratory (INL), has developed a rugged and automated field-deployable sample-concentration device.

The ultrafiltration device significantly reduces the sample volume by concentrating the microorganisms contained in a large sample into a small volume of water – the device can, for example, concentrate the microbes contained in a 26-gallon sample into less than two cups of water, often in under an hour. Following concentration, the concentrated smaller sample can be more easily and safely transported to a laboratory.

Using a computer controlled system, the ultrafiltration device automates the process of concentrating microorganisms.

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The system also was designed, though: (a) to reduce human exposure to potentially contaminated water; and (b) to generate samples that are appropriate for the analyses of several types of microorganisms. The underlying technology has already been tested by several laboratories, but further testing is being conducted by both EPA and CDC (the federal Centers for Disease Control and Prevention).

According to EPA, use of the ultrafiltration device: reduces sample collection and concentration time and cost; improves accuracy and consistency; requires minimal setup and training; allows for real-time monitoring; eliminates cross-contamination; and increases safety.

Texas New Hurricane Ike Flood Maps Could Boost Insurance Costs

A new federal revision of flood maps in 17 Texas coastal counties is expected to significantly expand the land area considered to be the state's "flood plain," and one probable result, officials said, could be costly insurance increases for some homeowners.

The Federal Emergency Management Agency (FEMA) is incorporating the storm surge data, developed in the wake of 2008's Hurricane Ike, to create the digital flood maps, which will add new territory in flood zones – but will not include levees, according to a FEMA spokesperson, unless they

have been certified within two years after the data is ready.

Engineers are expected to receive the data this fall and to have preliminary maps available in about a year; the maps would not become effective, though, according to FEMA officials, until after public hearings have been concluded, along with appeals that could take up to 18 additional months.

If the levees are not included on the flood maps, lenders probably will require many homeowners to carry costly flood insurance for the first time. "If they said the flood and storm

insurance would increase, there would be a lot of people out of here,” said Debra Reaid, who can see the Texas City levee from her own front porch.

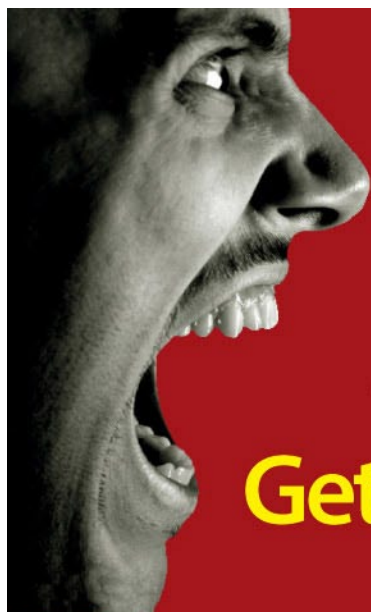
Texas officials have pointed out that Hurricane Ike, which hit the Galveston area in 2008 with a devastating 16-foot storm surge and 110-mph winds, was the costliest natural disaster in state history. Overall damage topped \$29 billion, and more than three dozen people died. Texas officials and everyday citizens are in general agreement that the state should do everything possible to avoid a similar disaster in the future. However, the hurricane levees completed in the 1980s are unlikely to meet the new certification standards unless they are elevated significantly – probably by as much as 17 feet, the *Houston Chronicle* reported last week (on Monday, 24 May).

Raising the Texas City levees would cost between \$250 million and \$350 million, and “We do not even know if the money is obtainable,” said Galveston County Engineer Michael Fitzgerald. Officials in other counties said they also doubt that the expensive upgrades could be completed by the deadline.

Galveston County Judge James Yarbrough has said that, if the Texas City levee fails certification, insurance costs could rise by \$500 per year to as much as \$5,000 per homeowner. Officials from Texas and other states have been lobbying for both a FEMA deadline extension and a major infusion of federal funds to pay for levee improvements. In that context it is relevant to note that in Biloxi, Mississippi – where new flood maps went into effect last year – the flood hazard area grew by 25 percent, a change that, according to Biloxi flood plain administrator Richard Stickler, came as “a shock” to many homeowners in the area.

Oregon Cannon Beach Proposes First U.S. Tsunami-Resistant Building


By designing a “raised” City Hall building that would also be earthquake-resistant, city officials of Cannon Beach, Oregon, hope to build what would be the nation’s first tsunami-resistant building. Residents of the city, which is located along the Cascadia Subduction Zone – a fault that stretches from Northern



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California to the middle of Vancouver Island, and that seismologists say can produce a magnitude 9.0 earthquake or greater – know that they must be vigilant in their preparations for not only a massive quake but also, possibly, a follow-on tsunami. The new City Hall, which would be elevated by stilts about 15 feet above ground and surrounded by two low walls, would allow tsunami waves to pass underneath it while also providing a vertical evacuation site for approximately 1,500 people. “It would be an evacuation site ... [as well as] a tsunami-resistant government center because the City Hall, as it is now, would be in the tsunami zone,” said City Manager Richard Mays. “First of all,” he continued, “an earthquake is going to take this building [the current City Hall] down because it is an old building; the tsunami would just finish it off, but if we had an earthquake- and tsunami-resistant City Hall, of course, that could function as a center of government after a catastrophe hits.”

The development of the building plans started at a meeting of an ad hoc design committee – which included an architect and former Cannon Beach mayor, a civil engineer from the Oregon Department of Geology and Mineral Industries, and a tsunami researcher from Oregon State University. After studying how other communities had recovered from Hurricane Katrina, one committee member observed that the collapsed city government buildings in some areas actually hindered disaster recovery efforts. If Cannon Beach completes its tsunami-resistant building before a major disaster hits the community, the new City Hall would basically be intact and the community also could organize relief efforts and then also start the reconstruction and recovery processes that would be needed.

The “building plans” for the new City Hall are based both on the Federal Emergency Management Agency’s *Guidelines for Design of Structures for Vertical Evacuation from Tsunamis* and on the destruction observed in the wake of the 2004 Sumatra-Andaman earthquake – and the follow-on Indian Ocean tsunami of 26 December 2004 that took the lives of more than 230,000 people. Although the “new City Hall” is currently only a concept rather than actual plans to begin construction, Oregon State University researchers are testing a prototype of the building in the university’s O.H. Hinsdale Wave Research Laboratory wave tank.

Lack of funds is therefore the principal and perhaps only barrier to building the new City Hall. According to City Manager Mays, the current estimated cost is \$4 million, half of which he hopes the city can obtain from a federal grant. However, the federal agency “that really does the most looking at tsunamis,”

he said, is NOAA (the National Oceanic and Atmospheric Administration) and NOAA is usually not involved, he pointed out, in “creating capital improvements.”

California

Los Angeles’ iWatch Program Expands to City’s Airport

Los Angeles city and airport officials have announced that the city’s iWatch program is being expanded into Los Angeles International Airport (LAX). A 21st century Neighborhood Watch program with a focus on detecting possible terror plot events, iWatch is used to educate the community to be alert for suspicious activity and to report such activity to the Los Angeles Police Department (LAPD) for further investigation – and possible forwarding to the local fusion center.

The 3 June announcement of iWatch LAX also included information related to the start of certain multi-lingual aspects of the iWatch campaign – Spanish and Korean, in addition to English. To access the multi-lingual feature of the LAPD’s iWatch website, viewers can simply click on a flag at the bottom of the home page, which then translates the site’s pages. The iWatch program is part of a larger program known as the National Suspicious Activity Reporting Initiative (NSI), which is currently being introduced at all 72 of the nation’s fusion centers.

NSI, which is sponsored by the U.S. Department of Justice to create a nationwide standard for law enforcement officers to report suspicious activity, “is predicated on and based on behaviors,” said Thomas O’Reilly, director of the NSI Program Management Office and a senior policy advisor at the Bureau of Justice Assistance. “It is not based on race, color, or ethnicity,” he added.

However, although the LAPD engaged religious and ethnic advocacy groups in defining the 24 indicators of suspicious activity that the public should report to authorities, a March 2010 report by the Boston-based think tank Political Research Associates alleged that the NSI and Los Angeles’ iWatch program undermine security and constitutional protections.

Nonetheless, Salam Al-Marayati, executive director of the Muslim Public Affairs Council, later told the *Los Angeles Times* that the LAPD has been mostly receptive to the group’s concerns with the program. The council is still assessing whether safeguards built into the program to allow outside audits and prevent innocent people from being falsely accused are strong enough.



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