

Special Event Security Prepare, Plan & Protect



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Editor's Notes

By James D. Hessman, Editor in Chief



Last night's State of the Union Message by President Obama and the 2010 Super Bowl on 7 February, only 10 days from now, might not seem to have much in common. But they do – not in their substance and/or short- or long-range importance, but in the fact that both qualify as world-class Special Events – hereby defined as major events of special significance and/or at which very large crowds are expected. Which in turn means reams of pre-event publicity, a much increased need for special security precautions, and months of advance planning to prepare for all possible dangers and contingencies.

This month's printable issue of *DPJ* is therefore rather special in itself, for two principal reasons: (a) It focuses almost exclusively on several facets of one major and hugely important topic – Special Events; and (b) It includes the knowledgeable views of several industry executives whose companies are major players in the immensely complicated plans and preparations required to ensure crowd safety before, during, and after special events that have the potential of quickly escalating into mass-casualty incidents.

Kay Goss starts off the issue with a richly detailed summary of the numerous factors that must be taken into consideration in the short- and long-term planning of special events. Glen Rudner focuses on the numerous risks and dangers involved in such events, and Joseph Cahill points out (citing the recent motorcade deaths of three police officers) how terribly real those dangers are. Joseph Trindal adds a relevant and timely sidebar on the fortunately thwarted Christmas Day attempt to blow up a crowded passenger aircraft en route from the Netherlands to Detroit. The principal credit for stopping the in-flight bombing attempt, he points out, goes to the other passengers – giving new meaning to the term "concerned citizens."

High-tech equipment and modern technology also play key roles in the preservation of public safety and safeguarding of the nation's critical infrastructure. Specific examples are cited by: EMSystems' Andy Nunemaker (who discusses the use of multi-tasking technology); Avon Protection Systems' Gary Dunn (the personal protective equipment (PPE) required to cope with CBRN incidents); DHS Systems' Ron Houle (sheltering technology); and DQE's Howard Levitin (eLearning and its major importance in enhancing hospital emergency preparedness).

In addition: Diana Hopkins takes a comprehensive look at PPE standards, how they evolved, and how they are enforced; JL Smither provides an insider's report on the advance planning required for the 2009 U.S. presidential inauguration – and the lessons learned at that time; Bruce Clements focuses on the need for accurate, and extremely detailed, pre-event risk assessments; and Roddy Moscoso reports on how the Department of Homeland Security's new Virtual USA program is helping cities and states across the country.

Rounding out the issue are: (a) timely news items by Adam McLaughlin on recent homeland-security advances in Illinois, Missouri, Wisconsin, and Virginia; and (b) Last But Definitely Not Least: A special preview, by Summit Chairman Jack Herrmann, of this year's Public Health Preparedness Summit, 16-19 February in Atlanta, Georgia.

About the Cover: More than 140,000 spectators watch as the Number 21 Motorcraft/U.S. Air Force NASCAR race car crosses the Start/Finish line during the 2004 NASCAR UAW-Daimler Chrysler 400 Nextel Cup race at the Las Vegas, Nevada, Motor Speedway. (Photo by SRA Brian Ferguson, USAF; www.defenseimagery.mil)

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Emergency Planning for Special Events

By Kay C. Goss, *Emergency Management*



From an emergency manager's point of view, a special event can be defined, in general, as a non-routine activity within a community – or on a campus or other large facility – where a large number of people might gather for a specific purpose. A special event also usually represents a physical, and fiscal, challenge to community resources, often requires the issuance of special permits, and/or mandates specific planning – with particular emphasis on escalated preparedness and risk-mitigation capabilities.

To prepare for such events, therefore, emergency managers must first consider the scope and nature of the event, the numerous and varied risks to spectators and participants, including area residents, who might be involved, the potential impact on the surrounding community, and the various forms of emergency-services support likely to be required.

Following is a brief summary, in the areas indicated, of some but by no means all of the major concerns that must be dealt with by emergency managers, working in close coordination, it should be emphasized, with event organizers:

- **Insurance:** Liability insurance is often mandatory and must be provided to a risk-management office in advance of the event. Final approval often is given only after the insurance is in place.
- **Costs:** There is usually no charge to apply to a city, county, or campus for the use of sidewalks. If an event requires temporary parking, however, and/or police assistance, a deposit (usually based on rough calculations as well as previous experience) is often required in advance of the event. In such cases, all costs associated with an event are charged against the deposit. If the actual charges are lower than the estimate, the remaining funds will be returned to the organizer. Agreement also should be reached in advance, though, on the additional payment(s) needed if/when costs exceed the estimate – if the event runs late, for example, if equipment is lost or stolen, or if safety concerns develop that require the use of additional equipment or personnel.
- **Permits:** “Standard” permits are rarely issued for special events. Depending on the nature of the event, however, special permits may be required from other departments – the fire department, for example, for events in which fireworks are involved, or the health department when emergency medical services may be needed.
- **Notification:** The event organizer is responsible for providing advance notification to all residents and merchants likely to be affected by the special event. One of the most commonly used methods of notification is the distribution of a flyer or information leaflet to businesses and residences along the route of a parade. The flyer should include specific and detailed information about the date, time, location, and duration of the event. In addition, the possibility of temporary traffic disruptions should be noted, in as specific detail as possible. The organizers of larger events may be required to notify the public by advertising in local newspapers. Increasingly, special events sponsor their own websites, as well as Facebook and Twitter accounts, which residents and merchants can access to stay current on the status of the event.

- **Pre-Checking of Location/Route:** The organizer should carry out a detailed “double check” in the area of the event at least one week prior to the event. The advance preparations should include driving or walking through the area, or parade route, to identify any road defects or street construction projects that might cause problems. A final site check should be carried out just before the start of the event to confirm that the route or location is safe.
- **Event Management:** An organizer must have the ability, and authority, to shut down the event in case of an emergency. Larger events, including long parade routes, require that a communications network (radio or cell phones) and medical stations must be provided for participants. If a city, community, campus, or police emergency develops, the officers assigned to the event may be required to deploy abruptly. In addition, although a street may be officially closed during the special event, emergency vehicles and personnel must be given priority access at all times.
- **Marshals/Ambassadors:** Police are usually the only ones authorized to control traffic in most jurisdictions. Volunteer event marshals, however, may be permitted to assist the police – along the route of a parade, for example, to check for stragglers and/or advise the police that the road is clear of participants or that someone needs special attention.

The Obama Inauguration & a GWU Template

The 2009 U.S. Presidential Inauguration, the largest and in many respects most complex special event in the history of the nation’s capital, presented federal, state, regional, and local governments – as well as the numerous private and nonprofit agencies and organizations also involved – a number of unique and unusually difficult challenges. According to the official After-Action Report for the inauguration, one of the major strengths of the special-event plan developed for the inauguration, and approved by all levels of government participating, was the access provided to the District of Columbia’s WebEOC boards, which gave emergency managers and event organizers continuing and detailed real-time situational awareness of the numerous operations and activities going on at any given time.

Nonetheless, some of the agencies and individuals participating encountered difficulties in accessing and/or using the boards during the inauguration; a small number, in fact, were unaware that they could gain access. To prevent similar difficulties

during future inaugurations – and/or other “world-class” events – additional training and exercises were recommended in the After-Action Report to build on the strengths of achieving a common operating picture through technology, including situation reports, or other vital information. Although each jurisdiction had exercised most of its activities, there was general agreement that combined regional exercises involving the WebEOC would be helpful for the future.

The management of traffic also was a major challenge last year, and getting correct information out quickly enough to be actionable was difficult. To remedy those problems, and others, another future and much more complete after-action review also was recommended. The ability to provide “mass care” – i.e., keeping people warm, providing routine medical services (absolutely necessary to be prepared for a mass-casualty event), and the building of a massive sheltering capacity in preparation for a worst-case scenario – all are on the list of areas in need of improvement.

In short, the ability to be prepared for actual 2009 requirements received a high grade, but the planning and preparation for other and sometimes greater *potential* needs scored lower on the scale. The need for more and larger regional shelters is expected to receive greater emphasis in future planning sessions. Family reunification plans and protocols also were not as strong last year as had been hoped. No harm was done this time around, but an improved regional plan for the reunification of families – anxious parents and lost children are the best and most obvious example – is recommended for future special events of the same magnitude.

Fortunately, George Washington University (GWU), in easy walking distance from the White House, has developed a best-practice special-events model for colleges and universities, which also sponsor thousands of special events each year. The questionnaire below is based in large part on the GWU best-practice template and covers most if not quite all of the principal considerations emergency planners must factor into their short- and long-range plans in advance of almost any type of special event anywhere in the country.

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.

The Multipurpose Special Event Template

(Based on the GWU campus-specific model)

1. Organization (Yes/No Comments)

- Is the plan organized and easy to understand, implement, and apply – i.e., does it use the headings needed, are they listed in logical sequence, and are they written in plain language?
- Does the plan adequately identify the specific special event (dates, physical locations involved, and number of people) it was written to protect?
- Does it include a statement of the scope of the event and the involvement of both public and private agencies?
- Does it include information on the principal planning body (committee, agency, department, etc.), including emergency-contact information? (To alleviate privacy concerns, personal information should be removed before online posting.)
- Does it include, at a minimum, the most important planning factors (responsibilities, communication, preparation, response, recovery, and implementation) included in this checklist?
- Does the plan include the date(s) of revision(s)? Is it consistent with the most important priority of protecting people, property, and other vital interests?

2. Responsibilities (Yes/No Comments)

- Does the plan specifically identify, by name and/or official position, the person(s) possessing the authority to dismiss or redirect the event?
- Does it also specify who is responsible for ensuring that those covered by the plan are aware of and understand the plan?
- Does it also identify the individual(s) responsible for creating and maintaining the organizing body's emergency contact list?

3. Communications & Resources (Yes/No Comments)

- Does the plan include a chain of command for incident communications?
- Does it include a process by which the planning body can post incident-related information for future use?
- Does the plan include a full list of emergency phone numbers that might be needed and other important contact information?

4. Preparation & Planning (Yes/No Comments)

- Does the plan identify potential risks to spectators and participants – specifically related to such factors as crowds, staffing, food and shelter, parking, transportation, medical facilities, weather conditions, community impact, and/or external disruptions?
- Does it address the potential need for major emergency (medical, fire, or police) response capabilities?

- Have shelter-in-place procedures been established & included?
- Have emergency evacuation plans, including ingress and egress routes, been established and included?
- Does the plan cover the individual responsibilities related to the care and safety of the physically challenged, disabled, or any person with special needs?

5. Response Capabilities (Yes/No Comments)

- Does the plan provide detailed guidelines for evacuation (notification of need to evacuate, exit routes from location, what to bring)?
- Does the plan provide guidance on responses to specific incidents (e.g., fire, suspicious packages, bomb threats, etc.)?
- If hazardous materials or potentially harmful special equipment will be used at the event, does the plan account for this possibility?
- Does the plan include notification and reporting procedures for the communication of information to family members of those – active participants in the event, as well as spectators – who may be missing or injured?

6. Alternatives & Redundancies (Yes/No Comments)

- Does the plan comprehensively address the method, process, and timing of a decision for relocating the event to an alternate venue?
- Does it identify the location of an appropriate alternate and, if possible, tertiary back-up site?
- Has a process been established for moving the event or some parts of it to other times or venues?
- Has transportation been arranged for relocation of the event (if necessary)?
- Have cancellation and/or postponement procedures been developed – and, if so, are they now in place?
- Is there a tested method in place for giving information or directions to attendees regarding emergent changes?

7. Implementation (Yes/No Comments)

- Does the plan include a process for the dissemination/implementation of decisions made at stakeholder meetings, and is such information incorporated into the information packets provided for all participants?
- Does the plan incorporate an annual schedule and system for the review and updating of guidelines for similar events scheduled on a recurring basis?

Special-Event Planning – Processes & Procedures

By Glen Rudner, Fire/HazMat



Throughout the United States, most of the people who attend large-scale national and high-profile events – e.g., sports championships, concerts, fairs and festivals, and other events that have the potential to gather large crowds – never see the behind-the-scenes weeks or months of planning that precede the event. In planning any event, both natural and manmade hazards must be considered. Those hazards make the advance planning an even more complex process, because particular attention is required to deal with the potential risks and dangers that might well be involved when the safety of large crowds, as well as participants in the event, must be taken into consideration.

The process of pre-planning for special events is critical to the eventual success – or, possibly, failure – of that event. Having a detailed and effective pre-event plan in place will not only reduce response times but also enable agencies to improvise, if and when needed, because they have discussed numerous contingencies beforehand. A pre-event plan defines roles and responsibilities in advance and creates “ownership” of specific potential problems for the agencies that are directly involved in the planning process. Ideally, the pre-event plan should incorporate not only current plans and standard operating procedures and guidelines but also standing orders, best practices, and other relevant information that might help ensure safety and security.

Special-event plan development should be a joint effort between groups of people who represent a cross section of the agencies and jurisdictions that are involved in the emergency response effort. From a fire-department perspective, the fire chief should be the department’s primary representative in this group; however, he or she may delegate decision-making authority to another person who is empowered to speak for the department.

Advance Preparations – The Key to Both Success and Safety

Again using the fire department as a representative example, the pre-planning should start with the responsibilities that the fire department has within its jurisdiction. Depending on the locality, the department may or may not be the lead agency in special-event planning. The department’s specific responsibilities probably would include: (a) the coordination of all activities and operations necessary to protect the participating communities from natural, technological, and manmade disasters and other emergencies that might threaten the event; and (b)

coordination of the response by ensuring that the most appropriate resources are dispatched to the areas directly affected.

During the pre-event planning process, the department’s responsibilities involving hazardous materials and/or weapons of mass destruction should be based on both the capabilities and training of the personnel involved and the resources likely to be available. In most if not quite all U.S. political jurisdictions, local fire departments are usually responsible for handling hazardous-materials incidents. As part of the planning process, therefore, the department must be informed well ahead of time about potential hazards and their locations.

The department also should be provided with an event map that: (1) includes a description, in as much specific detail as possible, of the potential hazards that might reduce the response time available in the event of a dangerous incident; and (2) allows the responding agency to be better prepared to deal with such an incident.

An important contingency possibility that should be kept in mind: If the local fire department itself does not possess the resources and equipment needed, or is not adequately trained to handle the hazardous material, then the pre-plan should identify – again, well in advance – the closest mutual-aid fire departments that are better equipped and, based on that important factor, should consider implementing mutual-aid agreements with those departments.

To briefly summarize: The planning for special events is an expansion of the existing day-to-day planning and preparedness process of most agencies. Each agency and jurisdiction should already have an emergency-response plan in place – as well as mutual-aid agreements. But no one agency can plan for any and all contingencies, and/or deliver the services necessary when an incident occurs at or during a major special event. For that reason, the planning process for such events should ensure that all participating agencies and jurisdictions should not only share all of the relevant information that is available but also check to ensure that the plans already in place are up to date. As President Dwight D. Eisenhower once said, “In preparing for battle I have always found that plans are useless, but planning is indispensable.”

Glen D. Rudner has been the Northern Virginia Regional Hazardous Materials Officer for the Virginia Department of Emergency Management for the last 12 years. During the past 32 years he has been involved in the development, management, and delivery of many local, state, federal, and international programs of several organizations including the National Fire Academy, the FBI, and the Defense Threat Reduction Agency.

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Special Events: Detail-Oriented Details

By Joseph Cahill, EMS



Many agencies may never prepare for a visit from a dignitary; for other agencies, though, such visits are considered routine events. As a result of their serving as homes for the United Nations and the U.S. capital, New York City and Washington, D.C., host daily visits from individuals who frequently go unnoticed but in any other city would be front-page news.

During the election season the chance of even a small town hosting an incumbent governor, U.S. senator or congressman, or president – or a candidate for any of those offices – increases significantly.

Those towns, and even smaller communities, want such events to go as smoothly as possible, of course, and many of them form dedicated EMS (emergency medical services) units to help protect such dignitaries.

A presidential visit will almost always be preceded by contact from the U.S. Secret Service well in advance of the actual visit; the Secret Service also will be the lead agency coordinating event activities. Similarly, the U.S. Secret Service or the U.S. State Department will provide the leadership and guidelines for the visits of other world leaders.

There are, however, many well known and/or highly publicized persons who may not be provided similar support from these same agencies but whose visits may nonetheless pose special problems. To deal with those problems it is important to recognize that, generally speaking, there are two principal factors that make any person a “dignitary” per se: importance and risk.

Mandatory Adherence To a Basic Principle – Usually

An important EMS principle to keep in mind is not that one life is more valuable than another. This principle is embodied in: (a) the triage system, which mandates that the criterion for the prioritization of on-scene care is the medical condition of the individual patient; and (b) emergency medical dispatch (EMD) systems that call for the dispatch of EMD units first to the most life-threatening situations.

Both of these examples embody the same operational principle as well: prioritizing the use of scarce resources. In that context, the EMS dignitary-protection unit should be considered a dedicated resource that probably would not even exist in the absence of the same dignitary. Observing that distinction allows the dignitary-protection unit to be viewed outside the basic EMS principle referred to above.

The “individual risk profile” of the specific dignitary might well change the need for coverage and protection – in various ways. A lower-ranking official who has a known medical frailty, for example, might be offered coverage because he or she might be more likely to become seriously ill during his or her visit.

Similarly, an individual who is a more likely target of violence may require additional protection not only in the form of EMS services but also both law-enforcement and/or fire-suppression attention. Finally, the activity planned also may dictate additional attention. A short visit to a remote or well protected site such as the Tomb of the Unknown Soldier, for example, would be easier to prepare for than a motorcade through Miami to attend the Super Bowl.

Providing effective protection for a dignitary may require the assignment of a dedicated unit that can travel with the dignitary. This possibility is particularly critical when a protective parameter must be formed in the immediate area around the dignitary

and/or if the event being attended requires bringing in an un-screened EMS resource from outside the parameter – either of those possibilities represents a potential loss of the protective integrity usually required.

The Price That Is Sometimes Paid

It is worth repeating: The primary and usually *only* duty of the protective unit is to provide for the dignitary’s care and survival. Adherence to that principle presents an obvious problem, of course, when someone else is ill or injured. A prime example of this happening is when a police officer assigned to the dignitary’s motorcade is injured. In such instances it should

A presidential visit will almost always be preceded by contact from the U.S. Secret Service well in advance of the actual visit – the Secret Service also will be the lead agency coordinating event activities; the U.S. State Department will provide the guidelines for the visits of other world leaders

be kept in mind that, when a unit is dedicated to protection of the dignitary, that unit is turned over to the lead agency (the Secret Service or State Department, for example, as previously mentioned) and answers to that agency, *at all times*, during the event. It logically follows, therefore, that the lead agency must make the call on whether the dignitary protection unit stops to assist the fallen member (of a motorcade, for example) or continues with the dignitary, as originally planned. The second option just mentioned, continuing with the dignitary, is not because of a cold disregard for the fallen, but because the unit's primary and only focus must be keeping the dignitary alive.

Terrorists and other lawbreakers know, obviously, that causing a motorcycle crash is a very easy way to slow or stop a motorcade, and/or possibly stripping away some of its resources as well as allowing vehicles from outside the parameter access to the motorcade route. That is why, whenever there is a dignitary protection unit assigned to a high-risk activity such as a motorcade, there also should be a screened "shadow" unit immediately available to step in and provide care to anyone in the protected area who may need medical or other emergency assistance.

Lest anyone think this concern is extreme, it should be remembered that, in the past four years, three police officers lost their lives in the motorcades of the president or presidential candidates: Police Officer Germaine F. Casey (Rio Rancho, N.M.), on 27 August 2007; Police Officer Steve Favela (Honolulu, Hawaii), on 26 November 2006; and Senior Corporal Victor Lozada (Dallas, Texas), on 22 February 2008.

For more information on motorcade deaths, click on either of the following sites:

<http://cbs11tv.com/local/clinton.motorcade.crash.2.660392.html>

http://www.swamppolitics.com/news/politics/blog/2007/08/officers_down_casualty_of_pres.html

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Citizen Involvement: Capitalizing on Terrorist Failures

By Joseph W. Trindal, Law Enforcement



Once again private citizens have prevented a deadly terrorist air disaster. On Christmas Day 2009, on an aircraft only 20 minutes from Detroit Metropolitan Airport, Nigerian Umar Farouk Abdulmutallab started his suicide/homicide attack sequence. As Northwest Airlines Flight 253 was on final approach over a heavily populated area, Abdulmutallab was engaged in his final approach to martyrdom. With a complement of 278 passengers and 11 crew members as well as countless people on the ground who would have been in the debris field, his attempt to blow up the aircraft would have been a disaster of unbelievable magnitude.

Many courageous passengers and crew acted swiftly and decisively to ensure that Abdulmutallab's efforts failed. "It sounded like a firecracker in a pillowcase," said Peter Smith, a traveler from the Netherlands. "First there was a pop, and then ... [there] was smoke." Abdulmutallab's attempt to detonate the explosive compound in his underwear not only failed but also alerted those around him to the danger they were facing. Several passengers and crew members quickly subdued Abdulmutallab, extinguished the fire, and forcibly removed Abdulmutallab from the seat and from the explosives.



President Obama categorized the attempted Christmas attack as narrowly dodging a bullet. Globally, the aviation community is moving to further strengthen its screening techniques and technological capabilities. The United States itself also is, once again, re-examining its intelligence management and interagency information-sharing practices. American self-criticism may be misinterpreted as weakness, but it is not. It is necessity.

Justifiably Concerned Citizens

The situation was eerily similar to the failed attack on American Airlines Flight 63 in 2001 when Richard Reid, the so-called "shoe bomber," was unable to carry out his murderous objective, and – as happened to Abdulmutallab – was quickly subdued by other passengers and the crew. Both incidents demonstrated that citizens ready and willing to forcibly confront and subdue a would-be terrorist can be, and are, a viable line of defense (but one that should be used only in extremis). In both situations, the citizens who participated in stopping the attacks were, unofficially but necessarily, members of a global community. Netherlands citizen Jasper Schuringa, for example, was instrumental both in subduing Abdulmutallab and in separating him from the explosives – during a struggle in which Schuringa himself suffered burns to his right hand. In the microworld of an aircraft, all passengers and crew members, regardless of national origin, have a vested interest in keeping the aircraft aloft.

It can be taken for granted that extremist leaders and aspiring martyrs will continue their efforts to devise tactics to circumvent security efforts, including the intervention of other passengers. Terrorists often seek to blend in with their target community in an effort to be invisible to the local population until they are ready to strike. Mao Tse-tung's famous advice for insurgency operations applies to terrorists as well: "The guerrilla must live amongst the people as the fish lives in the water."

However, even the most ingenious terrorist would be hard pressed to overcome countermeasures that include an alert and informed citizenry. An effective counterterrorism strategy must therefore include the important role that could, in extreme circumstances, be played by an informed and empowered public. Citizens have been instrumental

in denying terrorists safe environs on a number of occasions. Moreover, as terrorists strive to devise creative ways to defeat other security measures, the alert citizen denial of a safe operating environment for terrorists is the last, but in some instances the best, or only, line of defense against terrorism.

In addition to averting air disasters, citizen vigilance and the prompt reporting of suspicious activity have enabled law-

enforcement agencies to act quickly enough to defeat other terrorist plots. For example, the infamous 2006 plot to kill innocent victims and destroy key buildings at Fort Dix in New Jersey was first brought to the attention of the FBI by Circuit City employee Brian Morgenstern, who became concerned over the content of a video live-fire training session he was transferring to DVD. Morgenstern's vigilance, coupled with the support of the Circuit City store management, led the FBI to open an investigation that surely saved the lives of a number of service personnel.

Citizen awareness is a vital component of a truly comprehensive approach to homeland security. A strategy of informing and strengthening citizen involvement should include highlighting the effectiveness of a society intolerant of terrorism. As Americans go about their daily lives, the observation and reporting of suspicious activity should be broadly and openly encouraged. Such a strategy of further shifting, and effectively using, the social paradigm conveys an important message of both unity and resilience that itself would serve as a deterrent to terrorist planners.

Joseph Trindal is a retired federal law-enforcement officer. During his almost 30-year career with the U.S. Marshals Service and the U.S. Department of Homeland Security, he developed and delivered numerous training programs in firearms, officer survival, terrorism preparedness, and personal protection. A Marine Corps veteran, Trindal continues teaching and coaching law-enforcement officers and security professionals in many facets of personal defensive preparedness.

The Multi-Tracking Evolution For Emergency Preparedness: 2010 and Beyond

By Andy Nunemaker, CEO, EMSystems



Until the early 2000s, disasters were often viewed on a short list of natural events – hurricanes, tornadoes, or wildfires, for example. As many of us have experienced this past decade, we learned that any region is at risk for natural or man-made unforeseen disasters and events.

Each year, we see increased interest in advanced disaster or mass casualty incident (MCI) responsiveness with city and state health departments. The definition of “disaster preparedness” has expanded into mass evacuations, pandemic management, health-clinic operations, and special-event medical preparations for all types of health agencies and organizations. In addition, preparedness requirements now encompass all levels of response – including local, state, and national organizations.

As disaster-preparedness dynamics continue to change and grow, the technology requirements to support these different organizations’ needs are also changing. One specific technology that continues to evolve and gain an important role in disaster and emergency-preparedness operations is tracking technology – more specifically, multi-tracking.

A good example of this trend was seen during Hurricanes Katrina and Rita. Medical equipment and pets became important tracking items for the impacted areas’ hospitals, government agencies, and, most importantly, for the patients. The two hurricanes also were the first disasters in which many local agencies and hospitals needed to track multiple elements, not only within their own state, but also across state lines.

Today, both man-made and natural events have caused many government and private-sector health organizations to reevaluate their medical and disaster-preparedness plans because no region is immune to medical emergencies, or to disasters. Therefore, this growing trend in preparedness has metamorphosed tracking technology beyond single-patient tracking to a multi-tracking management system.

Going forward into 2010, tracking technology will continue to move beyond a single tracking system to multi-tracking technology that supports any level of disaster-preparedness plans. New data elements – such as personal belongings, family contacts, pets, medical equipment, and volunteers/employees contacts – will continue to be added as critical tracking items for effective emergency-preparedness planning.

Another growing trend is the use of multi-tracking wireless technology for temporary medical operations and large-event safety planning. Special events – like Mardi Gras, the Presidential Inauguration, and

the Boston Marathon – have already incorporated multi-tracking technology to streamline medical operations and the event management of patients, volunteers, and medical supplies. Specifically, multi-tracking wireless technology ensures that first-responder medical teams remain in the field, but can connect in real time to the main operations center for continuous communication. This trend will continue to grow as national agencies, local governments, and health organizations focus on event-safety and disaster-prevention plans.

Finally, multi-tracking technology will continue to gain traction with the monitoring and preparation plans specific to community health management, like pandemic or seasonal influenza, and pneumonia outbreaks. During this year’s Novel H1N1 pandemic planning, several local and state public-health departments used tracking multi-technology with new data elements to help their public health departments, community nurses, health care providers, and point of dispensing (POD) sites to monitor and track the prevalence of H1N1 and seasonal influenza. Special data elements tracked and reported on administered vaccine doses, as well as patients that presented themselves with influenza-like illnesses and pneumonia. The technology also organized and analyzed data quickly to improve preparations, community outreach programs, and communications for flu vaccinations. This usage trend will continue as the different virus strings change.

As new emergency-management needs emerge, tracking technology will continue to improve to address the multiple data and patient elements that assist EMS, hospitals, and healthcare organizations to better manage critical resources, patient care, and valuable time. The technology will continue to expand its flexibility – both to support local policies and nomenclature and to reflect any unique state or local needs in the patient tracking process, to improve care for patients and victims.

Unfortunately, the risks of disaster we face will not disappear, but will only continue to change. Therefore, how we leverage tracking technology to improve emergency-preparedness operations – across the healthcare continuum – with accuracy, speed, and focus will be a key factor in minimizing the impact on patients and preserving the safety of our citizens.

Andy Nunemaker is the CEO of EMSystems. Prior to joining EMSystems, he spent six years on the management team at GE Healthcare in various roles including: CEO of GE Medical Systems for Australia, New Zealand, and South East Asia; Six Sigma Quality Leader; and Plant Manager. Prior to joining GE, Andy held several management roles at SBC Communications and Bain Consulting. Andy has a Bachelor of Science degree in Electrical Engineering from Valparaiso University, a Master of Science degree in Electrical Engineering from Georgia Tech, and an MBA from Harvard University.

Improving Individual Protection from CBRN Threats In a Down Economy: Challenges and Solutions for 2010

By Gary Dunn, Vice President of Sales & Marketing, Avon Protection Systems Inc.



Since 9/11, professionals in the homeland-security and first-responder communities have become much more sophisticated and aware when it comes to making decisions about selecting personal protective equipment for CBRN (chemical, biological, radiological, nuclear) threats.

Users recognize that existing equipment, in many cases procured shortly after 9/11, needs to be upgraded in order to overcome product degradation, ensure protection against new threats, and meet the CBRN standards implemented by NIOSH (the National Institute of Occupational Safety & Health), NFPA (the National Fire Protection Association), and possibly NIJ (the National Institute of Justice).

This is an encouraging trend; however, budgets have come under great scrutiny and state and local government funds have been slashed. As a result, users look for ways to leverage their dollars and still provide the best protection available to their people. The list below provides an overview of expected trends for 2010 regarding new product demands and how organizations can best leverage equipment expenditures and work together to receive funding.

- **Integrated Protection Ensembles:** The development of new equipment standards and a greater understanding of equipment capabilities will lead to a focus on integrated protection ensembles in 2010. Procurement officers will be much more focused on providing first responders with completely integrated individual protection ensembles as a way to provide a higher level of protection and save time and money.

Purchasing one fully integrated head-to-toe protective unit helps to reduce the potential of the leaks and breaks that can occur when putting various pieces of protective equipment together. Currently, there are protective systems available that easily integrate with hydration units, communication devices, and eye-protection equipment. In 2010, many manufacturers will move toward fully integrated protective suits, including respiratory systems such as masks, PAPRs (powered air purifying respirators),

and SCBA (self-contained breathing apparatus) with bomb suits, gloves, and boots.

- **Product Development Focus:** Much of the equipment used in the homeland-security and first-responder arenas come from the Department of Defense (DOD) inventory or are spin-offs tailored to meet the requirements of this market. It is anticipated that defense budgets are going to come under great scrutiny in 2010 and beyond as the new administration takes a close look at spending under the Quadrennial Defense Review (QDR). Because of this, we may see a reduction in investment in the research and development (R&D) of brand-new technologies that take years to hit the market. Instead, the focus will be on providing war fighters (and first responders) with the highest quality products already on the market or about to hit the market as well as modifying existing technologies to be more efficient.

Because of this, the technology available in 2010 will likely be the technology used in the coming years. If an organization has a need for new protective equipment now, it should not wait for a new technology to hit the market; instead, it should find the best equipment currently available and provide it to the team of responders.

- **Dual-Purpose Equipment:** As budgets become more constrained, first responders should look for dual-purpose equipment that will help to leverage their spending. The DOD will be looking to ensure that their equipment has dual-use capability across all markets. This is an excellent way to stretch dollars and provide first responders with equipment that offers a range of flexibility to meet multiple scenarios and requirements.

For instance, Avon's FM53 NIOSH is the only tactical mask system available that enables users to operate the mask in all recognized modes of Respiratory Protective Equipment such as APR's, SCBA's, and PAPR's. It meets the unique requirements of special operations units, such as first responders (hazmat and CBRN), law enforcement, decontamination teams, clandestine drug lab entry and remediation, specialist entry teams, chemical spill cleanup, bio identification and cleanup,

law enforcement tactical (SWAT) teams, bomb squads, specialist correctional officers, and federal special response teams.

- **Grant Funding:** First responders have become more organized and a large majority of purchases in this market are now backed by grant funding. This is a great improvement because these professionals now have access to higher quality products designed specifically for their needs. In order to access grants, however, they can only purchase NIOSH- or NFPA-certified equipment. As a result, manufacturers will begin to put a bigger emphasis on securing NIOSH or NFPA certification for their products.

Navigating the grant process can be difficult, as it is challenging to understand the full scope of funding available. One of the best ways to get help in this area is to ask a manufacturer representative. Avon Protection Systems' sales managers are highly knowledgeable about all of the grants available to organizations and can help customers determine which grants they should apply for.

- **Interoperability:** Grant funding is predominantly available in metropolitan areas where a larger volume of units are needed to outfit users and there are employees dedicated to applying for grants. However, it is harder for smaller communities to access grants due to small staffs who don't have time to dedicate to grant writing. As a solution, cities and outlining regions are forming joint purchasing committees. This allows larger jurisdictions to lower their cost per unit and provides smaller communities with access to top-notch equipment. All parties in the region benefit from economies of scale, and this will become a growing trend in 2010.

New threats arise every day and law-enforcement officers, first responders and emergency-management teams are constantly facing new challenges and eagerly looking for individual protective equipment and systems that provide them with the highest level of protection, comfort and functionality – helping them do their jobs better.

Gary Dunn is Vice President of Sales and Marketing for Avon Protection Systems Inc. (www.avon-protection.com). Avon Protection Systems is a leading designer and manufacturer of personal respiratory protection products, offering the most comprehensive suite of solutions for a wide range of CBRN applications.

New and Emerging Shelter Technology Provides Solutions for Responders

By Ron Houle, Vice President of Government Relations, DHS Systems LLC



In today's emergency environment, responders are increasingly threatened by natural and man-made disasters that task both resources and funds. From a building fire caused by an electrical short to a full-scale emergency such as regional flooding, responders are challenged to rapidly provide the best possible care in varying environments.

Under these conditions, responders and victims are operating under high stress without proper shelter or supplies. If an emergency takes place in a remote area, power, air conditioning or heating, shelter, and medical supplies will be needed. Local hospitals will be faced with a surge of casualties that will quickly exceed the capacity of nearly any medical facility. This would be particularly true in the case of a biological outbreak or influenza pandemic, when existing beds will not be enough to handle a large influx of patients.

Rather than place patients in the open air and subjected to the elements, or hastily erecting make-shift tarps, more and more hospital facilities, public health agencies, and emergency departments are purchasing "turn key" soft-walled shelter systems. These systems allow responders and receivers to quickly set up or take down a complete soft-walled system that includes power, environmental control, lighting, cots, and, in many cases, the medical equipment used to treat patients. The systems are easy to set up and can be folded down to a manageable storage size that can be put away or taken to an emergency scene via existing facility vehicles.

To meet the demand for quality in the face of adversity, the future of these shelters is expanding to include high-tech fabrics, energy-efficient technology, and increased durability.

High-Tech Fabrics

There is an urgent need for shelters that use high-tech fabrics, such as materials treated with insect repellent and those that are resistant to chemical and biological agents. For example, in the aftermath of some of the more destructive hurricanes that hit the Gulf Coast in recent years, insect control, though generally taking a back seat in the media to home loss, was an issue that contributed not

only to the general discomfort of victims, but increased instances of illness. Producing structures that include insect-repellent qualities will minimize this risk.

Self-decontaminating textiles that use the reactivity of nanoparticles to decontaminate chemical agents are also being developed as more and more agencies and departments are seeing the need for portable decontamination units. These fabrics act as chemical-agent indicators by changing color when a chemical agent is present. Portable isolation units that include air filtration and positive/negative air pressure to push out biological contaminants and bring in clean air are already on the market and being used by various agencies.

More Energy-Efficient Technology

Energy-efficient technologies include digital equipment that will allow mobile generators that power equipment to reduce fuel consumption and increase power efficiency. Newly emerging products to the field incorporate: automatic start/stop features to allow for more efficient generator function; load sharing to allow users to connect multiple generators together; and power-management systems that turn off low-priority loads as needed. This means that a mobile incident command post or mobile surge facility will use only the amount of power it needs to operate, no more, no less.

Additionally, well insulated portable facilities will have better thermal efficiency, thereby significantly reducing the requirement for power to maintain a comfortable working environment. Some studies have shown that management of a mobile power grid, combined with technical fabrics, can reduce fuel consumption by a minimum of forty percent. At a time when excess use of energy means money, as well as a drain on the environment, these new efficiency systems are the wave of the future.

More Durable Structures

Often, in a large-scale emergency, the durability level of a product may mean the difference between life and death. Shelters that can withstand 60-70 mph gusts of wind or heavy, driving rain stand a much better chance of providing patients and caregivers alike with protection from the elements than hastily erected tents that might blow away at any time. Advanced designs for frames have revolutionized the shelter industry, allowing for increased strength and durability, while simultaneously having less weight and improved portability.

In the last few years, the soft-walled shelter industry has even gone beyond the scope of what is needed by responders to include enhancements to fabrics that allow for ballistic protection, better security for electronic signals, and solar energy control. Much of the research behind such technology is being conducted by military suppliers in an effort to enhance the soldier's presence in the battlefield. First responders can only benefit from these technological advances as they make their way into the public arena.

Ron Houle is the Vice President of Government Relations for DHS Systems LLC, manufacturer of the Deployable Rapid Assembly Shelter (DRASH). Ron is a graduate of the United States Military Academy at West Point, N.Y., and holds two Masters Degrees from Stanford University and a Masters of Science in National Security Studies from the National Defense University in Washington, D.C. Before coming to DHS Systems, Ron served for over 24 years in the U.S. Army, with assignments in the Army's Office of Legislative Liaison at the Pentagon and as the Chief of Staff at the National Headquarters of the American Red Cross.

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Impact of eLearning on Hospital Emergency Preparedness

By Howard Levitin, President, DQE Inc.



Hospitals continue to be the primary patient collection point for medical casualties in disasters, regardless of the event. The hospital closest to the event typically receives the majority of patients without consideration of the institution's level of preparedness, trauma designation, or current bed availability. Therefore, Emergency Department personnel must be trained in the various nuances of disaster management (e.g., triage, incident command, decontamination, and agent monitoring) that may be required during the initial presentation of victims. Staff throughout the hospital need to understand their roles in an emergency, how they fit into their hospital's incident command system, how they should protect themselves and their patients, and what response actions are expected of them. Finally, hospital leaders must be well versed in all phases of emergency management (mitigation, preparedness, response, and recovery) and be prepared to direct their staff accordingly.

Hospitals recognize the importance of emergency preparedness training, but tight budgets, multiple shifts, time constraints, lack of in-house expertise, and high turnover make it challenging to retain a well trained staff. Increasingly busy clinical, managerial, and support staff commonly lack the time and/or schedule flexibility to depend purely on traditional classroom training methods to become familiar with the broad scope of emergency-management duties and responsibilities. In addition, the nation's current economic crisis and skyrocketing travel costs are forcing hospitals to explore the use of technology to accomplish required training.

With minimal technological investment, some eLearning offerings enable hospitals to provide critical training for employees across various disciplines and job categories, and in different locations. eLearning also can address information-retention issues. According to some research, nearly 70 percent of the information learned in a training course is forgotten by the time the student needs it. Theoretically, by making the training materials available anytime, anywhere, students can instantly refresh their knowledge. eLearning also allows learners to work at their own pace and to have greater control of their learning environment by being able to choose the style of learning that is most appealing to them.

eLearning is now a multi-billion dollar industry with projections of a 33 percent growth rate expected over the next

several years. Because of the ever-growing popularity of both portable and hand-held devices, the opportunity to distribute learning materials to support initial training, refresher training, and just-in-time training will inevitably follow technology's lead. Effectively training members of the nation's emergency-response and healthcare communities is essential, and eLearning technology allows this information to be disseminated in a more consistent, more easily accessible, and more economical manner. To accomplish certain efficiencies, however, eLearning must be integrated with other learning (including instructor led training), knowledge transfer, and performance-improvement approaches.

While eLearning is becoming mainstream in many medical facilities, it has yet to be proven if it will actually improve a hospital's state of emergency preparedness or depth of learning – i.e., the actual internal process by which the learner takes in information, applies experience, and translates it into knowledge or skills. Although it may be appropriate to use eLearning to replace basic didactic presentations, it remains unknown whether or not this technology can be effectively applied to tabletop exercises, leadership decision-making instruction, and/or skill-based training. In addition, it is important to keep in mind that not all eLearning is created equally. Current eLearning offerings for hospital emergency preparedness vary from PowerPoint® presentations (which require the learner to read segments of script embedded on each slide), to streaming videos, to commercially available programs that incorporate various learning modalities such as sound, visuals, video, and animation. The most effective means of providing training and the appropriate balance between traditional and eLearning approaches still needs to be determined. Formal guidance, standardization, or outcome metrics also must be determined to ensure that this approach reaps the benefits being sought.

Footnotes:

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Dr. Howard Levitin, president of DQE Inc., is both an Emergency Physician and Clinical Assistant Professor at the Indiana University School of Medicine. He has published and lectured widely in the areas of healthcare emergency preparedness.

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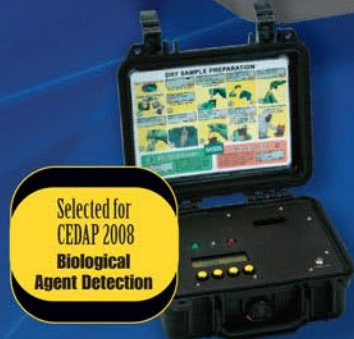
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Common Standards for CBRN PPE – An International Code

By Diana Hopkins, Standards



It has been more than nine years since terrorists attacked the World Trade Center Towers in New York City, and the Pentagon, but terrorism continues to erupt in many other areas of the world, imposing a continuing burden on emergency responders whose duty it is to protect the people and the property of their countries. One global commonality is that all countries want to provide their emergency responders the best protection available when they respond to terrorist attacks. Personal protective equipment (PPE) is the key to achieving that goal, especially to protect those responders in incidents involving CBRN (chemical, biological, radiological, nuclear) agents. Historically, the use of personal protective equipment began with the firefighter, but in recent years it has changed and evolved to meet the needs of other emergency responders as well.

There are many internationally based PPE manufacturers who supply the world's responders with personal protection equipment – Remploy and Avon in the United Kingdom, for example; Draeger in Germany; and many U.S. companies, including MSA, Blauer, and others. These companies, and most other international manufacturers, are listed on the Responder Knowledge Base (www.rbk.com), which provides dependable information on products, standards, certifications, grants, and other PPE-related information.

One of the most helpful features of the Responder Knowledge Base is that it also provides information on the PPE equipment standards followed by international manufacturers. These standards are a combination of descriptive standards, performance standards, and, most importantly, the testing standards that allow purchasers and responders alike to have confidence in the protection the PPE gear provides the wearer in responding to CBRN incidents.

“C” Times Three: Collaboration, Coordination, & Cooperation

An incredibly cooperative network exists between the numerous agencies and organizations involved in establishing, testing, and enforcing the PPE standards that are used by almost all PPE manufacturers worldwide. The collaborative efforts in this area were undoubtedly given additional impetus by the terrorist attacks of 11 September 2001, but actually began much earlier. In the United States, both before and after the 9/11 attacks, the National Institute for Occupational Safety and Health (NIOSH) of the U.S. Centers for Disease Control and Prevention (CDC), the National Fire

Protection Association (NFPA), the Occupational Safety and Health Administration (OSHA), the National Institute of Standards and Technology (NIST), and the U.S. Army were working together to develop the standards and testing procedures required to ensure the reliability, effectiveness, and durability of counterterrorism equipment.

Today, those same partners have formed a fine machine – with each of the agencies named playing its own well defined role. The NFPA establishes the standards for CBRN ensembles, and NIOSH approves the CBRN standards set for air-purifying escape respirators (APERs), air-purifying respirators (APRs), powered-air-purifying respirators (PAPRs), and self-contained breathing apparatus

(SCBA) – SCBA certification must be consistent, moreover, with guidelines established by the Federal Emergency Management Agency (FEMA).

But establishing the standards is only part of the process – the equipment still must be tested, independently and under real-life conditions. Approvals are therefore based on positive results from rigorous tests carried out by accredited third-party testing entities. The NIOSH tests for



The C50 CBRN mask provides high protection, outstanding field of vision and superior comfort. The C50 was developed for the military and law enforcement communities requiring NIOSH (National Institute for Occupational Safety and Health) or CE certifications, making it the most versatile choice available for purchase by law enforcement, government agencies, hazmat and first responders. Photo compliments of Avon Protection Systems Inc. (www.avon-protection.com/protection-home-us.htm)

respirators, for example, are developed and implemented at NIOSH's National Personal Protection Technology Laboratory in Morgantown, West Virginia.

The Highest Priorities: Effectiveness and Functionality

Internationally, it is generally accepted that CBRN PPE includes suit, hood and cowl, socks, gloves, respirator, and boots. However, responders do not simply mix and match the equipment available. Instead, the CBRN PPE must be a *standardized ensemble* that follows internationally accepted standards established by the NFPA and NIOSH. All CBRN ensembles, therefore, must be completely NFPA-certified as a particular Class and, of greater importance, must provide protection to the upper and lower torso, head, arms, legs, hands, wrists, and feet as well as the human respiratory system. In addition, all respirators designed to meet the levels of protection required by the NFPA must be certified by NIOSH as CBRN-compliant.

The standards for NFPA's CBRN testing and the performance standards for CBRN protective ensembles – spelled out in *NFPA 1994* – were originally published in 2001 and cover three Classes or levels of protection designed for a single-exposure wearing. *NFPA 1994* was revised in 2007 to add a fourth level of protection and to move the highest level, Class 1, to an alternate standard designated as *NFPA 1991* (“Standards for Vapor Protective Ensembles for Hazardous Materials Emergencies”).

The Class 1 ensemble was developed, tested, and manufactured to meet the mandatory CBRN requirements set for all vapor-protective ensembles. The specialized high-performance suit is not only totally encapsulating but also includes SCBA gear. In an age where easy-on/easy-off, low-stress, comfort, and controlled temperatures are the qualities preferred in PPE equipment to provide adequate protection to the responder, Class 1 suits are by necessity stressful, hot, clumsy, and time-consuming – both to put on and to take off.

The Snake Pit Warning: IDLH

Class 2 ensembles also include an SCBA and provide liquid protection. The Class 2 ensemble offers a very high level of protection for atmospheric conditions that: (a) are officially designated as “IDLH” (immediately dangerous to

life or health); (b) protect the responder against chemical vapors and liquids, in addition to biological agents and radiological particulates; and (c) require a NIOSH-approved SCBA. Both Class 2 and Class 3 garments are tested: (a) for permeation resistance against HD mustard and GC Soman nerve agents; and (b) for permeation resistance against liquid and gaseous industrial chemicals.

Class 3 ensembles – which provide lower levels of protection against chemical vapors/liquids, biological agents, and radiological particulates – use NIOSH-certified CBRN air-purifying respirators and powered air-purifying respirators at conditions below IDLH and for longer periods of time. The 2007 version of *NFPA 1994* added a Class 4 ensemble that offers protection against particulates – including certain human disease-causing agents (pathogens), toxins, and/or radiological dusts or mists – and, like all other *NFPA 1994* levels of protection, requires a NIOSH-approved CBRN respirator. These are the standards and classes that international buyers seek when purchasing CBRN PPE.

In the past, emergency responders often had to improvise, in large part for budgetary reasons, to find the right gear and equipment that would allow them not only to do their jobs effectively but also to protect themselves at the same time. For responders worldwide, affordability is still a big factor in deciding what PPE to purchase, and some manufacturers have taken advantage of the situation by offering sub-standard PPE at supposedly affordable prices. Today, however, this practice is the exception, and responders and manufacturers are focused primarily on following the internationally accepted, and tested, standards and guidelines set by responsible agencies. Putting safety first does perhaps increase the cost of PPE, but when the lives of their own people are involved, funding is more likely to be provided by homeland-security agencies worldwide to purchase the best protection available for their responders.

Diana Hopkins is the creator of the consulting firm “Solutions for Standards” (www.solutionsforstandards.com). She is a 12-year veteran of AOAC INTERNATIONAL and former senior director of AOAC Standards Development. Most of her work since the 2001 terrorist attacks has focused on standards development in the fields of homeland security and emergency management. In addition to being an advocate of ethics and quality in standards development, Hopkins is also a certified first responder and a recognized expert in technical administration, governance, and process development and improvement.

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Advance Planning: The Key to Preparedness for Special Events

By JL Smither, *Special Events*

Well planned special events allow emergency planners to collaborate and prepare for a variety of potential incidents. When agencies and departments at various levels work together to plan for emergencies, they can ensure a successful event.

The District of Columbia's *Support to the 56th Presidential Inauguration After-Action Report Summary*, available on the recently redesigned *Lessons Learned Information Sharing (LLIS.gov)* website, proves the effectiveness of collaborative planning. Planners in the National Capitol Region (NCR) expected the inauguration of President Barack Obama in January 2009 to attract millions of people to Washington, D.C., with some experts predicting crowds as large as five million attending the three days of special events associated with the inauguration. In preparation for this high-security event, the U.S. Department of Homeland Security designated the 2009 Presidential Inauguration as a National Special Security Event (NSSE).

The District of Columbia's Homeland Security Emergency Management Agency (HSEMA) served as the lead D.C. agency in the planning effort. However, HSEMA planners realized that they would have to collaborate with other agencies throughout the National Capitol Region because of the scope and size of the event. To prepare for the inauguration, agencies throughout the region worked together on plans for communications, mass care, public health, sheltering, transportation, and the many other factors and situations involved. Although the agencies participating did not create a single all-inclusive NCR plan, the collaborative agency plans effectively provided a safe and successful event for the approximately 1.8 million attendees.

One major challenge the inauguration planners faced was how to control and manage such a large crowd. For safety reasons, planners designated specific entrances for certain types of tickets to the swearing-in ceremony on the Capitol steps on the west side of the Capitol overlooking the National Mall. In addition, planners closed a number of roads and bridges, provided separate vehicle and pedestrian routes, and designated bus parking areas. Even with these preparations, however, planners and law-enforcement officials encountered some crowd management issues. In some instances, for example, different agencies posted contradictory signs, confusing inauguration attendees.

Even where the signage was correct, though, some attendees waited in the wrong line, seeking access to areas for which

they did not have the proper tickets. Some of the attendees also co-mingled freely with other people who had different tickets, a complication that made the designation of separate lines less effective. In addition, some pedestrians formed a line in a tunnel that was not properly barricaded but, rather, was intended for emergency vehicle use only. (For future events, the National Capitol Region plans to create a crowd-management subcommittee that would be exclusively responsible for crowd management. Such a subcommittee could ensure the use of correct and comprehensive signage, the development of compatible transportation plans among agencies, and the establishment of information kiosks throughout the event grounds.)

Part of ensuring the safety of such a large crowd includes placing first-aid stations throughout the area. During the 2009 inauguration, over 700 attendees sought assistance from first-aid stations. Many agencies provided these services, including the D.C. Department of Health, which staffed 30 first-aid stations to perform basic medical care and triage operations. Although the Department of Health fully stocked each aid station, the freezing temperatures on the day of the swearing-in ceremony contributed to an especially high demand for first-aid services. When supplies at some first-aid stations ran out, the agency had difficulty resupplying them because of road closures and pedestrian-only routes. In future events, it was decided, agencies providing first-aid stations plan to keep back-up materials nearby both to hasten resupply and to help as many people as possible.

Although the 2009 Presidential Inauguration was a successful event without any major complications causing problems, the agencies involved still collected some valuable lessons learned to improve planning for future special events of similar magnitude. More of these lessons are captured in the National Capitol Region's *2009 Presidential Inauguration Regional After-Action Report Summary*, available on *LLIS.gov* (www.llis.gov). Overall, though, the general consensus was that the D.C. HSEMA and other agencies in the National Capitol Region effectively collaborated on plans and procedures, and the end result was a safe large-scale event.

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. Ms. Smither received her bachelor's degree in English from Florida State University.



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Public Health Security for Mass Gatherings

By Bruce Clements, Public Health



A mass gathering has been defined by the World Health Organization as a planned or unplanned event at which the number of attendees is “sufficient to strain the planning and response resources of the community, state, or nation.” Fortunately, the strategies needed to address the public health challenge represented by mass gatherings have rapidly evolved in recent years, but emerging threats such as pandemic diseases and terrorism have further complicated the challenges of preparing for such events.

In areas with little infrastructure, a mass gathering could be fewer than 1,000 people. In major metropolitan areas, the gathering may be in the hundreds of thousands. In other words, from a public health perspective, a mass gathering is comparatively defined and depends upon the local public health and medical infrastructure.

The first step in defining the public health security needed for such an event is a public health risk assessment. It is imperative that the organizers of mass gathering events work closely with local healthcare and public health officials to ensure that health risks are or can be mitigated. A variety of issues must be considered through an event risk-assessment, including but not limited to the local healthcare and public health infrastructure, attendee demographics, and the event’s location, purpose, date, duration, and size. The availability of accommodations and the transportation requirements of attendees also are important factors to consider in the assessment.

Mass Gatherings and H1N1

The spread of the current H1N1 influenza virus provides a timely example of the public health challenges involved in mass gatherings and in the risk assessment factors associated with such gatherings. During a pandemic, major events may have to be canceled or postponed because of the influenza risk involved. The cancellation decision may be based solely on the lack of healthcare capacity in or close to the area where the event is to take place. If hospital beds are

already limited, the hosting of a large gathering may impose an excessive burden on local healthcare resources.

In the case of H1N1 threats, this factor is particularly important when the event involves large gatherings of children and/or young adults. Many of the 2009 H1N1 cases reported, in fact, were directly associated with the congregation of young people – at summer camps, for example, and immediately after the recommencement of school in the fall.

The timing of a mass gathering event also is critical and, usually, the most difficult factor to assess in relation to a pandemic. If an event starts during a pandemic wave, the resulting patient surge may overwhelm local healthcare facilities. On the other hand, if the event lasts only a day or two, infected attendees may incubate the disease until they return home and the end result is greater dispersion of the disease. These are all important factors to consider in the development of a mass gathering H1N1 risk assessment.

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When a mass gathering event is already underway during an existing or imminent pandemic outbreak, measures must be taken to mitigate the spread of disease. Most importantly, public health messages should be widely shared through announcements, posters, handout materials, and other means. These precautions are basic influenza prevention messages that do not

change for mass gatherings. Those who are ill should avoid being in or around crowds of people; all attendees and participants should understand, and practice, appropriate cough and sneeze etiquette, and frequent hand washing should be not only encouraged but actively enabled through the provision of hand washing facilities – supplemented, if possible, by waterless hand sanitizers.

In addition, event organizers should establish locations where those experiencing the early signs of illness may be isolated and assessed. Those locations should preferably be equipped for remote viewing of the event to encourage this alternative participatory option for those with a suspected illness.

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The key to effective public health security at mass gatherings is collaborative planning focused specifically on: (1) surveillance and monitoring; (2) health promotion; (3) environmental health and safety; (4) medical care and countermeasures surge capabilities; and (5) the threats posed by infectious diseases.

Mass Gatherings and Terrorism

Special public health preparedness consideration is also made for events that have increased potential to draw the attention of criminal or terrorist activities. These officially designated National Special Security Events (NSSEs) range from sporting events such as the Olympic Games or Super Bowl to political events including but not limited to the presidential inauguration, political conventions, and state funerals. Based on the size and significance of the event, as well as the anticipated attendance of dignitaries, an event may be designated as an NSSE. When that designation has been assigned, the U.S. Secret Service assumes lead agency responsibility and the actions taken usually include additional public health and medical preparedness measures. Those measures often focus on enhanced air monitoring, epidemiological surveillance, the pre-placement of medical countermeasures, and additional planning for patient decontamination and the surge capabilities available in the local healthcare system.

Air monitoring is a particularly important tool to help ensure public safety during large gatherings. The BioWatch Program now in place across most major U.S. cities provides early detection of pathogenic organisms. However, that program is limited both in its coverage area and in the types of organisms that might be detected. In addition, if a covert release is carried out near a building's air intake system, and/or in a location not in close proximity to a detector – or during a thermal inversion or other weather phenomenon – it could easily be missed by BioWatch detectors. (There also could be a delay in obtaining results from BioWatch monitoring, because filters must be collected and tested daily.)

New technology has emerged that provides a portable chemical, biological, and radiological detection capability in and around key facilities. Although this technology is rapidly evolving, it still has limitations. For example, most information from standoff biological-threat air monitoring is not yet actionable. In recent history, moreover, there has been a series of false-positive biological threat results at NSSEs.

As long as biological air-monitoring information is unreliable, the preparations for dealing with a biological threat will pose difficult challenges for decision-makers at mass gatherings.

Epidemiological surveillance includes a variety of approaches. The methods, models, and procedures for effective surveillance at mass gatherings also continue to evolve and expand in scope. Syndromic surveillance is commonly used for NSSEs and includes the monitoring of selected illness syndromes – e.g., fever, respiratory infections, gastrointestinal illness, dermatological presentations, and neurological conditions. These syndromes may be particularly useful in detecting the early onset of mass illnesses resulting from the intentional release of a chemical or biological agent. The information developed must be carefully examined, though, in the context of intelligence, detector results, and other factors to devise an appropriate response.

Assurance of effective public health security at mass gatherings requires coordinated and collaborative planning. The composition of the planning team usually will depend upon the size, scope, and location of the event, but should always include representation from local public health and healthcare agencies as well. The surveillance and monitoring tasks may range from the monitoring of Emergency Department visits to much more elaborate epidemiological and environmental monitoring. Basic environmental health and safety needs include, but are not necessarily limited to, the availability of adequate latrines and hand washing facilities; transportation and food safety, as well as weather threats, also must be taken into consideration. Surge planning for medical care and countermeasures must be tailored according to the population, with special focus on current and emerging infectious disease threats such as pandemic influenza. Finally, healthcare promotional messages should be incorporated into the overall communications plan to keep appropriate prevention messages evident to attendees as well as participants at special events.

*Bruce Clements is the Public Health Preparedness Director for the Texas Department of State Health Services in Austin, Texas, and in that post is responsible for health and medical preparedness and response programs ranging from pandemic influenza to the health impact of hurricanes. A well known speaker and writer, Clements also serves as adjunct faculty at the Saint Louis University Institute for BioSecurity. His most recent book, *Disasters and Public Health: Planning and Response*, was released in 2009.*

Virtual USA to Enhance Disaster Management

By Rodrigo (Roddy) Moscoso, Law Enforcement



The devastating earthquake in Haiti, reinforced earlier today by a lower-magnitude shock, has provided yet another urgent reminder of the need to quickly access and share real-time emergency-management data across the full spectrum of response, ranging from the use of local urban search-and-rescue teams to the decisions made by government leaders across the globe. Moreover, to be most effective, multinational responders from nations as disparate as Ecuador and Israel must have accurate and timely data, analyzed at a unified strategic level. Partly for that reason, the U.S. Department of Homeland Security's new Virtual USA effort is working to establish an effective technical model for the exchange of emergency-management data across multiple systems. Success in this effort could significantly enhance the response to disasters such as the Haitian earthquake.

The goal of Virtual USA is to link disparate critical-asset data sources such as the information needed on utility status, emergency-response capabilities, and shelter locations – to take just three likely examples – across multiple emergency-management platforms, particularly those enabled by GIS (Geographic Information System) technology. Over the past several years, a number of GIS-based emergency-management tools have been developed across the nation, particularly at statewide operations centers. These new GIS tools are now used daily both to document and coordinate incident responses and to display the status of various emergency resources.

Although GIS data has long been captured and shared in a standard format, the tools (even web-based solutions) that present the data vary visually from system to system. Moreover, emergency-management agencies have purchased or developed several different types of systems – ranging from Google Earth KML to Adobe Flex GeoRSS – for displaying geo-coded data. For that reason, even as emergency-management centers themselves have evolved to engage and coordinate their operations more effectively

across jurisdictions, they sometimes have found it difficult to share geo-coded data, including the availability and status of various resources.

A Major and Measurable Target: Actionable Data

Among the principal objectives of Virtual USA is to facilitate the exchange of “actionable” data across multiple state systems. One near-term effort involves the exchange of data between the Commonwealth of Virginia's Interoperability Picture for Emergency Response (VIPER) and the “Virtual Alabama” GIS-based emergency-management system, each of which uses a different GIS technological platform. The current effort involves the development of what is called sever-based software that is able to convert and exchange the different data formats – KML and GeoRSS – in real time, thereby enabling VIPER and Virtual Alabama to view each other's emergency-response data through their native interfaces.

This capability represents a key tenet of the Virtual USA philosophy – namely, to leverage existing investments and avoid the need for participants to purchase new technologies or be re-trained on different tools. In the current fiscal climate, not incidentally, this probably is the only approach that is or could be acceptable to state participants.

Although the standardization of data across center-based GIS tools represents an important step, the exchange of data *to and from the field* is where the greatest value may be derived. In an emergency situation such as the Haitian earthquake, early damage assessments and communications must come from equipment already in the field, notably cell phones (both traditional and “smart”). Significant strides have been made – since, and at least partly because of, the poorly coordinated response to Hurricane Katrina – in developing technological solutions that quickly deploy mobile cell network infrastructures, even when no existing infrastructure remains.

The goal of Virtual USA is to link disparate critical-asset data sources such as the information needed on utility status, emergency-response capabilities, and shelter locations – to take just three examples – across multiple emergency-management platforms, particularly those enabled by GIS technology

These solutions provide a unique opportunity to leverage the data and communications capabilities of the extensive government and consumer cell-phone infrastructure already in place. Indeed, the Gartner Group recently forecast that, by 2013, smart phones will probably overtake personal computers as the most commonly used device for accessing web-based content.

A Smart Start on Major Improvements

Unfortunately, there is even more variation – similar to the variations in technical platforms at center-based systems – in hardware and software capabilities in the field, particularly among smart phones. Even websites designed for mobile browsers do not work the same, or at all, on a Blackberry (as opposed to an iPhone, for example). Moreover, in an emergency situation, it can take too long and often be too difficult to deploy a single “preferred” technical platform to the field in a timely way. Development of the capability both to communicate quickly and to receive updates from virtually any cell-phone-based device therefore should be included within the framework of the Virtual USA effort in order to take full advantage of the technology already available.

An impressive example of how to leverage existing cell-phone-based infrastructures in emergency situations is the new field of Crisis Mapping. Online services such as Ushahidi, originally created to receive and map SMS text-message alerts of violence in Kenya, can be used to better focus emergency responses by aggregating and mapping field reports from the general public. More importantly, these services can be used to *send* critical information to the general public via text messaging, alerting those in specific areas exactly where to go to find lifesaving resources and/or essential services such as medical attention, food, and shelter.

The longer-term goal of Virtual USA, of course, is to interconnect emergency-management data across all 50 states and the District of Columbia. The exchange of real-time data between Virginia and Alabama represents a

good start in this area, and should generate a number of important lessons learned, both technological and operational. As the program matures, so should the nation’s ability to fully exploit the capabilities of network-enabled devices wherever they are, in any city, county, or state throughout the country.

Rodrigo (Roddy) Moscoso currently serves as Communications Manager for the Capital Wireless Information Net (CapWIN) Program at the University of Maryland. Formerly with IBM Business Consulting Services, he has over 15 years of experience supporting large-scale IT implementation projects, and extensive experience in several related fields such as change management, business process reengineering, human resources, and communications.

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Next Month: A Summit of Transcendent Importance

By Jack Herrmann, Public Health



For many public-health and emergency-management professionals, preparedness efforts and response capabilities were put to the test in 2009 with the arrival of the H1N1 influenza.

No more than 30 days into 2010, the tragic earthquake in Haiti reminded us just how quickly a disaster can strike and render a community – or a nation – helpless. These events reinforce the fact that as preparedness professionals we can't do it alone. It is critical to engage partners, and the community, to ensure that our agencies have the capacity needed to plan for, respond to, and recover from disasters or public-health emergencies.

Next month, public health preparedness professionals nationwide and worldwide will convene in Atlanta, February 16 through 19, for the fifth annual Public Health Preparedness Summit. At the Summit, professionals will share knowledge, ideas, and lessons learned to overcome preparedness challenges, engage and collaborate with new partners, and carry out a successful public-health response.

This year's Summit offers an impressive lineup of the nation's public health leaders. The opening session, *H1N1: Partnerships in Response to a Pandemic*, will be moderated by Dr. Nicole Lurie, Assistant Secretary for Preparedness and Response of the U.S. Department of Health and Human Services. The session will feature a panel of top public health officials representing the Obama Administration and local, state, and federal agencies. These distinguished panelists will share their perspective on the successes and challenges involved in responding to H1N1.

Dr. Thomas Frieden, Director of the Centers for Disease Control and Prevention, will preface the closing session, *Moving Public Health Preparedness Forward: Assessing Progress, Gaps, and Future Strategies*. This session will include a panel of renowned public health officials who will share a retrospective of the nation's achievements in public health preparedness and a glimpse of the key challenges that still lie ahead.

Award-winning and *New York Times* best-selling author John M. Barry will deliver a keynote address that places today's

pandemic in a historical context. He will revisit the 1918 global flu pandemic and describe the lessons learned from both the past and present pandemics.

Following an introduction by Michael Taylor, Senior Advisor to the Commissioner of the Food and Drug Administration, Summit attendees will hear from Ana-Marie Jones, Executive Director of Collaborating Agencies Responding to Disasters, whose keynote address will focus on community collaboration – easily mandated, but both elusive and absolutely critical for successful public health efforts. Jones will illustrate a number of innovative ways to engage communities.

The Summit offers an agenda filled with a variety of interactive sessions, skill-building workshops, sharing sessions, and poster presentations that focus on building collaborations. Town-hall sessions are new to the Summit's agenda this year. These gatherings will highlight important national issues and allow for audience participation, which provides an opportunity for attendees to leave feeling empowered to continue the important job of preparing our nation for the inevitable.

With new and emerging threats continuously putting our nation's health and security in danger, it is critical to stay abreast of new strategies to enhance the nation's capacity to prepare for, respond to, and recover from the next public health emergency or disaster. Don't miss this important event; register for the 2010 Public Health Preparedness Summit today. For more information, visit www.phprep.org, or follow us on Twitter at www.twitter.com/phpsummit.

Jack Herrmann is the senior advisor for public health preparedness of the National Association of County and City Health Officials. In this role, he oversees the organization's preparedness portfolio, which is aimed at enhancing and strengthening the preparedness and response capacity of local health departments. He also is responsible for establishing the priorities for public health preparedness within the organization, and serves as NACCHO's liaison to local, state, and federal partner agencies. A former assistant professor of psychiatry at the University of Rochester School of Medicine & Dentistry and Clinical Nursing at the university's School of Nursing, he was recently appointed to the HHS National Biodefense Science Board Subcommittee on Disaster Mental Health. For almost two decades he has volunteered both on the front line and in leadership positions with the American Red Cross – participating, for example, in the national disaster-response operations following the Northridge Earthquake, several major aviation accidents, and devastating floods and hurricanes both in the United States and the Caribbean.

Virginia, Wisconsin, Illinois, and Missouri

By Adam McLaughlin, State Homeland News



Virginia **Gate City Launches Automatic Alert System**

In late December, officials from Gate City, a small town in southwestern Virginia just north of the Tennessee border, rolled out a new automatic notification service that will offer a more efficient way to alert citizens of utility outages and/or other emergency situations.

The new Community Information Service – which is administered by Nixle LLC, a company that provides the service free to municipalities in several other states – allows Gate City to send authenticated messages to residents in real time by e-mail, mobile phone, and/or the Internet. The new service “allows targeted information to go out within a quarter mile of the affected area or to the entire subscriber base,” said Richard Hubbard, Gate City codification and property maintenance administrator. “It allows people to get information that is relevant to them by either cell phone or e-mail. If they do not want to do that, they can go on the Web site and look at the backlog.”

E-mail and text-message alerts require registration, but no registration is needed simply to view the advisories posted on the Nixle Web site (nixle.com). Individual residents can set the level of notifications they want to receive, which range from community-level messages about upcoming meetings and activities to advisory-level messages for events or incidents such as utility outages. Alert-level messages, which are sent out automatically to text subscribers, are used to help locate missing persons or advise local residents about fires, floods, and/or other dangerous situations.

Gate City decided to use the service after Ashley Jenkins, a member of the town council, suggested that Gate City implement an e-mail notification system as a new, faster, and more effective way to notify residents of important

events and/or dangerous situations. Another element of the notification system will involve volunteers who sign up for the alerts with the purpose of notifying residents in their neighborhoods, Mayor Mark Jenkins said, who might not have the means to receive the alerts. “If we can organize volunteers to sign up for the service, then in the event of emergencies, or a water outage, they could make sure their neighbors are informed,” Jenkins said. “This is a secure platform for notifications. Residents can be assured that the messages they get are official and accurate.”

Wisconsin **Snowstorm Impact Lessened Through Coordination and Planning**

At the beginning of December, Wisconsin experienced a snowstorm the National Weather Service described as the worst the state had experienced in the last 10 years. However, there were no fatalities and no serious injuries, and the disruptions to travelers were minimal, according to Captain Charles Teasdale, southwest region commander of the Wisconsin State Patrol.

That outcome is in sharp contrast to the situation during a February 2008 storm that stranded nearly 2,000 motorists on a snowy stretch of an interstate highway for up to 12 hours. Many of those stranded had little or no food and/or water with them, and a number of them also were running out of fuel. During that storm, according to WISN.com, several hours passed before state officials were fully aware of what was going on. After the 2008 storm, officials said, they were determined to prevent a recurrence of the same situation.

That determination was “combat-tested” when a snowstorm dumped a foot and a half of snow on almost the same stretch of road last month – more specifically, on 8 December 2009. This time, the state was ready with a variety of new measures that: (a) kept most motorists off the highway itself; and (b) expedited the coordination necessary to clearing the

The new service allows people to get information that is relevant to them by either cell phone or e-mail; if they do not want to do that, they can go on the Web site and look at the backlog

snow. A statewide 511 system that was activated after the February 2008 storm was used, for example, to inform the public about the hazardous road conditions, Teasdale said, and new traffic-monitoring cameras that were installed as an additional means of maintaining situational awareness provided valuable assistance.

Last-month's snow-clearing operations themselves were expedited by a new emergency transportation operations plan that had been reviewed and approved by all of the state and local stakeholders involved. Various elements of the plan called for and resulted in: (a) assigning Department of Transportation engineers to the state's Emergency Operations Center; (b) training department personnel in the use of the federal Incident Command System (ICS); and (c) implementation of an ICS command-and-control structure – which includes the designation of regional incident-management coordinators to make them available, Teasdale said, not only to respond more quickly to the scene of an incident but also to improve coordination with and between both state and local law-enforcement agencies.

Illinois & Missouri

Install New Communications System Linking Emergency Services

A nearly \$10 million communications system will soon link a number of Illinois and Missouri police departments, allowing emergency-response workers to talk to one another with greater ease and creating a communications system believed to be unlike any other in the country.

The St. Louis Regional Digital Microwave System, a regionally based network similar to that which links office computers, consists of 76 tower sites in Madison, Monroe, and Saint Clair counties in Illinois and, in Missouri, Franklin, Jefferson, Saint Charles, and Saint Louis counties as well as the city of St. Louis; all seven counties are in close proximity to one another in the area where the Mississippi River curves around the famed St. Louis "Gateway to the West."

The \$9.7 million system is being funded by the U.S. Department of Homeland Security. It will be designed and installed, according to a spokesperson for the East-West

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Gateway Council of Governments, by Paris-based Lacatel-Lucent Technologies, and will be governed by a 21-member policy and decision-making board composed of senior elected officials of the seven counties and the city of St. Louis. When completed, it will provide a level of interoperable communications not seen anywhere else in North America, according to Nicholas Gragnani, executive director for the St. Louis Area Regional Response System (STARRS), an organization developed to coordinate planning and response for large-scale critical incidents in the two-state metropolitan region.

“The microwave network is similar to an office computer network,” Gragnani said, “where desktop computers, laptops, fax machines, and printers are tied together,” and when fully operational “will tie individual radio systems together, allowing roaming capabilities while increasing radio coverage over 98 percent of the region, 99 percent of the time, for 100 percent of the users on the system.”

The design of the microwave network, he continued, “allows these independent communications systems to be linked together, thus creating a ‘system of systems’ network.” All local agencies in the area, including fire departments, ambulance units, and school and sewer districts, will be served by the new system, which will be installed in three phases; the first phase, linking the Illinois counties and the city of St. Louis, is scheduled to begin before the end of January.

Missouri **Department of Natural Resources** **Focuses on Emergency Planning**

The Missouri Department of Natural Resources (DNR) is beginning an effort this month to ensure that every high-hazard potential (HHP) dam in Missouri has an Emergency Action Plan (EAP) in place. Last year, only 34 of the 469 state-regulated HHP dams had completed their EAP requirements.

An EAP is a plan of action designed to reduce potential property damage and/or loss of lives in an area affected by a dam failure. Ideally, the EAP should include a map of the potential inundation area along with the procedures required and information needed for warning downstream emergency-management authorities of a

possible dam failure. Using the EAP, county and local emergency-management officials should be able to quickly identify: (a) the specific locations of residences, businesses, farms and ranches, schools, hospitals, nursing homes, and highways at risk; (b) the shelters and other emergency resources available if/when a dam failure occurs; and (c) other helpful information – including evacuation procedures and evacuation routes, if needed – crucial for an efficient response.

Among the thousands of persons might be at risk are farm workers, hunters, anglers, hikers, campers, and other recreationists. Livestock also may be endangered. An EAP also helps emergency managers know who is outside the inundation zone and therefore does not need to be evacuated.

Robert Clay, chief engineer of the DNR’s Water Resources Center staff – which inspects the state’s dams and works with dam owners on regulatory and compliance issues – points out that state regulations require owners of all dams in Missouri to have completed an EAP and to have submitted it to the state for review and approval. The Federal Emergency Management Agency (FEMA) is underwriting some of the DNR’s cost of assisting dam owners in understanding their responsibilities for completing their EAPs and submitting them for review.

The designation HHP is used to indicate that there could be loss of life and/or significant property damage in the event of a breach – but the designation itself does not in any way reflect the current condition of a specific dam’s structural integrity. HHP dams that fall under state regulation are inspected every two or three years by Missouri DNR engineers; the inspection frequency usually depends on the characteristics of downstream residential, business, and public-use development.

DamSafetyAction.org is the name and web site address of the Missouri outreach and communications program, which also is supported by FEMA to help the public – and dam owners – understand the importance of planning for public-safety and emergency-response situations.

Adam McLaughlin is with the Port Authority of NY & NJ, and is the Preparedness Manager of Training and Exercises, Operations & Emergency Management, where he develops and implements agency-wide emergency response and recovery plans, business continuity plans, and training and exercise programs. He designs and facilitates emergency response drills/exercises for agency responders, state and federal partners, and senior Port Authority executives.

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