Emergency Communications Forum

A Note from OEC Leadership

Ron Hewitt, Director, Office of Emergency Communications

Welcome to Volume 19 of the Emergency Communications Forum (ECF). The first quarter of 2016 has been a productive one for the Office of Emergency Communications (OEC), and we have much to report in this edition of the ECF.

At its biannual in-person meeting in Jacksonville, Florida, SAFECOM recognized a long-time public safety advocate with the inaugural Marilyn J. Praisner Leadership Award. Chief Harlin McEwen received the recognition for his leadership over the years in advancing public safety communications. His impressive career includes serving as a law enforcement officer, Chair of the International Association of Chiefs of Police Communications & Technology Committee, Deputy Assistant Director of the Federal Bureau of Investigation, and currently as the Chair of FirstNet's Public Safety Advisory Committee.

National Protection and Programs Directorate Under Secretary, Suzanne Spaulding, helped present the award, and OEC Deputy Director Chris Essid praised Chief McEwen's advocacy for public safety telecommunications. Chief McEwen was a driving force in establishing SAFECOM, OEC, and FirstNet. We thank him for his continued service.

On April 7, OEC announced the launch of an exciting new partnership between OEC and the National Governor's Association (NGA). To assist states in improving emergency communications capabilities, the National Governors Association Center for Best Practices (NGA Center), in partnership with OEC, awarded five states – Alaska, Hawaii, Illinois, Utah, and West Virginia – the opportunity to participate in an *NGA Policy Academy on Enhancing Emergency Communications Interoperability*. The Academy will enable these states to participate in a set of activities designed to help them develop or strengthen interoperability plans. The purpose is to enhance governance capacities at the state level for public safety emergency communications interoperability. By the end of the Academy, participating states will be prepared to present recommendations and a plan of action to their governor.

In the last quarter, OEC released three important resources to support stakeholder planning and efforts to secure and fund their emergency communications systems and personnel.

First, OEC and the Department of Transportation National 911 Program released The Next Generation 9-1-1 (NG911) Cybersecurity Primer. As NG911 is deployed, it will enhance the current capabilities of today's 911 networks, permitting compatibility with more types of communication, providing greater situational awareness to dispatchers and emergency responders, and establishing a level of

resilience not previously possible. However, NG911 also introduces new vectors for attack that can disrupt or disable public safety answering point operations, broadening the concerns of—and complicating the mitigation and management of— cyber risks across all levels of government. The Primer is an introduction to improving the cybersecurity posture of NG911 systems nationwide. It highlights the value of a risk assessment to identify, evaluate, and prioritize system risks, while also recommending specific actions to improve NG911 systems.

Second, OEC released the Fiscal Year 2016 SAFECOM Guidance on Emergency Communications Grants (SAFECOM Guidance). The SAFECOM Guidance is updated annually to provide current information on emergency communications policies, eligible costs, best practices, and technical standards for state, local, tribal, and territorial grantees investing federal funds in emergency communications projects.

As in previous years, OEC developed the FY 2016 SAFECOM Guidance in partnership with SAFECOM and the National Council of Statewide Interoperability Coordinators (NCSWIC). OEC also consulted Federal partners and the Emergency Communications Preparedness Center, to ensure that emergency communications policies are coordinated and consistent across the Federal Government.

Third, the SAFECOM/NCSWIC Funding and Sustainment Committee released three white papers on land mobile radio (LMR) technologies – also known as the "LMR Trio." These documents are helpful to stakeholders who often find themselves explaining the difference between LMR and Long Term Evolution offerings, and why continued investment in LMR – specifically, funding to sustain mission critical voice – is still important and needed. The "LMR Trio" can educate decision-makers and funders about the importance of LMR technologies, and the need to sustain and support LMR systems throughout the development of the nationwide public safety broadband network.

On another front, I had the opportunity to feature on Federal News Radio's Executive Forum Program to describe the value of OEC's work with the public safety community. Joining me for the panel discussion were Laurie Flaherty, Coordinator of the Department of Transportation's National 911 Program, and Antwane Johnson, Director of the Federal Emergency Management Agency's Integrated Public Alert and Warning Systems Division. The program aired on April 19 on Federal News Radio – 1500 AM and is available in its entirety here.

As you can see, it's been an extraordinarily busy and exciting first quarter for OEC. In addition to everything happening on the home front, OEC, as always, has been on the road engaging stakeholders at a wide range of conferences and meetings. Therefore, I'd like to kick off this edition of the ECF with a recap of OEC's experience at the 2016 International Wireless Communications Expo in Las Vegas, Nevada, where we participated in no fewer than eight sessions highlighting our ongoing commitment to communications interoperability planning and preparedness. Later, we hear about OEC's support for the Baker to Vegas Challenge Cup Relay, a 120-mile foot-relay race from Baker, California to Las Vegas, Nevada. Next, we feature an article about Colorado's Project 25 Inter-Radio Frequency Subsystem Interface project. We round out with a review of OEC's Auxiliary Communications course, reprinted with permission from the American Radio Relay League, and a preview of upcoming engagements.

OEC Travels to IWCE 2016

From March 21-25, 2016, 15 representatives from the Office of Emergency Communications (OEC), including Deputy Director Chris Essid, traveled to Las Vegas, Nevada for the International Wireless Communications Expo (IWCE). One of the largest annual events for communications technology professionals, IWCE features more than 370 exhibitors and multiple days of workshops, panel sessions, and training opportunities. The event attracts approximately 7,000 industry professionals each year, providing OEC with an excellent opportunity to connect with a diverse base of public safety communications stakeholders.

This year, OEC speakers participated in eight sessions, and the office hosted its very own town hall event: *Navigating the Largest Challenges Facing Emergency Communications Today*. In the spirit of election season, Deputy Director Essid loosely styled the town hall session after an election debate, facilitating a light-hearted but informative back-and-forth among an all-star cast of public safety experts. Participants included: Todd Early, Texas Statewide Interoperability Coordinator (SWIC), Texas Department of Public Safety; Chief Harlin McEwen (ret.), Former Chair, International Association of Chiefs of Police Communications & Technology Committee; Keven McGinnis, SAFECOM Executive Committee, National Association of State EMS Officials; Chief Eddie Reyes, SAFECOM Executive Committee, IACP; and Bradley Stoddard, Michigan SWIC, Michigan's Public Safety Communications System. The lively conversation underscored the need to sustain land mobile radio (LMR), establish effective governance structures, and implement effective training and exercise programs to achieve interoperability in an ever-changing emergency communications landscape. Participants also noted that OEC is uniquely positioned – and empowered – to work across stakeholder groups, public safety disciplines, and communications technologies to ensure first responders can communicate.

In separate panels, OEC Deputy Director Essid described OEC's early and ongoing support for public safety broadband, and the evolving roles and responsibilities of SWICs. OEC's LMR Standards and Security Manager, Jim Downes, provided an update on the Project 25 (P25) Compliance Assessment Program and described P25 user experiences from a federal user's perspective. Dusty Rhoads and Kenzie Capece participated in a governance panel, providing a comprehensive overview of OEC's recently released governance guide, the *Emergency Communications Governance Guide for State, Local, Tribal, and Territorial Officials*. Rounding out the week, Andres Ciriello described how OEC helps stakeholders find and secure grant funding, and Deputy Director Essid presented a short update on OEC at the National Public Safety Telecommunications Council In-Person Meeting that coincided with the final day of IWCE.

OEC also deployed an outreach booth in the exhibit hall to engage key stakeholders about OEC programs and services. The booth received hundreds of visitors during the two-day exhibit hall period, including a diverse mix of state and local emergency response personnel, critical infrastructure stakeholders, and private sector vendors. The majority of the state and local personnel were visiting from home agencies based in the western United States, and many were eligible for OEC programs and services. OEC welcomed the opportunity to converse with booth visitors and learn about their unique needs and challenges.

IWCE is always an exciting and productive event for OEC. We had a pleasure seeing many of you there this year, and we look forward to seeing you again next year.

OEC Supports the Baker to Vegas Challenge Cup Relay

Since 1985, members of law enforcement have gathered in teams to compete against one another in a 20 stage, 120-mile foot-relay race from Baker, California to Las Vegas, Nevada. Known as the Baker to Vegas (B2V) Challenge Cup Relay, the race tests the physical fitness, communication, and teamwork of more than 6,000 runners and support personnel. Prior to this year's relay, held March 19-20, support personnel, team captains, and emergency communications experts met monthly to coordinate logistics for the event and to prepare for potential challenges. Support personnel included Tom Lawless, Office of Emergency Communications' (OEC) Coordinator for Region IX (Arizona, California, Hawaii, Nevada, and the Pacific Islands), and several amateur radio operators.

Amateur radio operators have supported emergency communications in the United States for nearly 100 years. Most states and territories include amateur radio auxiliary communication operators in their Statewide Communication Interoperability Plans (SCIPs) and Tactical Interoperable Communications Plans (TICPS). OEC supports the establishment of these SCIPs and TICPs, and further supports amateur radio operators through several technical assistance (TA) offerings. One offering focuses on the basic elements of land mobile radio (LMR) interoperability and its role in public safety emergency communications. Such training is critical for ensuring that amateur radio operators possess the skills required to support emergency communications for events like B2V.

During B2V, amateur radio operators were stationed at each of the 20 stages, where they reported medical problems and supplied back-up timing. Members of participating teams also required knowledge of LMR to support their own communication efforts. For example, each team used a "follow vehicle" to trail the team's runner and provide aid when needed. Drivers of these vehicles were required to be experienced in the use of hand-held radios and approved frequencies. These efforts supported emergency communications throughout the race and illustrated why robust LMR capabilities are vital to the success of large planned events.

LMR continues to be the most prevalent method for emergency communications throughout much of the Nation. Accordingly, OEC works with stakeholders to support and maintain LMR through a wide range of TA offerings. Examples include: ENG-P25W: P25 Land Mobile Radio Workshop; OP-HANDHELD: Use of Handheld Radios "Just-in-Time" Training Program Development; and TRG-INTRADIO: Introduction to Interoperable Radio Operations. As B2V and other large-scale events show, sustainment of LMR is important for planned events, unplanned tragedies, and emergency communications as a whole, and OEC is committed to ensuring that LMR is maintained for future use by public safety.

Project 25 Inter-Radio Frequency Subsystem Interface Project in Colorado: An Example of Interagency Collaboration at the State and Local Level

In Colorado, a multi-year effort has been underway to implement a Project 25 (P25) Inter-Radio Frequency (RF) Subsystem Interface (P25 ISSI) between the state radio system, the Denver metropolitan area system, and other regional proprietary systems to improve communications interoperability among first responders. The project has experienced a number of challenges, but significant pieces of the system are now operational, making it one of the most expansive ISSI implementations of its kind in the country. Dan Hawkins, Region VII Coordinator for the Office of Emergency Communications (OEC), has been leveraging his communications expertise and relationships throughout Colorado to support the project and bring the necessary players to the table. Additionally, Colorado's Statewide Interoperability Coordinator, Russell Gibson, is part of the ISSI Working Group that oversees the project and has been heavily involved in efforts to improve communications interoperability through the P25 ISSI.

The P25 ISSI is a standardized, non-proprietary interface that enables two or more disparate systems, regardless of vendor or frequency band, to be connected together for interoperability. Agencies that wish to establish mutual-aid communications can connect their independent P25 systems through the ISSI. In the case of Colorado, this enables the respective agency to deploy a radio system from its preferred vendor rather than joining a statewide system, but at the same time honor its interoperability obligations by connecting to the statewide system via the ISSI. It vastly extends the interoperability of radio systems without the need to fund large, expensive networks or install complex gateways.

The wide area network connections using the ISSI provide an extended coverage area for subscribers who are roaming. The extended coverage area, in turn, enables first responders to provide assistance in other jurisdictions during an emergency. The P25 ISSI has been especially beneficial for Colorado, which has a system-of-systems approach to interoperable communications. This means there are a

number of proprietary radio systems under local control that must interoperate with other local, regional, and state systems. Russell Gibson noted that a willingness to collaborate among key stakeholders and a desire to improve interoperable communications led to the formation of the ISSI Working Group under the state's Public Safety Communications Subcommittee in the summer of 2015. "There was a conducive atmosphere of people working together and striving towards the goal of increased interoperability and better public safety communications for users in Colorado," Gibson said.

The P25 ISSI in Colorado has been live for about a year and connects the Statewide Motorola Digital Trunked Radio System (DTRS) and Harris Metro Area Radio Cooperative (MARC), which supports Denver and the surrounding areas of Arvada and Lakewood. There is also a secondary connection with the Front Range Communications Consortium, a Motorola system that supports Adams and Weld counties. Future connections are planned for the City of Aurora, Denver International Airport, and the Federal Bureau of Investigation.

The benefits of the P25 ISSI since its initial roll-out have been concrete and well-documented. For instance, there are currently 16 interoperability talkgroups between the DTRS and MARC systems as a result of the ISSI connection. One of the biggest talkgroups is MetroNet, which enables Denver metro area public safety answering points to communicate with one another. There are also color-coded talkgroups for police, fire, and EMS that have proved effective in day-to-day operations. The "Green 1" talkgroup is used daily between hospitals with different ambulance companies. During a high-profile bank robbery, carjacking, and shooting incident that took place in Lakewood, Colorado in November 2015, the local police department and Denver Police Department SWAT teams switched to interoperable talkgroups provided through ISSI to capture the suspects. "The ISSI has given us additional functionality where first responders can pass emergency information across systems, and has also provided us with logical identifiers that identify each radio on the system," said Gary Pasicznyk, Co-Chair of the ISSI Working Group.

Formal agreements among different agencies and locales may be required to overcome outstanding challenges (e.g., how to manage roaming capabilities and resource allocation of channels) related to the full implementation of P25 ISSI in Colorado. However, the daily use of ISSI talkgroups and planned future connections attest to the project's success. OEC will continue to provide support when needed, whether though the Regional Coordination Branch or technical assistance offerings.

AUXCOMM – Intense Training for Serious Disasters
My Review of a Tough Federal Course for Serious Communicators
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Only 1200 radio amateurs have passed through the rigorous US Department of Homeland Security — Office of Emergency Communications' (DHS-OEC) Auxiliary Communications (AUXCOMM) course, a grueling 3 days of classroom lecture, videos, and tabletop exercises, culminating in a mega-disaster

exercise as a final exam. There are five prerequisites: Completion of the four FEMA Independent Study courses I discussed in last March's column, and an Amateur Radio license[1].

I took the OEC TRG-AUXCOMM course when it was offered in Orlando, Florida, February 9-11, at the Orlando Police Training Center. Forming the impetus for the course is the following, excerpted from the *National Emergency Communications Plan (2014):*

Today, nearly all the states and territories have incorporated…Amateur Radio auxiliary communication operators into their TICPs [Tactical Interoperable Communications Plan] and SCIPs [Statewide Communication Interoperability Plan]; this allows them to quickly integrate the operators into response efforts, which can strengthen communications and operations during incidents of any scale.

Primarily, auxiliary communicators provide alternate communication services when local services fail or are overwhelmed during incidents, but they also support planned events and training exercises. They are one of many technical specialists to support the Incident Commander, typically positioned within the Communications Unit and under an auxiliary communications manager. If the student communicators volunteer and concur, TRG-AUXCOMM course graduates' names and contact information are entered into the *Communications Assets Survey and Mapping Tool* Next Generation (CASM NextGen) database. It's used by Statewide Interoperability Coordinators to geographically locate Auxiliary Communicators for deployment.

Why TRG-AUXCOMM?

Why use the term "AUXCOMM" when radio amateurs are historically familiar with the traditional groups/programs such as ARES®, RACES, SATERN, REACT, etc.? On hand for the Orlando course was Technical Assistance Functional Manager John E. Peterson, N4KEA, who explained that AUXCOMM is an umbrella term for incorporating all of amateur communication service groups under the NIMS ICS structure when supporting public safety. While participating amateurs are trained by their home groups, such as ARES, when activated under the ICS, they check their titles and any internal group rivalries at the door. Under ICS, they all become technical specialists/auxiliary communicators, thus avoiding confusion on who they report to, and the protocols to follow. AUXCOMM is not an organization or program and does not compete with any Amateur Radio program or organization that provides public service, disaster, or emergency communications.

In addition to Peterson, lead instructors for the course were Jason Matthews, K4AUS, from central Florida, and Carter Davis, KH6FV, from Honolulu, Hawaii. Both instructors brought extensive credentials in emergency management and public safety communications to the head table. Some 35 students came from across the country to attend the class. Many were telecommunications experts/professionals, and all were Amateur Radio licensees.

The instructors led off the discussion with what makes Amateur Radio volunteers so important to the professional emergency management community. The primary rea- sons being spectrum, manpower, and operator/communicator proficiency. The instructors cited the fact that EOCs and emergency

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[1] R. Palm, K1CE, "Public Service," *QST*, Mar 2016, pp 81 – 82.

management agencies are typically funded at a base or "peacetime" level, but a deficit of resources occurs when an emergency/disaster arises — the larger the incident, the larger the deficit. Trained and credentialed Amateur Radio operators can help fill the resource gap. The TRG- AUXCOMM course is designed to give amateurs *competency* in this regard.

Putting ICS Forms to Use

To familiarize students with the many ICS forms encountered during an incident response, instructors had us fill out an ICS 214 Activity Log daily, to track our course progress. We were also required to complete other critically important forms, such as Form 217A (Communications Resource Availability Worksheet), and Form 205 (Incident Radio Communications Plan) on each of several challenging tabletop exercises.

At the beginning of each exercise, students would populate the 217A with all of the local simplex frequencies and repeaters (with offsets and tones) that would be avail- able to use in an incident response. Then, when the instructors would present the scenario, we would break into teams, identify critical sites, functions, and resources needing communications (using a team-prepared communications organization chart), and then select HF/VHF simplex and repeater frequencies from the 217A for direct links and nets, entering the selections on Form 205. Backup frequencies were also entered onto the sheet. Team leaders then presented their communications plan to the class, which was critiqued by the instructors.

Team-based tabletop exercises were con- ducted on the following scenarios:
- Parade drawing 5000 to 7500 attendees
- Power outage in a rural community, with cellular and public safety repeaters having only 4-6 hours of battery backup
- Train derailment involving an explosion, power outage, subzero temperatures, and evacuations
- Wildfire with communications needed for animal rescue, hazard assessment, EOC-to-State EOC, and health department activities.

As if all that wasn't enough, the final exercise exam involved severe storm flooding, leaving a quarter of a million citizens with- out power, minimal Internet and cell service, the public safety infrastructure impacted, and a FEMA declaration. Time constraints and confusion were subtly injected into these exercises by the instructors as a simulation of the pressures that can occur in a real event — team members, including myself, felt the stress and acted out, trying to meet the exercise objectives!

The goal of each exercise was to illustrate the needs and components of each aspect of an incident response and how auxiliary communicators would assess the situation, identify the problem to be solved, plan, intervene, and evaluate for changes indicated for the next operations cycle.

The ham used the ICS 213 message form during these exercises to simulate requests of needed equipment such as radios, antennas, etc., as well as additional personnel should shortfalls occur.

The rest of the course was devoted to lecture, videos, and discussion, broken down into such learning units as the Communications Unit (part of the Logistics Section, under the Incident Commander in the NIMS Incident Command Structure), and the EOC. For example, I learned that during an incident, the EOC is primarily absorbed with policy (working with elected officials) and coordination among the various emergency support function leaders. Actual command and operations are functions reserved for the Incident Commander. Other learning units included AUXCOMM roles and responsibilities; interoperable communications; incident communications; Incident Radio Communications Plan; Incident Communications Center (ICC); team management and accountability; resources; best practices, and intrastate and interstate radio networks.

Tips: Best Practices

Some of the most valuable learning was in the unit on best practices, with timeless tips for all radio amateurs. For example, *don't make negative statements on the air*. Such statements serve no purpose, undermine the morale of weary volunteers, and interrupt interoperability — the ability of all responders across all agencies/disciplines to work together from the same playbook. Speaking of relationships, have your Auxiliary Communications Manager make initial contact with EOC personnel and other public safety officials who use volunteers, such as CERT coordinators at the county levels, prior to an event if a working relationship does not yet exist. Learn and be prepared to follow their direction and protocols.

On the air, keep statements concise and transmissions short. Don't transmit sensitive information such as fatality counts, locations of staging areas, fuel areas, etc. Only transmit messages given to you by the proper authority. Log all messages passed and received.

In order to make your communications plan, you'll need to know what you have to work with. Be familiar with the auxiliary radio frequencies of your community, region, and state, including HF and V/UHF frequencies and assets such as repeaters.

Working with Public Safety and Other Entities

Don't force yourself or your organization on the professional emergency/public safety management community. Don't self- ID your personal vehicle without proper authority, and never "self-deploy."

Never express local politics. Maintain a professional appearance and behave like a professional. Don't wear public safety-type uniforms without official consent. Don't bring any unauthorized communications equipment into an EOC.

Perhaps the most important point of all: Don't make a negative impression. One operator who acts or speaks improperly can result in years of disenfranchisement with the local agencies. One ham involved in one unfortunate incident can spoil a good relationship and opportunity to serve for the group.

Resources

Our instructors advised us to be familiar with the primary communications systems that we may be supporting or even replacing during a major incident. A good place to gain some of this knowledge is the DHS' SAFECOM program (www.dhs.gov/safecom).

The instructors presented priority telecommunications services available to public safety and national security users for use during times of congestion, including several that were discussed in this column in August 2012.[2]

The DHS' Interoperable Communications Technical Assistance Program publishes a repository (www.publicsafetytools.info) of valuable resources for communicators, including *the Auxiliary Communications Field Operations Guide* (AuxFOG). This publication covers best practices, radio frequencies, and mutual aid channels and protocols for integrating with a NIMS ICS environment.

ARES and AUXCOMM: Training and Reporting

If a group is activated by emergency management as auxiliary communicators, they should still report their activities to their ARES EC so it can be counted in monthly reports.

There are many similarities between AUX- COMM training and the ARES training offered by ARRL. The two training offerings should be seen as complementary, not in competition.

In summary, this challenging course was full of substance, taught by two veteran public safety communications experts and disaster responders, led by a staffer from the DHS in Washington DC, with a class full of eager radio amateurs, many of whom were public safety communications professionals.

Epilogue

While I highly recommend this course to all public service operators/communicators, DHS-OEC only conducts it when and where there is a strong demand from amateurs who are willing to make a serious effort. AUXCOMM requires a significant commitment of time and energy. It took me 2 full days just to take and pass the prerequisites. Once enrolled, I had to travel a considerable distance for another 3 long, grueling days of classroom lectures and stressful tabletop exercises. AUXCOMM is not a course for the casual public service operator. It's a course for serious operators willing to make a serious commitment for a demanding course.

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[2] R. Palm, K1CE, "Public Service," *QST*, Aug 2012, pp 75 – 76.

OEC Team on the Road

As part of our stakeholder engagement activities, OEC will be participating in the following events:

Public Safety Communications Research Public Safety Broadband Stakeholder Meeting
June 7-9, 2016, San Diego, CA

National Association of State 911 Administrators Meeting
June 11-12, Indianapolis, IN

National Emergency Number Association 2016 Conference & Expo
June 11-16, Indianapolis, IN

National Sheriffs Association Annual Conference
June 24-29, Minneapolis, MN

National Association of Counties Annual Conference
July 22-26, Long Beach, CA

Association of Public-Safety Communications Officials 2016 Annual Conference
August 14-17, 2016, Orlando, FL

The Emergency Communications Forum (ECF), published by OEC, is intended to engage and inform the emergency response community, policy makers, and federal, state, local, and tribal officials about issues and events that directly impact everyday nationwide emergency communications.

Interested in contributing articles for future editions of the ECF? Please send any articles or content ideas to: OECOutreach1@dhs.gov.