BY JIM SZALAJESKI

Look for success where it can be found

Don't overlook the readily available mutual-aid channels when striving for interoperability

Interoperability currently is a hot topic and a big buzzword in the public-safety communications sector, but it isn't anything new. In fact, the minutes from the 1935 convention of the Associated Police Communication Officers—the precursor to today's APCO—contains a reference to J. Edgar Hoover, who was interested in inter-city communications, and the need to discuss such communications. But although the need for interoperable communications has existed for decades, that need has become exacerbated in recent years as a result of a spate of natural and man-made disasters.

When Hurricane Katrina hit the Gulf Coast on the morning of Aug. 29, 2005, communications all but ceased to exist in many parts of the storm-ravaged region. Approximately 19 BellSouth central offices were knocked out of service, which killed any hopes for landline phone service or 911 calls. The high winds took out commercial power in the early stages of the onslaught, while radio antennas and towers also became early casualties of the storm. Many public-safety radio systems didn't function or even exist after the storm passed.

This is what communications professionals encountered in the immediate aftermath: few radio repeaters were working; no phone service existed, nor was there any 911 system or Internet service; most of the TV and commercial radio stations were off the air; and no electricity was available. In many cases, all first responders had to work with were the radios on their hips or in their vehicles.

Some departments made out better than others. They had generators going, and their radio systems were on the air. But some of those generators ran on natural gas or propane, and high wind gusts caused them to shut down because of fuel-flow problems.

The gas regulators use atmospheric pressure to regulate the gas flow to the generators. When a high gust of wind hit the gas regulator, it caused them to shut off. (If you manage to get into a tornado situation, it's possible to encounter a drop in the atmospheric pressure that causes too much gas flow to go to the engine.)

Unless someone goes to the generator and manually resets the control panel, it will go into fault mode, depriving the system of power. In some cases,

the gas pressure was lost from the underground distribution pipes. If the natural gas regulator is submerged—which tends to happen when your city is 30 feet under water—you lost fuel. In other locations, the propane tanks were not secured well enough and were blown or floated away.

So what does one do when the radio system infrastructure is torn away and unable to function? The answer begins with prior

NATIONAL INTEROPERABILITY FREQUENCIES

CTCSS for all channels is 156.7 Hz in Maryland for uniformity with the existing National 8TAC channels

B=Base
M=Mobile

8TAC		
8CALL	601	866.0125 MHz (B/M) 821.0125 MHz (M)
8TAC1	639	866.5125 MHz (B/M) 822.5125 MHz (M)
8TAC2	677	867.0125 MHz (B/M) 822.0125 MHz (M)
8TAC3	715	867.5125 MHz (B/M) 822.5125 MHz (M)
8TAC4	753	868.0125 MHz (B/M) 823.0125 MHz (M)

UTAC	
UCALLa	453.2125 MHz (B/M)
UCALL	458.2125 MHz (M)
UTAC1a	453.4625 MHz (B/M)
UTAC1	458.4625 MHz (M)
UTAC2a	453.7125 MHz (B/M)
UTAC2	458.7125 MHz (M)
UTAC3a	453.8625 MHz (B/M)
UTAC3	458.8625 MHz (M)

VTAC	
VCALL	155.7525 MHz (B/M)
VTAC1	151.1375 MHz (B/M)
VTAC2	154.4525 MHz (B/M)
VTAC3	158.7375 MHz (B/M)
VTAC4	159.4725 MHz (B/M)

Source: "TAC Stack" white paper

planning, particularly between surrounding agencies. A secondary means of communicating between agencies is a must. This is where the real focus of radio interoperability surfaces. In every region, public-safety agencies (police, fire and emergency medical) and public works—at a minimum—all need to make sure every radio under their jurisdiction is set up with mutual-aid frequencies.
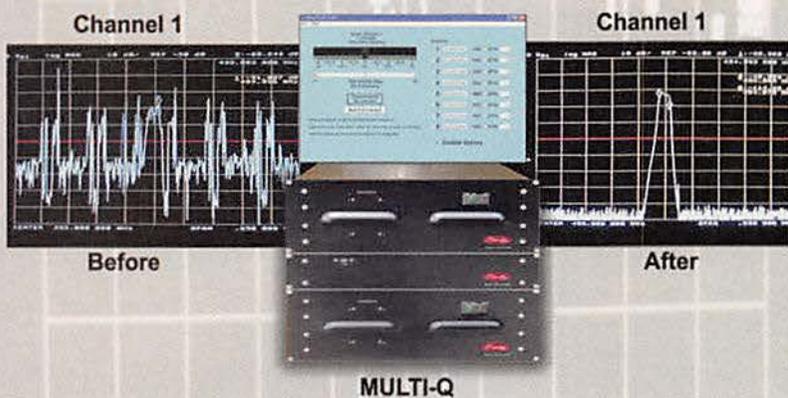
These mutual-aid channels might be some special channels set aside by a regional plan or use the national interoperability channels set aside by the FCC many years ago for inter-agency use.

Interoperability channels are available in three of the pubic-safety radio bands: 800 MHz, UHF and VHF. A number of channels also exist in the 700 MHz band, but these are not clearly designated as they are in the other bands.

A common problem is that many agencies either don't know these interoperability channels exist, or simply don't program them into their radios. Another problem is that they can't be used for day-to-day normal communications. If the federal government wants to give a big push to interoperability—as indicat-

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ed by the Department of Homeland Security—the FCC should make an exception to the rules and provide these channels on a free, no-coordination basis.

Several years ago, two state of Maryland employees put together the foundation for an interoperability system based on the planned use of radio channels in the eastern part of the state. Their white paper, entitled "TAC Stack—Or No Band Left Behind," can be found at APCO's Web site (www. apcointl.org). Review this document and then compare their suggestions to what your region or state has done. This paper is not the Holy Grail, but rather proposes a simple way to achieve interoperability. You will see how easy it is to apply these ideas to your region. The

document also lists all of the interoperability channels designated by the FCC in the three common public-safety bands: VHF, UHF and 800 MHz.

Also take note that the white paper lists both the repeater and talk-around frequencies in the 800 MHz and UHF bands. Both the repeater and talk-around channels should be programmed into all user radios. Even when a repeater is available for the TAC channels in your area, that provides no guarantee of interoperable communications, as those TAC channels may not always be available. If a major storm goes through and knocks out power or a radio tower—or should you travel into a region where there are no repeaters—remember that you can still operate in the simplex mode of the interoperability channels.

Public-safety radio system managers commonly take a stand regarding outside users coming onto their radio system. Their feeling is they would lose control of the trunking system, have to program additional radios onto their trunking systems and generally clutter their normal operation. Paradoxically, while they need the outside manpower during a crisis, they won't allow this help to use the radio system.
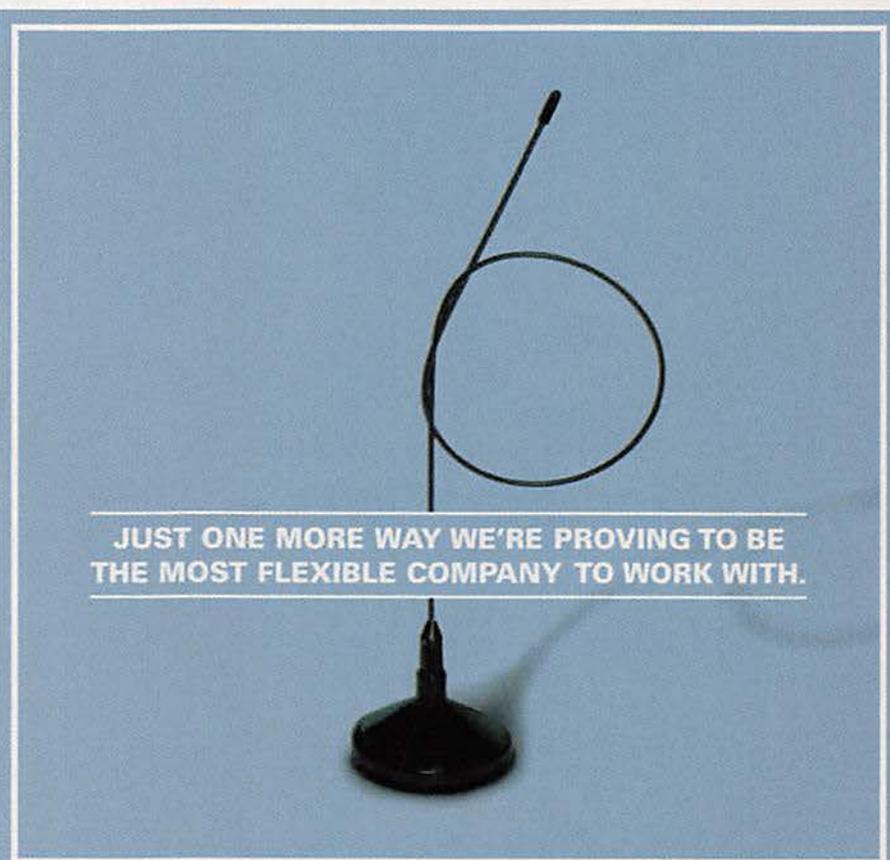
This sends mixed signals to those coming to help—you want them there, but don't want them on your radio system. Here's a simple solution to the conundrum: Set up radio repeaters on the interoperability channels, and place all of the incoming help there. Doing this also provides a common radio channel for the local users to communicate on during an incident. In a sense, it provides a built-in interoperable radio system. You maintain control of your normal radio system and have common radio channels on which everyone can communicate. And the incoming help knows their radios are compatible with the local users.

The key is to plan, train often and work with your surrounding agencies. Put memoranda of understanding in place. Have meetings with your mutual-aid agencies and work out the kinks. The FCC has allocated these interoperability channels for use everywhere in the country—it is not a city, county or state allocation. Finally, use gateway interoperability systems when different radio bands are used. This allows common radio networks to link the different bands or non-compatible systems together as needed. ■

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