9-11 Amateur Radio In New York

A Private Citizen's Eyewitness Report On Ham Radio's Finest Hour

by Bart Lee, KV6LEE, xWPE2DLT <KV6LEE@gmail.com> de K6VK

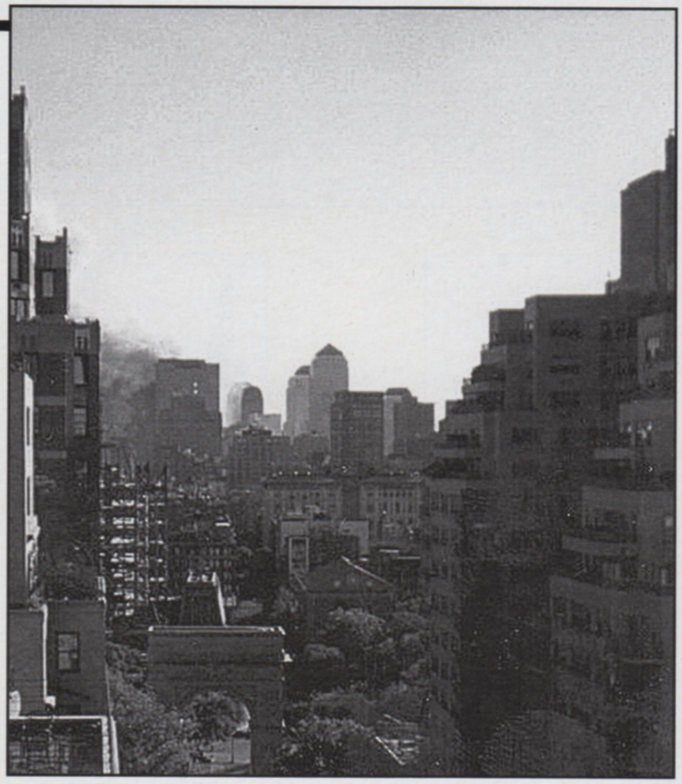
Editor's Note: This is not sponsored or authorized by the American Red Cross; it is a private report on Amateur Radio. It was written in the days following the 9-11disaster.

"In a time of crisis, you do not 'rise to the occasion'; you sink to your level of training."
—Attributed to Mr. Art Botterell (www.incident.com)

Amateur radio went on the air in an Emergency Net minutes after the terrorist attack on the World Trade Center. Guy Richman, KC2AYG, net control, had the Amateur Radio Emergency Service (ARES) net working in disaster relief shortly after 9 a.m. Now, months later, I take pride in how amateur radio volunteers put their training and skills to work, subjected themselves to unknown risks of further terrorism, as well as spewing toxic smoke, and made ham radio effective when all else had been destroyed. We took the terrorists' best punch, but the New York Fire Department and other public safety people fought back, sacrificing more than 300 more souls in the struggle to save thousands of lives. An important aspect of our response was amateur radio in disaster relief. I was there.

As FEMA federalized ARES, the New York Radio Amateur Civil Emergency Service (RACES) net coordinated disaster relief communications as soon as 9:30 a.m. On 2 meters, 147.000 MHz soon served as the net's main frequency, 24/7, for many days and nights. Guy put in long days at the mic and Mark Phillips, KC2ENI (G7LTT in the U.K.), took the net at night. Guy and Mark were the "Ironmen" of the first week. In the wartime condition of New York on September 11 and the week following, the 18 hour-a-day devotion of men like these—and there were many—at Red Cross Radio and elsewhere made all the difference. This was no drill. In fact, the RACES Manhattan station itself, along with the City's Office of Emergency Management Center (OEMC), was lost with the 9 a.m. evacuation of World Trade Center Building Seven, and gone forever with the collapse of that building at 5:23 p.m.

Both Guy and Mark worked from their home stations in the Bronx and in Brooklyn during the entire operation. All disaster training warns against the "Ironman Syndrome" because of the risk of error and burnout. Yet in the first days of this new



At 17:23 hours, 9/11, World Trade Center Seven (WTC7) collapsed, taking with it the Emergency Operations Center and the RACES communications center, which had to be abandoned at 0900 hours. The two photos show WTC7 behind the "head-and-shoulders" building at 17:22 and gone at 17:24. Shortly afterwards, church bells in lower Manhattan rang out "Amazing Grace." It was unbearably sad. (Photos by Bart Lee, KV6LEE)

war, many responsible and trained radiomen pushed their limits every day.

Something Big Is Up

On the morning of September 11, I sat on a bench with a cup of coffee on a gorgeous day in upper Manhattan at Lexington Avenue and 86th Street at about 9:00 a.m. Then I watched several ambulances, fire engines, and fire trucks stream past me. "Something big is up" I thought, based on what would be more than "a full-box response" in my home town of San Francisco. My New York host soon joined me. At about 9: 35 a.m. his wife got through on his cell phone: "The World Trade Center is attacked!" What to do?

He got his son at a nearby school and I got out my Yaesu FT50R handheld transceiver and turned to VHF, with the car radio tuned to WINS, New York's all-news station. All the news was inconceivably bad. The first voice I can recall hearing on the ham bands was the distinctive Bronx accent of Guy. I knew that New York's response to this enormity had begun.

As we drove south past mid-Manhattan, thousands of people walked north, some grim-faced, some looking normal, some in tears, all determined to move away from the site of what no one could understand. At my hosts' apartment at the end of Fifth Avenue, the smoke and dust was so thick that we could not see south past Washington Square Park. Once upstairs, maybe 10:45 a.m., we saw the video of the planes hitting and then the Towers coming down: "World War III," I thought.

World Trade Center, D-Day + 3. With thousands dead, the World Trade Center lies in ruins. WTC7, with its Emergency Operations Center, is at bottom left. (Civil Air Patrol photo)

D-day VHF ham traffic that I heard that morning related to hospital utilization and out-of-state DMAT (disaster medical assistance teams). The Fire Department coordinated on 154.37 MHz, a frequency I learned about from monitoring the ham nets. Staging in Brooklyn, they intended to come across the Brooklyn Bridge, walking if need be. The First Responders had already been lost with the collapse of World Trade One and Two. On 154.29 MHz, I heard that the Rescue Teams were trapped in the ruins. The NYPD was up on 151.47 MHz. The Red Cross came up on 146.90 MHz. Hams in emergency communications came up on 146.62. I scanned through the various VHF bands manually. I never heard the whole story, but I did hear the fragments that made up the mosaic of the initial disaster response. Every voice was professional and courteous, determined to do the work of recovery, and all were unified in the face of the horrific toll of terrorism on the city.

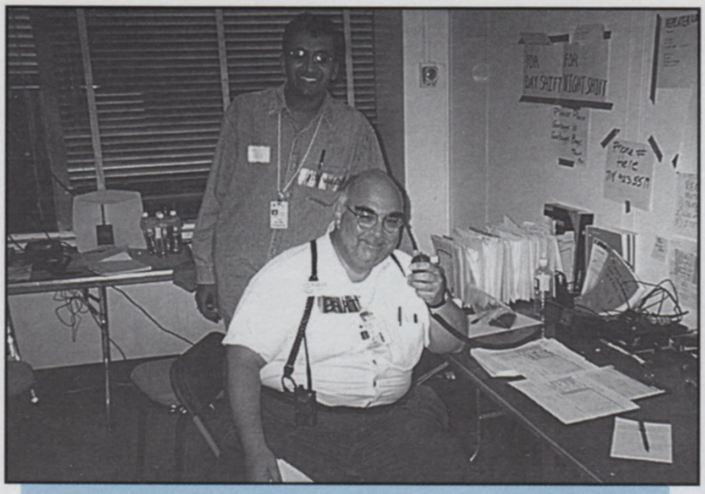
An E-mail And Monitoring

At my hosts' lower Manhattan apartment, friends from the hot zone below Canal Street began to show up to take refuge. They had heard the jets, had seen the burning buildings, and saw them come down. Staggered and traumatized, they told us their stories. At 11:30 a.m. I sent the following E-mail to fellow amateur radio operators in San Francisco emergency services (one of the few E-mails of mine that got through):

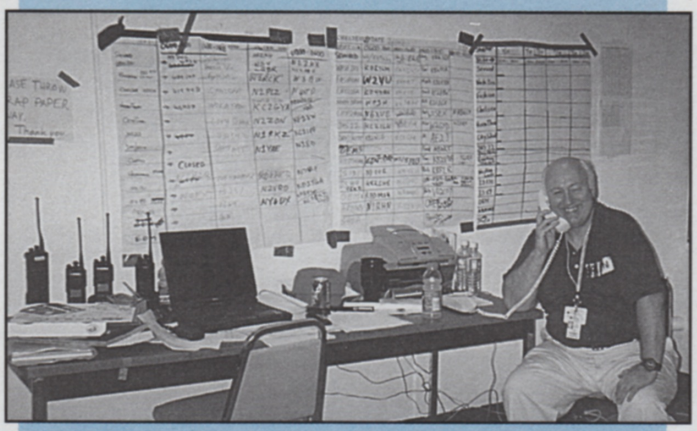
SFARC, MOES/ACS/RACES Sept 11, 2001 [about] Noon. I am in lower Manhattan near Ground Zero. We could not see past the end of Fifth Avenue for the smoke from the collapsed World Trade Center. Enormous amounts of cement dust. NYFD and NYPD mobilizing on VHF. Cell phones mostly don't work. Hams up for emergency communications on 2 meters, with Red Cross etc. My host is a doctor and we are likely going to a hospital. This is real life triage, an inconceivable tragedy, and there will be much to do. Thank God for what training I have. Be well and be careful, 73 de Bart Lee KV6LEE.

Most landline phones were not working because of overload and destruction of facilities. I did hear a working number for the Red Cross on the ham net. At noon, I went up on the roof to monitor and to take pictures. At 2:40 p.m. I heard the New York City Police Department (monitored on 154.81 MHz) call for refrigerator trucks, or "reefers," for morgue operations.

From the roof, a mile and a half north of Ground Zero, I saw the third building come down, World Trade Center Building



Red Cross Radioroom at Brooklyn headquarters in a quiet moment at 4:00 a.m. on September 18. Bart Lee, KV6LEE, is at the mic, Bob Suresh, VU2COT, is assisting. (Photo by Bobby Rios)



Red Cross Radioroom administrative wall with large charts for assigning operators to posts. Brian Fernandez, K1BRF, is shown in a lighter moment at the phone on September 18. Note the 800-MHz radios at the left, the laptop used by Charley Hargrove, N2NOV, and others for scheduling, and a fax machine printer. (Photo by Bob Suresh, VU2COT)

7. It had held the OEMC and the Emergency Operations Center (EOC), as well as the elaborate RACES ham radio station. At about 5:22 p.m., it was there with lots of black smoke behind it; at 5:24 p.m., it was not, replaced by blue sky, just as the Towers had been. My perception was that it took less than a second for the building to fall—too quick to get the camera up. It buckled about a quarter of the way up, slid over a little to the right (west), and fell mostly straight down. "A sad lesson," I thought, "do not put the EOC and radio stations in a target building, no matter how well guarded it may be." The smoke may have come from the many thousands of gallons of emergency diesel fuel stored at the site for the emergency generators for the EOC. The building became a giant candle wick until the steel buckled from the heat.

The next morning I walked well into the hot zone south of Canal Street to accompany a resident retrieving her belongings from her apartment on Worth Street. It was deserted and as eerie as a Twilight Zone episode. Then I volunteered at the Red Cross uptown. The communications chief, Jay Ferron, N4GAA, put me to work with Charles Hargrove, N2NOV, the ARRL District Emergency Coordinator, and John Kiernan, KE2UN, for the Red Cross.

Managing The Volunteer Pool

Jay did a magnificent job getting amateur radio communications into each of a dozen Red Cross shelters and three OEMC sites for 24 hours-a-day for nearly two straight weeks. Charley carried a heavy load in the first days, as did John. Charley initiated much of the organizational work that I was privileged to carry through. Hams volunteered from all over the metropolitan area and several states. (I happened to be visiting from California, as was Don Jennings, K6QDT, who cured our transmitter problem the second night). Westchester RACES supplied many trained and capable radio operators day in and day out, as did New Jersey.

Such effective management of the volunteer operators pool is a tribute to the skill and dedication of the nearby ham radio organizations—they made it work. The ARRL's Tom Carrubba, KA2D, a Section Emergency Coordinator, did outstanding work.

D-Day + 1—High Tech Breaks Down

September 12, the Red Cross ran its radio operation from a corner of the bottom floor of its headquarters building at Amsterdam Avenue and 67th Street. John had brought in his Alinco mobile rig and a power supply. Some mag-mount antennas got the signal out through a metalized window to a repeater some blocks south. This was full field expedient, just like all of the rest of the radio operation I saw—and it worked, although not without some hiccups. But time after time, what we needed was manuals to figure out how to fix each problem that inevitably arose.

The reason it all worked, and worked better and better each day, was that everyone involved made it better and better every hour they put in, in hundreds of accumulating little ways. From putting up signs to offering themselves for a "hot wash" debrief despite their exhaustion, to putting in 16-hour shifts, the hams made it all work for everyone.

As many as 100 or more hams each day involved themselves on either the day or the night shift, nominally 12 hours each. (I was night shift trick-chief for the first week and had the privilege of working with almost all of the volunteers, as did John on the day shift for the first week). We knew many of our best radio ops simply by first name and callsign, such as Kevin Stickelman, KC2CPF. We used duct tape and magic marker as name badges, front and back. We explained that we wanted to be able to read and call out their names through 25 feet of smoke and dust if we had to.

Amateur radio operators worked in "the hot zone," at OEM sites, and at many shelters at unknown but real personal risk. All put in long days and nights, ensuring that traffic got through. In the first several days, cellphones and landlines either simply did not work, or were spotty at best. Vaunted high technology fell to earth, but hundreds of hams from all over with their own radios and equipment stepped in for effective emergency communications.

Some of the earliest traffic I was personally involved with at the Red Cross headquarters was an emergency evacuation order for a shelter near the Empire State Building, which had received a credible bomb threat. This order went out on a handheld transceiver into a jury rigged Yagi antenna (the old Alinco

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Communications Suggestions For OES

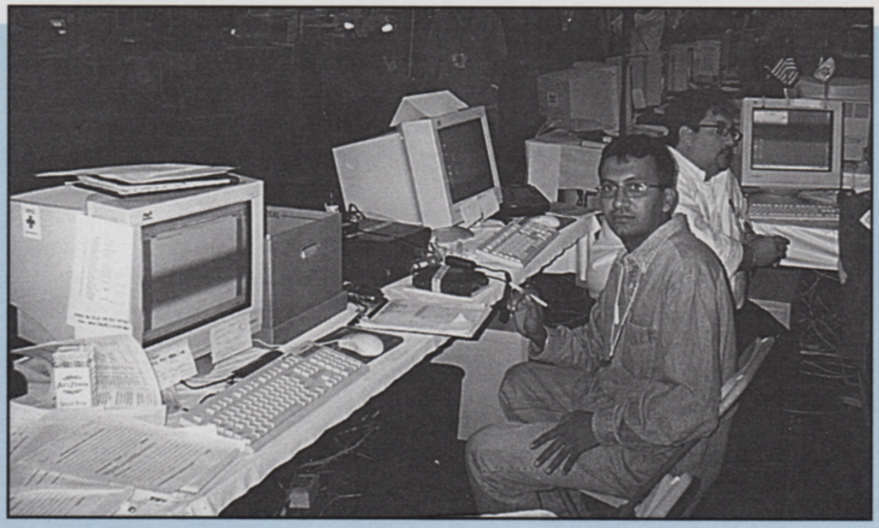
September 2001 per KV6LEE Based On WTC 9/11

- Plan on losing the command center: have a back-up location in place and operating; expect to lose both landline and cellphone service for several days.
- AVOID THE TWO BIGGEST BOTTLENECKS: 1) CREDENTIALS; AND 2) TRANSPORTATION TO GET INTO THE SECURED GEOGRAPHICAL AREA. Use pre-existing badge-like emblems for persons and vehicles.
- Use Incident Command System at OES and at each other site; have a commander, a safety officer, public information officer, liaison, a logistics person, an operations chief, a planning and intelligence desk, etc., and manage access to each site.
- Duct-tape ID works and builds moral.
- Disperse "capital goods," such as working radio systems and maintain them.
- Obtain and disperse manuals and cheat-sheets for radios.
- Anticipate and use emergency volunteers (Red Cross calls them Local Disaster Volunteers).
- Work out client relationships in advance with radio organizations and anticipate types of messages.
- Alert volunteers in advance as to what equipment is required: mobile two-band transceiver, power supply and battery, gain antenna, and all the fixings.
- Be prepared to orient volunteers to disaster work (see memo).
- Cache and stock on site everything needed for effective operation, e.g., message pads, log books, minor medicines, water for three days, dust masks, "shelter kits" for personal hygiene, etc. but...
- Beware of unreliable computers and high-tech systems.
- Plan on many days, so have a night-shift ready to go from day one.
- Have preset bandplans for radios, refer to tactical identifiers for sites and frequencies.
- Expect jamming unless jammers are eliminated in advance; ignore jamming.
- Have at least one repeater or input-frequency monitor without a PL filter. Ensure repeater coverage and backup repeaters for both 2 meters and for 70 centimeters. (Maybe two for 2 meters and two for 70 centimeters).
- Organize priority frequencies in advance.
- Establish a high-frequency station (e.g., W6PW) linked to systems for out-of-area traffic.

was down for repair). There was all too much of that priority in the early days of this horrific event. At one point during the September 12–13 night shift, all Red Cross operations were halted via ham radio, awaiting assurances of security from FEMA. We lived the "fog of war."

RACES capability was lost with the attack, but the readiness of the RACES and other ham operators restored that capability starting on day one. Each had his or her own equipment and knew how to use it and how to work with others in an effective, if ad hoc, disaster communications team.

Official Red Cross ID as required after September 14 by FEMA.



The Red Cross Radio post at OEM-1, the Emergency Operation Center established at Pier 92, with Bob Suresh, VU2COT, on duty (his photo). The computers are running E-Team emergency management software. At Pier 92, one Red Cross ham operator manned this post and two roamed with handheld transceivers on simplex to relay messages to and from various agencies sited on the pier.

We never had too few volunteers, all of whom had trained themselves to do whatever it takes, and they did it. They came with a mobile rig, a power supply, and a gain antenna, as requested. We had hams from several countries helping as well. Those from England, Russia, India, France, Canada, and the Leeward Islands stand out in my mind. Things like nationality or ethnicity were less than irrelevant because, in that moment, we were all New Yorkers at war, and in our case, serving the Red Cross. Some technically adept not-yet hams, Bobby Rios in particular, also supported our early response.

For hams going to the hot zone, we issued dust masks and special credentials, and each shift of operators got a disaster-worker orientation (initially from me) and later a debriefing. These hot wash debriefs helped us pinpoint the problems to resolve for the next shift. Often a new shift, hearing a debrief, simply figured out how to solve a problem and did it.

The Red Cross transported the radio ops into and out of Manhattan from Brooklyn after transferring New York operations there on D-Day + 3. The Red Cross soon coordinated its transportation on its own 800-MHz replacement repeater system, but the hams stayed in communication especially to ensure that a radio operator whose shift had ended got back to base. We had to take care of our own in that regard, because of the volunteer drivers' unfamiliarity with the emergency radio operation. Jay and I and few others also worked the 800-MHz radios for internal coordination. Like most New York commercial repeaters, the Red Cross 800-MHz system went down with the Twin Towers, and it was almost a week before they had reliable 800-MHz communications. One odd aspect of the situation was the total absence of intermodulation distortion (intermod). Most of the antennas for the pagers and most repeaters fell with the Towers. On VHF it was like 1963: no interference.

Red Cross National Headquarters sent up a new communications van with John Perry, N1EOD, which was very useful during the move of disaster operations from Manhattan to Brooklyn. The van permitted us to take routine traffic during the transition, with Brooklyn not yet up on the air and Manhattan packing up to move.

Brooklyn Headquarters

Brooklyn Headquarters was a "bare-base" operation: there was only a building when we got there. Radio was one of the first functions in, up by September 14 at 5:00 p.m. This complicated coordination, with two bottlenecks in the operation: getting appropriate credentials for the ops in a timely manner (and "appropriate" got stricter daily) and providing transportation. The challenge was to make sure that no ham was left behind at a shelter or other site at the end of what was often a very long 12-hour shift as well as to get relief operators in on time.

Doing both radio installation and credentials in Brooklyn, David Craig and Tyler Schetler (both hams) were heroic. Radio room operation in Brooklyn, certainly on my night shift, put in place some Incident Command System principles. We got organized, put up signs, isolated command from intake and the ready-room, separated operations from logistics and safety, collected the log, etc. San Francisco's Emergency Response Team drills paid off in New York. Brian R. Fernandez, K1BRF (my replacement, and a great help throughout), and I had both trained with San Francisco's Auxiliary Communications System of the Office of Emergency Services (OES). Our San Francisco earthquake communications drills came in handy in New York.

We also did many simple things, like put out a lot of garbage. Just keeping the scrap paper and water bottles from cluttering the operation was a task. Getting organized from scratch involved not just getting radios up, working and maintained, but also file creation and management, setting up the radio log, using the laptop to manage volunteers (Charley Hargrove did this), assigning shifts twice a day, creating large daily shift charts to keep track of operators and shelters, and managing sensitive credentials.

Everyone worked with courtesy and goodwill, but stress can take its toll. "Stress makes you stupid" is another truth attributed to disaster specialist Art Botterell. San Francisco disaster man-

Practice Helps!

There's a rule in public safety about emergency and disaster operations: You do in a disaster what you do every other day.

I've been in enough emergencies and disasters to vouch for this rule. During a disaster, you don't have time to pull out the disaster plan. You don't even have time to sit back and try to remember what the disaster plan is supposed to be. You simply do whatever you do every day, only a lot quicker and with fewer rest breaks.

I believe this applies to amateur radio as well. If you don't use proper radio procedure when you're talking on the repeater, you're not likely to use it when you're in an emergency response. If you don't handle radiograms now and then, you'll have trouble doing it when "The Big One" hits. If you're not used to running (or even checking into) a directed net, you're much more likely to cause disruptions to a directed net during an emergency. If you want to be ready for emergencies:

1. Always use good radio procedure, even during drive-home QSOs on the local repeater.
2. Hop onto a traffic net now and then and handle some traffic. This means sending traffic now and again. The traffic pads from the ARRL are helpful, but they're even better if you've had practice using them!
3. Check into nets, both informal and directed. Act as Net Contarol Station on a directed net when you get the chance (but let others have a shot, too!).
4. Help out with the non-emergency amateur radio events. Pittsburgh EMS regularly uses the Pittsburgh Marathon as "practice" for a disaster, and I believe that the amateur radio operators who work that (and other events) are much better prepared for a disaster as well.
5. Field Day and contests can be used as a way to "shake down" your system. I hilltop during a lot of VHF contests so that my equipment will work if I have to "hilltop" during a disaster.

—Rob Carr, N3RTR (via Bernie Walp, WB6PIO), with permission.

agement specialist and USAR veteran Ron Lopez (also a ham) faxed me the Critical Incident Stress Management Protocols, which helped Brian and me to recognize and lessen stress reactions in ourselves and others. Sleep works wonders.

Keeping Track Of Everyone

The dozen or so shelters in Manhattan (and also one in both Staten Island and Brooklyn) kept track of their clients, staff, security, etc. Red Cross polled them regularly by radio for these numbers, in a sub-net to RACES. There were, at first, no operable, reliable telephones or fax lines. Once telephones worked, that traffic came off the RACES net. Throughout the shelters, ham radio took whatever shelter traffic was necessary. In the early days, radio was the only link between shelter managers and mass care or logistics at headquarters.

The Red Cross sent Multi-Disciplinary Outreach Teams (MDOT) into lower Manhattan around D-Day + 8. They tried to communicate with cellphones and handheld E-mail, but only amateur radio worked reliably, at least at first. Jay had insisted on a ham radio operator on each team, and it paid off. Even donated dedicated Nextel phones and Blackberry wireless E-mail terminals did not provide the effective communications hoped for because of overload on the networks. Trained ham radio operators working in the directed RACES net made the DMOT communications possible for the Red Cross.

What is truly great advanced communications technology in normal times did not match man-managed "legacy" radio messages in a time of crisis. All those photos of people walking with cellphones to their ears on September 11 show people listening to busy signals. Even if the network is not blocked with traffic, a very busy person still has to answer the phone, and probably already has, thereby tying up the line. Radio messages got through because many people made sure each one got through.

Ham radio had a client relationship with the Red Cross. The RACES net served the Red Cross as its client, while always available for other functions. One was our notice of need for hams in White Plains on D-Day + 1, although we did not mention over the air that the alarms at the nuclear plant were sounding. This was a new war and we had no way to know what was next.

The hams in the Red Cross shelters served the shelter managers as their

Red Cross Radio supervisor Jay Ferron, N4GAA, assesses hot zone amateur radio communications requirements. He organized the entire amateur radio response for the Red Cross. (ARRL photo, with permission)

clients. Once Charley Hargrove got ARRL message forms off the Internet, we used them as much as possible so we could pass traffic that was concise and unambiguous. The Internet worked just fine, as it was designed to do in disasters, but connecting to the Internet was too often almost impossible for the first few days because of the loss of telephone line capability and blocking traffic.

In the wee hours I had the privilege of taking the RACES net for a few minutes at a time as required. Radio also helped to deal with at least two "rogue" or "bandit" operations of unauthorized assistance (if it was) while I had the mic for the Red Cross. Red Cross management several times expressed its appreciation to radio operators for helping to resolve this sort of problem, and for quickly assessing shelter resources as big needs developed. For example, a sudden need for many cots arose as a shift of firemen came into a respite station. (The hot zone respite station was Intermediate School 89 on Canal Street, tactical call OEM-2.) I was polling the shelters for their client numbers when we got the word. I went back to each shelter to find out the available cots from each, and quickly passed this information on to Logistics so they could be picked up and brought to the respite station. Management thanked us in writing for our quick response. This kind of appreciation maintained the high morale of Jay's 24/7 amateur radio operation.

Amazingly, Some Jamming

There was also, amazingly, some jamming, although it did not effectively

interfere with operations. We ignored jamming, but the lesson here is to find the jammers now with direction finding and transmitter printing, and put them out of business before they interfere with disaster recovery.

Typical Comms

A typical early message was:

#4 URGENT Origin: N2XKA Place: Westchester Time: 00:14 Date: 9/14
To Mass Care [NY HQ]: Received at KV6LEE [op at NY HQ Radio]

WESTCHESTER HAS A TRACTOR TRAILER WITH 27 PALLETS OF SOFT DRINKS AND SNACKS NEEDS DIRECTIONS FOR DELIVERY IN NEW YORK CITY—RESPONSE REQUIRED

Such a message was hand carried through the building to Mass Care, and a written response put down on the message. This was then carried back to the radio and the response was sent out by the operator.

A typical later message was:

R[outine] Origin: OEM-2 Place: IS-89 Time: 02:22 Date: 9/18
To Mass Care [NY HQ]: Received at KV6LEE [op at Brooklyn Radio]

IS-89 REQUESTS 50 BREAKFASTS FOR AGENCIES' PEOPLE ON SITE

We used tactical calls such as "OEM-2" without disclosing OEM locations. All feared further terrorist attacks, so a wartime security consciousness arose. IS-89, the school used as a comfort station for disaster workers (at one point, the one count was 2,000-plus!) was not identified on the air except by its tactical call. The shelter identities (schools mostly) were used over the air because they were publicly announced and the Red Cross wanted people to know where they were. We identified our frequencies only as Tac 1 through Tac 12. The press was known to monitor the net, and may even have come up on frequency as the "bandit" that asked for sensitive location information over the air in the middle of the night. That incident prompted me to alert OEM to the issue.

One of the ops, Robert Gissing, VE3ZLV, and I put together a memo for new ops, based on my orientations for the first several days. A much edited text follows:

Red Cross Radio WTC
Operations Procedures Guidelines
To Radio Operators, From Staff (KV6LEE)
Version History 2.0; version date 18 Sept. 2001 4:00 AM

Introduction: In responding to disasters there is much general information that can be useful...this document is meant to help the volunteer understand disaster relief work, the radio network, operating procedures, rules of operation [etc.].

THE FIRST RULE OF DISASTER WORK IS TO NOT BECOME A VICTIM OR [OTHERWISE] MAKE THINGS WORSE INSTEAD OF BETTER.

In all things, remember your role within this operation. You are a communicator of information. Do not try to solve problems you are not qualified or empowered to solve. Be careful, DRINK LOTS OF WATER, i.e., stay hydrated, and get your rest. The security on the site is very strict and there is no tolerance for anything less than total commitment.

[Excerpts from Procedure, Rules and Order of the Day:] The helmet is your friend. The [news] camera is your enemy.... Be clear, concise and unambiguous. Use standard phonetics and "niner." Remember: Who, what, where, when why and how. The Net Controller is always in control of the NET. Do what he says....Communicate with your shift manager when you are off shift and arrange for your next shift. Go home and sleep: "When you leave the firehouse, leave the firehouse at the firehouse."

RED CROSS THANKS YOU FOR YOUR HELP
NEW YORK THANKS YOU FOR YOUR HELP

The work was exhausting. After nine days, I turned my job over to my replacement, Brian, K1BRF. At 17:52 on September 19, Brian had taken this traffic from W2ML:

About 10 minutes ago on the New Jersey Turnpike a New Jersey State Trooper pulled over a ham, showed him a 2-Meter H/T and asked him to relay to the Net that they had been doing a great job and congratulations to all. The Trooper said it was "ham radio's finest hour." [Per K1BRF at 18:30]

I heard no "health and welfare" traffic on the ham bands, but I was directly involved with Red Cross while in New York and not otherwise monitoring. We did poll the shelters on request looking for missing people, and that was very sad traffic to handle. My impression is that tactical skills really came to the fore. Traditional amateur radio traffic handling did not come into play in my experience. The ability to pass tactical and client traffic in a VHF-directed net was the skill that mattered. It was no easy task just to get that traffic through reliably. Trying to do anything else but just pass the tactical traffic would be distracting and counterproductive, at least in the nets we worked.

The Salvation Army also offered disaster relief and provided respite and resources for rescuers. I saw how grateful the rescuers were to the Red Cross and the Salvation Army for their help in the hot zone. The Salvation Army SATERN net coordinated its activities also using amateur radio. REACT was also involved on GMRS frequencies in support of the Salvation Army.

Ten Days Later

On September 21, D-Day + 10 in the hot zone, I identified myself as associated with the San Francisco OES and then walked to Ground Zero, the burning rubble. It was as surreal and shocking to be up close as it had been to see it all happen on D-Day. I came home to California stunned by the terrorism, but proud of all of the Americans, and all of the New Yorkers I saw and worked with in New York City, especially the hams. Back in San Francisco, I wrote up some suggestions for OES radio in this new world and pulled together some cogent comments of others, which follow.

As the poet A. E. Houseman has written:

Therefore, since the world is still
Much good, but much less good than ill,
And while the sun and moon endure
Luck's a chance, but trouble's sure,
I'd face it as a wise man would,
and train for ill and not for good.

—From "A Shropshire Lad," by A. E. Houseman