

Some Thoughts on Disaster Communications

The Late Bob Dyruff, W6POU, was a noted authority on disaster communications. Bob assisted governmental and volunteer agencies in disaster planning for years and was an ARRL Assistant Director for Emergency Communications in the Southwest Division among other posts in the ARRL Field Organization.

The following portions of a thought provoking paper written by Bob exclusively for this Manual are intended to introduce you to the enormity of challenges presented by widespread disaster. A “taste” of what you might be facing in such a calamity will no doubt be of benefit to you and your organizational and operational preparations. This offers a challenge to you, the practicing EC, to meet the communications needs of the public.

I. Critical Communications Requirements in a Disaster

- A. Large increases in the volume of message traffic per channel are experienced on public-safety radios accompanied by prolonged waiting to gain access.
- B. Equipment outages occur at key locations.
- C. A need arises for agencies to communicate with other agencies operating incompatible radio systems, using unfamiliar/unattainable frequencies, names, terms and procedures. In general, the management of most agencies is reluctant to use another agencies system or to allow theirs to be used by others.
- D. A need arises to contact locations at distances beyond the range of a given radio or system (50 to 350 miles or more).
- E. Message reply delays are experienced, leading to deferred decisions on crucial matters, message duplication and confusion.
- F. A need arises to generate and decipher handwritten messages sent through relaying stations.
- G. Alternative modes of communicating are required in addition to voice:
 - 1. Volume data in printed form – teletype, high speed packet, facsimile.
 - 2. Morse code under difficult reception conditions.
 - 3. Encoded data for extreme privacy.
 - 4. Television – mobile, portable, aeronautical, marine.
 - 5. Telephone interconnections from/to radio systems.
- H. A need arises to cope, simultaneously, with high-volume message traffic containing widely differing priorities (priority/precedence designations differ among agencies).
- I. Operational problems arise such as: high-volume traffic circuits with no supply of message forms; using the only printed forms available, designed for a different, unrelated agency/function; attempting to decipher scribbling from untrained message writers; using scribes who cannot understand radio parlance or read through QRM; and being inundated with traffic volume so heavy it results in confusion over which messages are to be sent, were sent, received for delivery, or are to be filed for ready reference.

II. The First 72 Hours

- A. In the early hours of an emergency turning into a disaster, it takes precious life-ebbing time and an overcoming of obstacles to place fully-activated mutual aid resources into operating position in a disaster area. Communications is one of the vital resources.
- B. The greatest concentration of relief efforts is generally to be found in the incorporated cities served by agencies with paid professional – assuming their equipment, facilities and personnel remain operable.
- C. On-scene commanders need to receive important information and aid to issue orders for action in the field. Mutual aid requests to/from other agencies require wide-area communications not possessed by local agencies. With telephones overloaded or out of service and local government and public safety radio channels jammed, communications problems develop rapidly.
- D. While urban areas experience more concentrated damage, suburbs and isolated areas of a county suffer from remoteness from fire departments, public works, law enforcement and the services of all other agencies as well. All organizations scramble to respond to a unprecedented demand for service within their authorized jurisdiction. The public is often isolated, unable to call for help or determine the nature and extent of the disaster so as to make plans to:
 - 1. “wait it out.”
 - 2. Prepare to evacuate.
 - 3. Actually evacuate with some possessions to some safe place then unknown.
 - 4. Obtain physical aid for an impending catastrophe.
 - 5. Offer aid to a relative, friend or neighbor.
- E. Lack of information results in further attempted use of the telephone when the system is overloaded if still operating. Calls can often be received from out-of-town but not made across town.
- F. Those living or traveling outside urban areas or in the unincorporated portions of a county are less able to receive essential services quickly, if at all, because of personnel being stretched over a wider destroyed area and encountering less accessibility and poorer to non-existent communications.
- G. The opportunity to call for help is often unavailable to most citizens during the first 72 hours. Occasionally, a passing public safety vehicle or one equipped with an operational commercial, utility, amateur or CB radio can be accessed – assuming it is in contact with a person who can help.
- H. Too little information is gathered about the publics immediate needs and ways to meet them. Distorted public perceptions are gained through misinformation. Yet, essential damage-assessment report data are needed by higher agencies to initiate relief aid from outside the disaster area.
- I. Broadcast stations (those still on the air), initially disseminate rumors in the absence of factual information. Only those people who possess an operating battery-powered broadcast band radio can tune until they find a local station which can provide helpful information. Others receive such information second hand, if at all.

- J. Everywhere, people walk aimlessly seeking a route to family and friends. Many, fearful of looting, remain in hazardous buildings or return, as do shopkeepers, to salvage valuables. As darkness falls rumors of looting are generated – some true.
- K. Word circulates about shelter locations. Some displaced persons stay at homes of friends, relatives or strangers. Others are housed at public shelters into the fourth day still searching for family members elsewhere and without communications. The opportunity to notify concerned distant relatives is not afforded except via Amateur Radio if such service is provided.
- L. Later, often too late, information trickles in about problem areas/cases which have been overlooked due to the lack of communications. Some potential evacuees are overlooked.
- M. Once the immediate threat to life has passed, survival instincts prevail, printed “What to Do” instructions are located and followed and people operate essentially on their own for an indefinite period while public agencies respond to the most urgent problems of which their communications make them aware.
- N. After-shocks, flare-up of fires, weakening or breaking of dams and new flood crests, build-up of winds, etc., result in some relief work being undone and the posing of new threats.
- O. Inter-organizational (multi-organizational) communications is poor to non-existent. At the end of 72 hours, the disaster area remains in virtual isolation except for helicopter service for known critical cases and official use.
- P. Little centralized information is available. Amateur Radio operators from neighboring counties/states offer to help but are often unable to cross the roadblocks established to limit access by sightseers and potential looters. Disorganized local volunteers often lack essential skills and orientation. Costly mistakes are made and systems bog down.
- Q. The dead pose a serious health problem. Stress rises among the citizenry. Little overall assessment emerges in the first 72 hours about available emergency resources and relief supplies. Shortages are apparent and growing.
- R. Traffic continues to be difficult and slow. Relief supplies trickle in to uncertain storage locations. Some supplies are useless.
- S. Restaurants remaining open are unable to cook without gas or to serve the masses who flood them. Food and water shortages have become critical. Normal water sources may have been cut off or contaminated.
- T. Eventually, essential functional communications networks evolve as priorities are asserted and clusters of traffic emerge. Relief efforts are mounted when someone takes charge, makes a decision and directs the efforts of others. The Command/Control process of directing requires communication – the ingredient in short supply in disasters.
- U. At critiques following a disaster, as always, the cry is heard: “Next time we must be better prepared!”

III. The Challenge

- A. The need for a combined response to communications emergencies has always been apparent. Concerned amateurs regularly band together under a local ARES and local clubs or service groups in support of local agencies.
- B. Over the years, there have been and still are some very effective Amateur Radio response groups working closely with the fire service, the Red Cross, Salvation Army, a group of hospitals, a city or county government RACES unit, a search and rescue team and so on.
- C. In some disasters:
 - 1. It's the solitary volunteer who, alone and by chance, happens upon a disaster scene and serves with distinction.
 - 2. It's a small, unaffiliated group of amateurs (or perhaps the Coast Guard Auxiliary, CAP CB-REACT operators) which responds with some assistance.
 - 3. It's the sheriff's RACES unit which responds effectively.
- D. Increasingly, however (especially in large emergencies), it is the ARRL's nationally organized ARES which is being pressed into action in disasters involving multiple public and private organizations at more than one jurisdictional level across wide geographical areas; no longer simply single-agency or even single-community responses, but many operators working together in a joint effort.
- E. It is ARRL's NTS which is tasked with the high-volume outgoing Welfare and incoming Welfare formal traffic which inevitably attends disasters. And it is the local and Section ARES leadership which must provide the necessary coupling with these traffic operators and the NTS leadership so as to make such communications possible and efficient.
- F. The challenge to ARRL's EC's, DEC's and SEC's, STM's and NM's alike is to integrate the efforts of ARES, NTS and other amateur organizations (MARS, RACES, public service nets, repeater associations, clubs) and non-amateur volunteer response units (CAP, REACT) in coordinated support of the many separate agencies serving in a disaster – and to do it in such an effective manner that the public is truly well-served. That challenge has still to be fully met by amateurs and agency professionals alike.
- G. Since no public or private institution is perpetually effective or enduring, it is up to the ARRL, through its widespread field organization and with active support from its executive and field leadership, to continue to introduce Amateur Radio to the ever-changing stream of new agency officials and to continue to build on-going, enduring relationships between ARRL and those agencies at all levels.

Amateur radio has served the public with distinction across the nation and the world for two-thirds of a century. Yet so little is still known or understood about this life-saving capability by succeeding generations of officials responsible for the public welfare. It is crucially important that this public service "lifeline" be universally understood and fully utilized at every level before the next disaster occurs.