

Learning Unit 1

Introduction to Emergency Communication

ARECC Level 1

Objectives:

This evening's training session is designed to introduce you to the general concepts of emergency communication and how we, as volunteers, can best help. We should have a sincere interest in improving our skills as an emergency communication volunteer.

The ARRL Section and ARES/RACES Leadership of Arkansas have asked me to convey their thanks to you for choosing to expand your knowledge of Amateur Radio emergency communications. Our professionalism and the effectiveness of our public service efforts will be greatly improved if we all share a common base of knowledge, skills, and procedures.

In the coming weeks, you will be learning new skills and new ways of thinking about your existing skills. Sometimes the way we have always done something is just no longer useful or appropriate. So, it is our hope that the information that will be presented in the coming weeks will challenge you to become the best emergency communicator possible.

What is a Communication Emergency?

A communication emergency exists when a critical communication system failure puts the public at risk. A variety of circumstances can overload or damage critical day-to-day communication systems. It could be a storm that knocks down telephone lines or radio towers, a massive increase in the use of a communication system that causes it to become overloaded, or the failure of a key component in a system that has widespread consequences.

Violent storms such as Tornados, Hurricanes and earthquakes can knock down communication facilities. Critical facilities can also be damaged in "normal" circumstances: underground cables are dug up, fires occur in telephone equipment buildings, or a car crash knocks down a key telephone pole. Even when no equipment fails, a large-scale emergency such as a chemical accident can result in more message traffic than the system was designed to handle

What makes a good emergency communications volunteer?

Emergency communications volunteers come from a wide variety of backgrounds and with a range of skills and experience. The common attributes that all effective volunteers share are a desire and commitment to help others without personal gain of any kind, the ability to work as a member of a team, and to take direction from others. Emergency communications volunteers need to be able to think and act quickly, under the stress and pressure of an emergency.

Where do you fit in?

Amateur Radio operators have been a communications resource in emergency situations ever since there has been radio. Someone once described hams as "communication commandos." To the agencies they serve, Amateurs are their immediately available communication experts.

Amateurs have the equipment, the skills, and the frequencies necessary to create expedient emergency communication networks under poor conditions. They are licensed and pre-authorized for national and international communication. Hams have the ability to rapidly enlarge their communication capacity to meet growing needs in an emergency, and that is something commercial and public safety systems cannot do. However, just having radios, frequencies, and basic radio skills is not enough. Certain emergency communication skills are very different from those used in your daily ham radio life. Hopefully, training sessions like this one will help fill that need, as do local training programs and regular emergency exercises. Without specific emergency communication skills, you can easily become part of the problem rather than part of the solution.

As you might expect, technical and operating skills are critical. Just as important, though, is your ability to function as a team player within your own organization, and the organization you are serving.

What you are not

As important as what you are, is what you are not. There are limits to your responsibilities as an emergency communicator, and it is important to know where to draw the line.

Except in rare cases of fate, you will seldom be first on the scene. You do not need flashing lights, sirens, gold badges, or fancy uniforms. In most cases, beyond reporting the situation to the proper authorities, hams have little usefulness as communicators at the onset of an emergency.

You have no authority. In most cases, you cannot make decisions for others, or make demands on the agency you serve or any other agency. The only decisions you can make are whether to participate or not, and those affecting your own health and safety.

You cannot do it all. When the agency you are helping runs short of doctors, cooks, or traffic cops, it is not your job to fill the void. In most cases, you are not trained for it. That does not mean you cannot lend a hand to fill an urgent need *when you are qualified to do so*, or perform other jobs for the served agency *of which communication is an integral part*, and for which you are trained and capable.

You are not in charge. You are there to temporarily fulfill the needs of an agency whose communication system is unable to do its job. They tell you what they need, and you do your best to comply.

"Day-to-Day" Versus "Emergency" Communication

In our daily ham radio life, there is no pressure to get any particular message through. We do things at our leisure, and no one's life depends upon us. In an emergency all that changes, and here are some differences you may see:

- Unlike general Amateur Radio activities, which involve primarily Amateur Radio operators, emergency communication involves both Amateurs and non-Amateurs.
- Unlike regular activities, emergency operations happen in real time. Important activities cannot be delayed for convenience.
- Instead of one leisurely net a day, emergency communicators are often dealing with several continuous nets simultaneously to pass critical messages within a limited timeframe.
- Unlike public service events that are scheduled and planned, emergency communicators are often asked to organize and coordinate field operations with little or no warning.
- Unlike public service events where the communicators serve primarily under the direction of one lead organization, emergency

- communicators may need to interact with several key organizations simultaneously.
- Unlike typical home installations, emergency stations must be portable and able to be set up and operational anywhere in a very short time.
 - Unlike contesting, which involves contacting any station for points; emergency communicators need to contact specific stations quickly to pass important messages. Teamwork is important, not competition between stations, clubs and different ARES groups.
 - Unlike Field Day, where you can plan on a two-day operation, emergency operations have no schedule and are likely to continue for at least several days.
 - Unlike commercial communication solutions, where there is no reserve capacity for handling a sudden and massive increase in communication volume, Amateur Radio emergency communicators have the equipment, skills, and knowledge to create additional capacity in a very short time.

The Missions

The job you are asked to do will vary with the specific agency you serve. If that agency is the American Red Cross, you will be providing the communications needed to maintain a system of shelters and other relief efforts. If it is a state or local emergency management agency, you could be handling interagency communications, or serving as the eyes and ears of the emergency managers. When a hospital's telephone system fails, you might be handling the "mechanics" of communicating so that doctors and nurses can concentrate on patients. In a large forest-fire or search and rescue operation, you might be setting up personal phone patches for firefighters or rescuers to their families, or assisting with logistical communications to insure that food, supplies, personnel and materials arrive when and where needed. For the National Weather Service you will be reporting storm locations and weather conditions so that they can better inform and warn the public. In any widespread disaster, hams could be assisting all the agencies listed above, and more.

Communicating -- Job #1

While you are proud of your skill as a radio operator, and the impressive equipment and systems you have in place, it is important to remember that

your job is "communicating." If an agency asks us to deliver a long shelter supply list to headquarters, you should be prepared to use any means required including the fax machine if it is still working.

Our job is to get the message through, even if it means using smoke signals. Do not think about how to use ham radio to send the message just think about the best and fastest way to send it. If that means using ham radio, so much the better. If all you have is CB or Family Radio, use it. If an agency asks you to use their radio system, do it. Your operating and technical skills are just as important as your ham radio resources.

Anatomy of a communication emergency

In the earliest phases of many disasters, there is no immediate need for emergency communication services. (An obvious exception would be a tornado or earthquake.) This phase might occur during a severe storm "watch" or "warning" period. You should use this time to monitor developments and prepare to deploy when and if a request for assistance comes. Some nets, such as the Hurricane Watch Net or SKYWARN, may be activated early in the storm watch or warning phases to provide the National Weather Service and other agencies with up-to-the-minute information.

Once a potential or actual need for more communication resources is identified, a served agency puts out the call for its volunteer communicators. Depending on the situation, operators and equipment might be needed at an Emergency Operations Center (EOC) or to set up in field locations, or both.

In some areas, a "Rapid Response Team" (RRT) or similar small sub-group might deploy a minimal response in a very short time, to be backed up by a second, more robust response in an hour or two.

A "resource" or "logistics" net might be set up to handle incoming communication volunteers and direct resources where they are needed most. Any volunteer not presently assigned to a specific net or task should check into and monitor this net.

Once operations begin, all kinds of things can happen. The volume of messages can grow quickly, and confusion is common. In addition to handling messages, your organization will need to think about relief or replacement operators, food and water, sleeping accommodations, batteries,

fuel, and other logistical needs. Radios and antennas will fail and need to be replaced and some operators will need to leave early for personal reasons.

Communication assignments might include staffing a shelter to handle calls for information, supplies, and personnel, "shadowing" an official to be their communication link, gathering weather information, or collecting and transmitting damage reports. Some nets might pass health and welfare inquiries to refugee centers, or pass messages from refugees to family members outside the disaster area. Other nets might handle logistical needs for the served agency, such as those regarding supplies, equipment, and personnel.

Nets will be set up, re-arranged, and dismantled as needs change. Volunteers will need to remain flexible in order to meet the changing needs of the served agency. Over time, the need for emergency communication networks will diminish as the message load decreases, and some nets will be closed or reduced in size. Operators will be released to go home one by one, in small groups, or all at once as the needs dictate.

Not long after the operation has ended, the emergency communication group should review the effectiveness of its response, either alone or with the served agency. This might be done on the air in a formal net, by email, or in a face-to-face meeting. However it is done, it should occur as soon as possible after operations have ended to be sure that events are fresh in everyone's mind. Critiques, done properly, can greatly improve your preparedness and skills.

Review:

Communication emergencies can result from a variety of situations, including storms, earthquakes, fires, and equipment damage or failure. Normal communication systems are rapidly overloaded by the increase in usage caused by an emergency, and most have little or no reserve capacity.

Amateur Radio operators are a national resource in a communication emergency, and your mission will vary with the agency you serve. Hams have the skills, equipment, and frequencies to rapidly expand the message carrying capacity of their networks. Specific emergency communications skills are also required to meet the special needs of a communication emergency.

