The ARRL

Emergency Coordinator's Manual

Edited by

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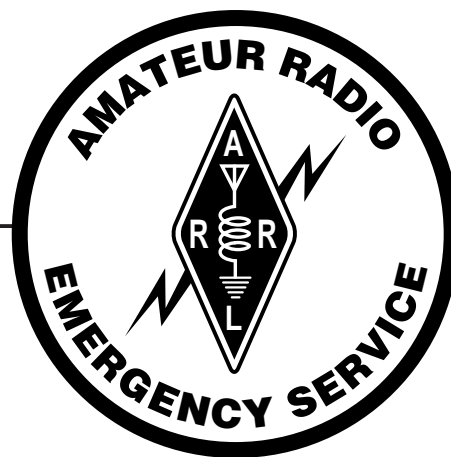
AMATEUR RADIO
EMERGENCY SERVICE

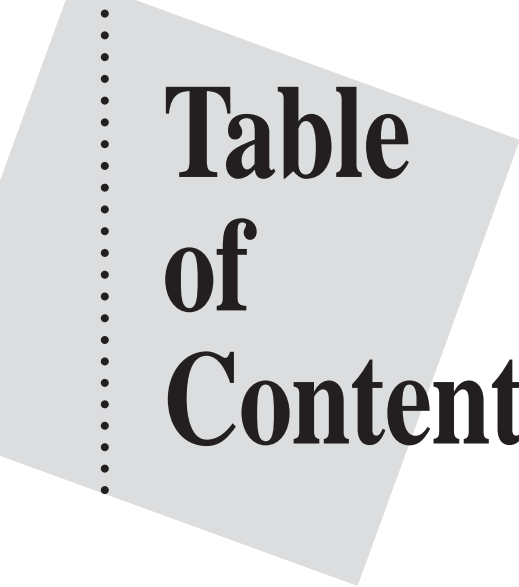# The ARRL

Emergency Coordinator's Manual

Forward

This edition of the *Emergency Coordinator's Manual* represents but a portion of the ARRL's effort to provide you, the ARRL Emergency Coordinator, with the training tools necessary to begin your duties, and as time goes on, to hone and refine your emergency communications capabilities. With this manual, we have attempted to provide you with a means of learning the fine points of your own duties, as well as recruiting and obtaining the necessary resources to properly plan and implement effective emergency and disaster communications for the benefit of the residents and officials of your community.

As with any publication of this type, we sincerely hope that you will read and utilize the *EC Manual* with any eye toward providing us with your input as to how future editions can be improved for the enlightenment of your fellow ECs and the betterment of the Amateur Radio Emergency Service as a whole.

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Chapter 1

Introduction

1.1 • Welcome!

As an Emergency Coordinator (EC) or District Emergency Coordinator (DEC) in the ARRL Amateur Radio Emergency Service (ARES), you have accepted one of the most challenging yet rewarding positions in the ARRL Field Organization, if not in Amateur Radio itself. The Emergency Coordinator's Manual is intended to help you acquire, develop and refine the skills which you need to function effectively in serving the public through Amateur Radio communications. It takes a special person, a radio amateur with a strong desire to serve his/her community, to volunteer to become an EC. A truly effective EC, however, combines this desire with the ability to follow through and get the job done. By the very fact of appointing you EC, your Section Manager and Section Emergency Coordinator have expressed implicit confidence in your abilities and your commitment to public service. This Manual presents many examples to aid you in getting the job done. If you need guidance on a particular matter, don't hesitate to consult your ARRL section leadership, or ARRL HQ, for guidance. The ARRL Field Organization works best when we all work together. Certainly the EC position will test your mettle; if the function were easy, the title of ARRL Emergency Coordinator would not carry the respect it now has. (Please note that since the duties and responsibilities of ECs and DECs are closely associated or overlapping, virtually all of the information in this Manual is applicable to ECs and DECs.)

Your EC role is important to you, the ARES members you direct, the agencies you serve and your community. Your dedication to your responsibilities as EC today may indeed determine the safety of your neighbors tomorrow. Plan your response—prepare your response—respond.

The League congratulates you for accepting the appointment of EC and wishes you the very best in this important endeavor.

1.2 • Purpose

The purpose of this manual is intentionally quite straightforward. In addition to guidelines and procedures, this manual describes how other ARES units are operating, giving you enough information to adapt or improve upon the material to fit your particular circumstances. In short, the manual is meant to make you a better EC and to assist you in better serving the public. The final result, of course, depends on you.

Obviously the manual cannot anticipate every contingency that you may encounter in your tenure as EC. However, every attempt has been made to provide you with the tools you may need to perform appropriately. Working with your section colleagues in the ARRL Field Organization to address specific problems, as well as administrative support (such as this manual) from ARRL HQ, will go a long way toward making your EC toolbox complete!

Amateur Radio public service efforts must continue to grow in both quality and quantity. To achieve this, knowledge and experience must be shared for the benefit of all. The *EC Manual* is an important step in this sharing process.

Chapter 2

The ARRL Field Orgainization

2.1 • General

In Part 97 of its rules, the Federal Communications Commission states that the Amateur Radio Service is a "voluntary non-commercial communication service, particularly with respect to providing emergency communications." This is an essential element of the "public interest, convenience or necessity" doctrine embodied in the Communications Act of 1934, the enabling legislation that created the FCC. In turn, ARRL makes providing emergency communications capability an objective of its Field Organization with the ARES as the vehicle for accomplishing it.

A description of the ARRL Field Organization and all of the appointments that are available are summarized in the Field Organization brochure (FSD-300) which you received as part of your initial EC supplies. Application forms (FSD-187) are also available for these appointments.

2.2 • Field Services

ARES functions primarily as a local organization with local control of activities under the aegis of the elected ARRL Section Manager. ARRL Headquarters, specifically Field Services under the supervision of the Field Services Manager, supplies support assistance. This support help includes: Effecting policies as delineated by the Board of Directors, supplying the EC with a myriad of forms and training materials necessary to effectively do the job, recognition with certificates and documentation in *QST*, advice where requested, and maintaining liaison at the national level with the government and user agencies.

2.3 • Section Manager (SM)

Your ARRL Section Manager (SM), who is elected by the ARRL full members in your section, is the overall manager, the "boss," of all ARRL Field Organization activities in the section. These activities include emergency communications, message traffic, volunteer monitoring, affiliated clubs, public information, state government liaison, and on-the-air bulletins. The name, address, and phone number of each SM in ARRL Field Organization appears every month in *QST* on page 12.

The SM appoints section-level assistants to administer the specialized functions mentioned above. With respect to emergency communications and ARES, the SM appoints the Section Emergency Coordinator.

2.4 • Section Emergency Coordinator (SEC)

There is only one SEC appointed in each ARRL section. His/her duties are as to:

1) Encourage all groups of community amateurs to establish a local emergency organization.

2) Provide recommendations to the SM on all section emergency policy and planning, including the development of a section emergency communications plan.

3) Cooperate and coordinate with the Section Traffic Manager so that emergency nets and traffic nets in the section present a united public service front, particularly in the proper routing of Welfare traffic in emergency situations. Cooperation and coordination should also be maintained with other section leadership officials as appropriate, particularly with the State Government Liaison and Public Information Officer.

4) Recommend candidates for Emergency Coordinator and District Emergency Coordinator appointments (and cancellations) to the Section Manager and determine areas of jurisdiction of each amateur so appointed. At the SM's discretion, the SEC may be directly in charge of making (and canceling) such appointments. In the same way, the SEC can administer the Official Emergency Station program.

5) Promote ARES membership drives, meetings, activities, tests, procedures, etc, at the section level.

6) Collect and consolidate EC (or DEC) monthly reports and submission of monthly progress summaries to ARRL HQ. This includes the timely reporting of emergency and public safety communications rendered in the section for inclusion in *QST*.

7) Maintain contact with other communication services and serve as liaison at the section level with all agencies served in the public interest, particularly in connection with state and local government, civil preparedness, Federal Emergency Management Agency, Red Cross, Salvation Army, the National Weather Service, and so on. Such contact is maintained in cooperation with the State Government Liaison.

The SEC (or SEC candidate) must be an ARRL Full Member and hold at least a Technician class license.

2.5 • District Emergency Coordinator (DEC)

The DEC is appointed by the SEC to supervise a district of EC jurisdictional units. The duties of the DEC are to:

1) Coordinate the training, organization and emergency participation of ECs in the area of jurisdiction.

2) Make local decisions in the absence of the SEC or through coordination with the SEC concerning the allotment of available amateurs and equipment during an emergency.

3) Coordinate the interrelationship between local emergency plans and between communications networks within the area of jurisdiction.

4) Act as backup for local areas without an EC and assist in maintaining contact with governmental and other agencies in the area of jurisdiction.

5) Provide direction in the routing and handling of emergency communications of either a formal or tactical nature, with specific emphasis being placed on Welfare traffic.

6) Recommend EC appointments to the SEC.

7) Coordinate the reporting and documentation of ARES activities in the area of jurisdiction.

8) Act as a model emergency communicator as evidenced by dedication to purpose, reliability and understanding of emergency communications.

9) Be fully conversant in National Traffic System routing and procedures as well as have a thorough understanding of the locale and role of all vital governmental and volunteer agencies that could be involved in an emergency.

The DEC (or DEC candidate) must be an ARRL Full Member and hold at least a Technician class license.

2.6 • Emergency Coordinator (EC)

The main working level of ARES is headed by you—the EC. Appointed to a

specific area of jurisdiction by the SM or SEC, you are responsible for all ARES activity in your area, not just one club or one service organization. Your job will be described in detail in the next chapter. You must be an ARRL Full Member and hold a Technician class license or higher to be eligible to become an EC.

2.7 • Assistant Emergency Coordinator (AEC)

AECs are selected and appointed by the EC. Each EC may have as many AECs as required to effectively manage the ARES unit. Possible duties of an AEC will be discussed in the following chapter. The AEC is strictly a local appointment, sometimes made on an ad hoc basis, and, consequently, does not require ARRL membership or SM/SEC approval, or notification to ARRL HQ.

2.8 • ARES Members

Your ARES members are the lifeblood of your unit. All of the training, dedication and planning by you is for naught if your members are not actively involved in ARES. They are your main resource. Your ARES members are, of course, volunteers. This subject will be covered in depth in Chapter 5.

2.9 • Official Emergency Station (OES)

The job description and guidelines of this appointment are undergoing a revision. Please check with ARRL Field Services Department for updates.

Each ARRL Field Organization appointee, receives *Field Forum*, the ARRL-appointees' newsletter.

Note: Recruitment of new hams and League members is an integral part of every League appointee. Appointees should take advantage of every opportunity to recruit a new ham or member to foster growth of Field Organization programs, and our abilities to serve the public.

Chapter 3

Outline of the Duties of an EC

3.1 • General

The general duties and responsibilities of an EC include:

♦ Promote and enhance the activities of Amateur Radio Emergency Service (ARES) for the benefit of the public as a voluntary, non-commercial communications service. *Manage and coordinate the training, organization and emergency participation of interested amateurs working in support of the communities, agencies or functions designated by the Section Emergency Coordinator/Section Manager.

♦ Establish an emergency communications plan for the communities and agencies that will effectively utilize ARES members to cover the needs for tactical and formal Welfare message traffic.

♦ Establish a viable working relationship with all federal, state, county, city governmental and private agencies in the ARES jurisdictional area which might need the services of ARES in emergencies.

♦ Establish local communications networks run on a regular basis and periodic testing of those networks by realistic drills.

♦ Establish an emergency traffic plan, with Welfare traffic inclusive, utilizing the National Traffic System as one active component for traffic handling. Establishment of an operational liaison with local and section nets, particularly for handling Welfare traffic in an emergency situation.

♦ In times of disaster, evaluate the communications needs of the jurisdiction and responding quickly to those needs. The EC will assume authority and responsibility for emergency response and performance by ARES personnel under his jurisdiction.

♦ Work with other non-ARES amateur provider-groups to establish mutual respect and understanding and a coordination mechanism for the good of the public and Amateur Radio. The goal is to foster an efficient and effective Amateur Radio response overall.

♦ Work for growth in your ARES program, making it a stronger, more valuable resource and hence able to meet more of the agencies' local needs. There are thousands of new Technician class licensees coming into the Amteur Service that would make ideal additions to your ARES roster. A stronger ARES means a better ability to serve your communities in times of need and a greater sense of pride for Amateur Radio by both amateurs and the public.

♦ Report regularly to the SEC, as required. FSD Form 212 may be used for this purpose.

♦ Additional duties and responsibilities of the Emergency Coordinator should include planning, organizing, coordinating and communicating.

Requirements for the Emergency Coordinator post: Technician or higher class license and Full ARRL membership.

3.2 • Planning

1) Draft brief, specific ARES plans to fulfill community needs for emergency communications.

2) Develop training programs to fill special skill requirements of members as needed.

3) Establish a workable plan in coordination with other local two-way radio organizations for responding to non-emergency communications requests; e.g., walkathons, parades, special events.

4) Develop, implement and maintain a current "telephone tree" for use in alerting and activating ARES members in emergencies.

5) Establish regular, announced meetings of ARES members to plan programs and drills and to accomplish specific goals.

6) Develop a local ARES operating manual to include all essential operating aids and reference information, with annual updates.

3.3 • Organizing

1) Appoint AECs and issue AEC Certificates when needed The AECs will be designated specific functions and/or agencies within the jurisdictional area.

2) Maintain current roster information on all enrolled ARES members. Record special skills and equipment useful in emergencies. Issue ARES identification cards and make cancellations when appropriate.

3) Establish and foster such radio nets as required to maintain an active ARES unit, develop capable net control stations, transact a full range of traffic, and disseminate news and bulletins of value to the amateur population in general, and to ARES in particular.

4) Recommend OES candidates to the SM/SEC.

3.4 • Coordinating

1) Establish effective liaison between ARES and emergency services designees in local radio clubs and repeater associations.

2) Coordinate and cooperate with ECs of adjacent areas and sections.

3) Act as principal area representative from ARES to area coordinating councils of volunteer emergency response teams.

4) Through the SEC/STM, arrange for effective liaison and active cooperation with operators of the National Traffic System for both incoming and outgoing traffic during both normal and emergency conditions.

5) Develop and organize an emergency planning com-

WHAT DOES AN EC COORDINATE?

By Lloyd W. Brubaker, WA6KZV

When you become an EC, you are supposed to coordinate things. Right? That means you don't do anything; you just coordinate what everyone else is doing! The only problem is somebody has to be doing something before you can coordinate it.

In the Indian Wells Valley (CA), nobody was doing much of anything about disaster preparedness. There was nothing to coordinate. Oh, that wasn't exactly true. The REACT people (Radio Emergency Associated Citizens Teams) were monitoring Channel 9 and giving assistance to motorists on a 24-hour basis. We in the ARES supplied them with long-distance communications when needed. We teamed up with them on disaster drills from time to time. But all of this didn't keep an EC busy. In fact, it ran along so smoothly it seldom needed any coordination.

But, this was a start. Other groups that would take part in any major disaster exist in our area, so I decided to call in some of them for some coordination. We started with the Civil Air Patrol (CAP), followed by the Search and Rescue Group (SARG) for joint meetings. It soon became apparent that this was a worthwhile effort.

I have always felt that emergency groups could be made to work together rather well by simply keeping them in touch with each other, sort of like fitting pieces of a jigsaw puzzle together to make a coherent picture. In any community, you have two groups of organizations that would be active in any major emergency. The first is made up of volunteers, such as SARG, CAP, REACT, ARES, Red Cross, RACES and the Salvation Army. The other group is in the professional category, who, by virtue of their jobs, would be concerned with emergencies. These are fire, police, utilities, the hospitals and the ambulance services, as well as, in our area, the Forest Service and Park Service personnel.

In 1981, before the current alarm created by the Mammoth Mountain series of earthquakes and the attendant volcanic scare, as well as the Coalinga earthquake, we decided to send out a letter to all of the above-mentioned groups and bring them together to see if better coordination could be accomplished. The City of Ridgecrest was busy with other activities and, up to then, hadn't seemed to be very interested. The County of Kern was interested, but we are on the other side of the Sierra from the county seat and the preponderance of the population. (The voice of one EC is so small!)

The response was overwhelming! After the first meeting, we had not only the city and county attending officially, but also the Navy from the local Naval Weapons Center and all of the above groups on a more-or-less regular basis. Training sessions were held by the various groups in the council to familiarize us with their problems and techniques, and a number of side projects began as an outgrowth of the council, which by now even had a name.

The Indian Wells Valley Emergency Services Volunteer Council serves the eastern side of the Sierra and brings together all of those agencies that will be active in an emergency. It has coordinated those agencies whether local city or county officials chose to participate; however, they did choose to participate and became very involved in utilizing the council to rewrite the city's emergency plan. The Council has begun an Operations Plan that will be a compendium of plans (who is going to do what!) of all of the organizations in the valley. The county has organized a RACES plan. I, as the EC, have also become not only a Radio Officer for RACES on this side of the Sierra, but also communica-

tions chairman for the council, working closely with all of the groups that have radio communications capability as part of their normal day-to-day jobs. I now have more to coordinate than I can keep up with!

At each council meeting (roughly one a month), each group may report on any activity they have had since the last meeting. One of the groups will provide a training session. Usually, someone comes up with an idea that must be considered in disaster preparedness. For example, somebody asked how we were going to publish fliers, handbills, posters, etc., when all of the electricity is out and none of our duplicating machines can be hand-cranked. Someone else asked how you get people to read their phone books, since instructions for preparing for an earthquake are contained therein. One of my own concerns became supplying the emergency power to our local radio stations that had no facilities of their own. Also, I became concerned with supplying them with an emergency antenna in the event their high towers should come down. There are no shortages of concerns!

There is much for the council to do, and in the meantime, members of each group are getting acquainted with members of the other groups with whom they may have to work. The best kind of i-d you can get is for police at the roadblock to know personally the members of RACES who must get through. If the two of them have worked together on drills and tests, each knows the other's problems, needs and capabilities.

We are building a message center that will contain all of the radio equipment needed to talk on all of the nets in the area. Ham radio operators will be trained to operate this message center as the Emergency Operations Center (EOC). We had considered a van, but decided that was putting all of our eggs in one basket. Flexibility and diversity were what we wanted.

We have conducted emergency drills with the Park Service in Death Valley (a simulated mid-air crash with two planes to be found), ELT searches with CAP and damage-assessment training for the Red Cross, with more to come. We have received considerable training with Red Cross, so several of our members are officials in that organization as well.

The Emergency Services Volunteer Council has served as a spark plug to begin the planning necessary to prepare for any major emergency. It's something that any EC can do. Just make a list of the organizations in your community that you'd like to bring together, and start them talking. Don't be dismayed if one of the groups starts to take over. Remember, you coordinate, you can't do everything. In our case, the CAP became a ramrod, and things really began to move!

Of course, it's nice if you have a few earthquakes, a flood or a hurricane to prod people into action. We even had the possibility of volcanoes to prompt things along! Be sure to get the geologists or the weather people into the act. They can advise you on the nature of the threat and its likelihood. Be sure to call the local newspaper to take part. They are your ace in the hole. Once the council starts doing things and others (the politicians?) hear about it, they will want to get on the band wagon.

Remember that a Volunteer Council is just what is says it is. It has no official position. All it does is get people together. It has a great advantage in that it can cut across county lines and bureau boundaries, and promotes a friendly and cooperative atmosphere. It deals with understandings and getting things done. I recommend one for your community. It gives the EC something to coordinate!

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mittee of all agencies that would be involved in a disaster in your jurisdiction with special emphasis on agencies with which ARRL has agreements (i.e., American Red Cross, Salvation Army, APCO, NCS, NWS, FEMA).

3.5 • Communicating

1) Prepare EC bulletins and releases for periodic issuance over radio nets and at meetings of amateurs to keep ARES members and amateurs in general informed of ARES matters.

2) Conduct periodic meetings in person and on-the-air for the purpose of developing close coordination and a free exchange of information among ARES members.

3) Contact heads of agencies to be served to determine requirements and methods of introducing Amateur Radio into their operations. Communicating such plans to all ARES members.

4) Provide user-agencies with current contact information for alerting/activating ARES.

5) Submit regular reports to the SEC/DEC (as directed) covering ARES news, achievements, events, problems, contacts with user agencies, etc.

6) Check into local and section nets regularly—on all modes possible—to be accessible to the membership and be aware of their participation, keep members informed and support their efforts, and provide special bulletins of interest and importance to members.

7) Report regularly by radiogram, correspondence, or the official report form (FSD-212) to the DEC/SEC on names, calls and telephone numbers of AECs and their areas of responsibility, public service events planned or impending, problems which should be of concern to the SEC/DEC, names and calls of amateurs involved in communications, operations or exercises, and performance of individual members considered particularly noteworthy.

8) Following operations or exercises, provide prompt oral and written reports and critiques to and concerning user-agencies and ARES operations to agencies and SEC/DEC.

Note: AECs can perform any of the above duties if so delegated.

3.6 • Duties Delegated to AECs

As an EC, you may appoint as many AECs as you need to provide additional leadership in your area. The AECs then become your emergency planning committee. There are four main categories of AECs: Operations, Administrative, Liaison, and Logistics. Below are some typical assignments you might give your AECs:

Operations AEC

*Net Manager for specific ARES nets
*Net Control Station for specific ARES nets
*Coordinator for ARES activities on a specific band
*AEC for packet radio/PBBS and/or digital modes
*Assembly point coordinator
*Operational assistant to EC during disasters
*Coordinator for subdivision of EC area

*"Team Captain" of ARES subgroup
*Novice AEC to encourage their participation

Administrative AEC

*Recruiting
*Public relations
*Personnel records
*Equipment inventory
*Training
*Reports

Liaison AEC

*Maintaining contact with assigned agencies
*Maintaining liaison with NTS
*Maintaining liaison with adjacent ECs

Logistics AEC

*Transportation
*Supplies—food, fuel, water, etc.
*Equipment—generators, batteries, antennas
*Repeater restoration—if damaged by disaster
Note: AECs may have both a pre-disaster phase assignment and a different assignment during disaster operations.

The general duties of any AEC should include:

1) Informing the EC of any developments in their region of responsibility.

2) Keeping records the EC deems necessary on their assignments and updating the records regularly.

3) Participating in as many ARES activities as possible.

4) Keeping the members of their assignment informed of ARES activities.

3.7 • Image

As EC, you will soon learn that local amateurs will look to you for guidance on many problems of interest to amateurs in general—not just pertaining to ARES matters.

As a highly visible ARRL Leadership Official, your words and actions will reflect upon the League. Your personal opinions could be misinterpreted by some as League policy. Some amateurs may even expect you to be available to answer their questions 24 hours a day.

If you get caught in situations such as these, it may be best to set your own personal policy regarding what you expect from the ARES members and what they should expect from you. This should solve many misunderstandings between you and your membership.

As an example, if you find that ARES matters are taking up your evenings--every evening—you may wish to set a time aside each week specifically for ARES. Inform your membership that you will be available during that time, and that time only (unless it is an emergency situation). Your membership will know that any questions they may have will be answered during your ARES time, and that any time other than that is reserved for your family.

When you have questions concerning ARES or ARRL policy, contact your SEC/DEC.

Chapter 4

Organizing a Local ARES Group

4.1 • General

This chapter is for you, the EC, if you are in the process of forming an ARES group. If you already have an organized ARES group, many of the ideas in this chapter can be modified to increase membership in your present ARES unit.

If your area of jurisdiction is large, with several clubs and hundreds of amateurs to draw from, it may be wise to select several amateurs with leadership qualities to assist you in organizing your unit.

Every licensed amateur, Novice through Extra, is eligible to be an ARES member. Those without an amateur license are not eligible. The amount and type of equipment owned by the amateur should not be considered a limiting factor. Amateurs with limited operating ability, because of license or equipment, can always be used as "second operators" or members of a "team." ARES members need not be members of the ARRL.

4.2 • Selecting Assistants

As an EC, you may have as many AECs as your local unit may need to function effectively. You may use your own judgment or solicit recommendations from capable amateurs prior to selecting your assistants. Keep in mind that not only must AECs be leaders, and capable amateurs, they must also be able to work smoothly with you.

Prior to selecting your AECs, it is important to determine exactly what responsibility each AEC will have. Once you've done that, pick your AECs accordingly. Don't get caught picking your AECs, then trying to make them "fit the job." See Chapter 3 for suggestions of AEC responsibilities.

Your AECs should be "self-starters," outgoing, and willing to follow your directions. Have them fill out the ARES Registration Form (FSD-98), issue them ARES membership cards (FSD-224) and AEC Certificates, and your organization is underway.

With your AECs picked and their areas of responsibilities clearly defined, you may think that your next task will be recruitment. Sorry, such is not the case. Your next task is to ask yourself, "Why should an amateur join my ARES unit?" Don't take this question lightly. Discuss this matter with your AECs as they will be recruiting new members also. There are obvious collective benefits to organizing an ARES group: public service, increasing knowledge of com-

munications, ensuring the continuation of our service for years to come, and public recognition, to name a few. However, a prospective ARES member will want to know how ARES can help him-personally.

Once you and your AECs feel comfortable to answer the question, "What's in it for me?," you're ready to recruit.

4.3 • Recruiting Members in Clubs

Local Amateur Radio clubs are excellent "pools" of potential ARES members. Club members tend to enjoy interacting with other club members—either in person or on-the-air. They are also more likely to own VHF equipment (such as 2-meter FM handhelds) to talk to other club members, and such gear is a definite necessity in an ARES unit. The club also probably meets regularly—a perfect time to discuss ARES before the group! Obviously you want to get these amateurs involved in ARES. How do you do it?

If you already belong to such a club, find out if ARES has been discussed before at a regular meeting. If it had been discussed, but no action taken, find out why. Possibly the person had a good idea, but didn't have the right information. Maybe ARES was looked upon as a burden—one more responsibility that would tie down club members' free time. You may even find that the club membership has changed significantly since ARES was first discussed. Last, but not least, there is the chance that the club members simply did not have a great deal of faith in the person who made the presentation. Again, if the club turned "thumbs down" to ARES in the past, find out why and plan your presentation accordingly.

If your club has okayed ARES, chances are that you've been delegated the responsibility of forming the ARES group. Later in this chapter is a sample format to use in presenting ARES to your club—and getting the members registered as ARES members (see Table 4-1). If your club is a Special Service Club (SSC), count your blessings! One of the responsibilities of an SSC is to get involved in emergency communications. An SSC should: Identify what types of communications emergencies are most likely to occur; let local authorities know of your capabilities to assist and how to communicate with the ARRL Field Organization; increase your club members' awareness and ability to deal with a crisis situation; stand ready to assist local authorities as appropriate.

Above are the "basics" that an SSC should follow. For

specifics on how the SSC should implement their emergency communications program, consult the *Special Service Club Manual.*

If you are not already an EC, get yourself elected or appointed as "emergency coordinator" of your club. You must have this position of responsibility to (1) direct your club's efforts toward public service communications, and (2) gain recognition from the agencies you intend to serve.

Remember, however, that your formal ARRL appointment as an official ARRL Emergency Coordinator must come from your SEC or SM. This can naturally follow the local club appointment with the concurrence of the SEC or SM.

Once your club recognizes your position, you can begin your recruitment efforts in earnest. Discuss ARES with other club members at every opportunity. Talk it up! Note: If you have already selected your AECs, they may assist you during this organizational meeting.

When your club recognizes the importance of ARES activities and you, to coordinate efforts, explore the possibility of combined membership—joining the club automatically enrolls the person in the ARES group. Many clubs have been successful in this way. If there are other clubs in your area of jurisdiction, don't leave them out! Those other clubs may just be anxious to hear your presentation during one of their meetings. You may possibly get some new ARES members as a result.

A list of ARRL Affiliated Clubs can be obtained through your SM (*QST*, page 12). Your Section's Affiliated Club Coordinator (ACC) may also be able to assist you. Of course, don't neglect those clubs which choose not to be ARRL affiliates.

4.4 • Recruiting Members On-the-Air

You and your AECs should be alert at all times when you are on the air with local contacts to attempt to interest prospective members in registering with your ARES group. ARES nets in routine operation should have provisions in the net format for visitor check-ins. If a prospective member checks into the ARES net and shows an interest in joining, follow up by mail, phone or personal contact to register him.

TABLE 4-1

TYPICAL STRUCTURE OF AN ARES ORGANIZATIONAL MEETING

(This may be modified into an ARES presentation)

1. Introduction.

2. Give a short talk on ARES explaining the organizational structure, how ARES has served the public in the past, and how your group intends to serve the public in the future. Show the videotape "At Any Moment" (referred to in Chapter 8).

3. Question and answer session.

4. Hand out ARES Registration Forms (FSD-98).

5. Collect completed ARES Registration Forms.

6. Hand out ARES ID cards (FSD-224) to new members (Note: you may wish to bring a portable typewriter with you to type the new member's name and information on the ID card. Also several enterprising ARES units have added photographs and laminated the ID cards for a truly professional appearance.)

7. Set time and place for the next meeting.

8. Adjourn meeting.

Local non-ARES nets might also provide recruitment opportunities. Check into the net and mention ARES. Someone may show an interest. Keep a "high profile" in your capacity as EC when operating. You may be surprised at how many amateurs will want to discuss ARES with you.

4.5 • Recruiting at Hamfests

Some ARES groups overlook this possibility because it is too obvious. If there is going to be a hamfest in your area in the near future, contact the club sponsoring it. Arrange to get a display booth and show up at the hamfest with a stack of ARES Registration Forms, information on ARES, and your greatest "selling tool"—a smile on your face! You may wish to coordinate the manpower at the booth, as well as expenses, with one or more ECs in your general area.

4.6 • Recruiting at License Classes

Many Amateur Radio clubs sponsor one or more license classes annually. Contact the club and find out when and where the classes are to be held. Inquire as to whether or not they would like to have you give a short presentation on emergency communications and ARES to the prospective amateurs. The club will probably be happy to have a guest speaker for one of the classes.

When you speak before the class, hand out ARES Registration Forms to the students. You may wish to have those interested fill out the form, except for their call and the date, and hand the form back to you that night. When they get their license, they simply have to notify you and give you their new call sign which you fill in on their registration form, and they're an ARES member!

4.7 • Recruiting using Direct Mail

Mailing labels for ARRL members in your jurisdiction can be provided by ARRL HQ. Please use the "Request for Membership Mailing Labels or List" form for this purpose (available for an SASE). You must provide an accurate list of Zip Codes for the area that you require labels for, and you must have your Section Manager or Division Director sign the request form.

If you decide to use direct mail, a brief one-page letter explaining ARES, along with the name of someone to contact and a registration form, seems to work best (refer to Table 4-2). Enclosing an SASE should increase the chances of a prospective ARES member responding. A sample letter for recruitment purposes can be found later in this chapter.

4.8 • Recruitment Summary

This chapter contains several ways to increase membership in your ARES group. There are many other ways, not listed here, which you may find work better. Remember that recruitment is an ongoing process which ensures the life of your ARES group. Recruitment is extremely important—important enough that you may want to delegate recruitment responsibilities to one of your AECs as a full-time ARES job.

4.9 • Organizational Meeting

As soon as possible, arrange a meeting of those who have indicated an interest in ARES or who have already registered. Pick a day, time and place which suits the greatest number. Remember that additional meetings for those who cannot attend the first one can always be

scheduled. The organizational meeting will serve as a "get acquainted" session. It will provide an opportunity to give more details about your plans, find out the capabilities of everyone there, and lay the groundwork for establishing ARES nets. As always, first impressions are important, so be as well prepared as possible to answer questions concerning ARES—and possibly ARRL. Proper preparation pays off. Refer to Table 4-1 earlier in this chapter for a typical structure of an ARES organizational meeting.

4.10 • Planning Committee

Once you've appointed the AECs in your group, you've formed your Planning Committee. The AECs will assist you in specific areas on which you've decided. Consequently, they are in an excellent position to advise you on subjects in that same area.

Your first Planning Committee meeting should take place soon after you've appointed the AECs. As your ARES unit grows in size, you may see the need to appoint additional AECs...which will increase membership in your Planning Committee as well. At least two groups, the Dade County (FL) ARES and the Palm Beach (FL) Amateur Radio Council, have evolved from Planning Committees into large-scale emergency preparedness committees. These committees are comprised of amateurs, government officials, representatives of served agencies, the National Weather Service, and others. The Dade County group even has the Engineer-in-Charge of the FCC Field Office attending meetings. In Dade County, presidents (or their representatives) of amateur clubs miles apart discuss matters of mutual concern during Planning Committee meetings. Because of the efforts of the committee members, English- and Spanish-speaking clubs share the same VHF spectrum in harmony. Communications plans for upcoming special events are presented with the intention of preventing the possibility of confusion on frequencies to be utilized. If one club needs additional operators to man an event, the subject is brought up at the meeting. The Planning Committee ensures mutual understanding on these and other topics.

These monthly meetings also lay the groundwork for effective and professional cooperation during emergency and disaster conditions. The committee members are aware of the capabilities and limitations of their counterpart's organizations prior to a disaster. When an emergency occurs and the assistance of ARES is requested, the EC begins the call-up procedures immediately. The emergency call-ups in Dade County are extremely efficient since the call-up is used to notify committee members of their meetings once a month.

After the call-up, the members meet on or monitor a local repeater for instructions. Those without VHF equipment inform the EC of their readiness by landline.

The nature of the emergency and the required course of action is broadcast by the EC or his representative on the repeater. Within minutes after the initial alert, the presidents of area amateur clubs and other public service oriented organizations have accurate information on the type of emergency and know whether or not their services are needed.

The possibilities of duplication of efforts, over-responding or under-responding, misinformation and lack of coordination are lessened by this highly effective Planning Committee.

The communications channels instigated by the Planning Committee don't end with the members themselves. Points of discussions, new ideas and possible new understandings of situations are brought back to each organization represented. Using the Planning Committee as a catalyst, the groups begin to learn more about each other.

Amateurs of all backgrounds, as well as public service organizations, government officials, military personnel, law enforcement departments, pilots and educators have all joined the Dade County ARES Planning Committee realizing that they can work much more effectively in an emergency by knowing more about each other.

4.11 • Summary

Organization of your ARES group will probably be one of your most important tasks. Getting off "on the right foot" is essential if your group is to grow.

Many well-intentioned ECs have formed ARES units expecting great things only to see the group falter after a few months. Proper organization will prevent this from happening to your group.

Your ARES group must be organized in such a way that all amateurs are welcome, no member feels "left out," and everyone has a purpose for belonging. Lastly, all of your unit's members should realize that an effective ARES group is to their benefit, as well as to the benefit of their community.

TABLE 4-2
ARES LETTER OF INTRODUCTION

Dear_____:

I am contacting amateurs in this area for the purpose of organizing/increasing membership in the Amateur Radio Emergency Service

(ARES).

The Federal Communications Commission recognizes the capability of Amateur Radio by stating its "recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications."

The American Radio Relay League (ARRL) sponsors the ARES, which provides emergency communications in time of need. Granted, most amateurs can provide some type of communications during a disaster, but ARES organizes our response.

You need not be a member of ARRL to belong to ARES. You don't have to spend any money. You don't have to spend every other weekend training for a disaster. You only have to dedicate as much spare time as you want to public service.

Help Amateur Radio "pay its way." Please check into our ARES net which meets at_____on_____or fill out the enclosed ARES membership application and send it to me.

Thank you.

_____
ARRL Emergency Coordinator

Chapter 5

Working with Volunteers

5.1 • Introduction

Volunteers are the lifeblood of ARES. They are difficult to find, more difficult to keep, and at times, difficult to work with. Volunteers come in a wide variety of shapes, colors, sizes, backgrounds, skills, experience, and levels of motivations. They have their own reason for participating and their own specific needs which must be met if they are to continue to volunteer. Their needs, abilities, and accomplishments determine the ultimate success or failure of ARES in your jurisdiction. Your task, as EC, is to discover and meet their needs while guiding them in the best use of their abilities, thus helping them to achieve significant accomplishments in public service.

5.2 • Who are Volunteers?

Volunteers are individuals who are willing to work with others to perform a necessary public service. They are human beings with human needs, goals, attitudes, abilities, strengths and weaknesses. Since volunteers will be the basic resource that you will be using, it will be to your advantage to get to know each of them as well as possible. Generally, volunteers will do precisely what they want to do—no more—no less. It is up to you to convince them that the assignment you have selected for them is both needed and appropriate. Having their own likes and dislikes, it may be necessary to talk the volunteers into some assignments which are important though unpopular.

Volunteers must be convinced that what you are asking them to do is really needed. Volunteers don't like to be underutilized, and tend to disappear when kept cooling their heels for a significant length of time. They will work for long hours under the worst conditions as long as they can see the need for it. Most will do anything you ask as long as they're treated properly. If you mistreat or abuse them, they may not volunteer their help again.

5.3 • Why They Volunteer

It would be physically impossible to discuss in this Manual every possible reason why people volunteer to join ARES. Generally speaking, volunteers join to satisfy a personal need.

Some volunteers join to become a member of a group. Some join to become a "big wheel" in ARES. Some join simply because you asked the right question at the right time and at the right place.

The majority of your volunteers, though, joined out of a desire to serve the public in a way they best know how: as communicators. These are the volunteers you should direct your efforts toward.

Find out why your volunteers joined ARES. You've got to find out what their needs are before you can attempt to satisfy them.

In short, the best way to find out why your ARES members volunteered is to ask them!

5.4 • What Volunteers Expect from You

Your volunteers have a right to expect courteous, considerate, fair and impartial treatment from you. Courtesy is always in order; rudeness will cost you dearly. In addition to learning and compensating for their weaknesses and being tolerant of their faults, you must also consider their feelings. Don't forget that you are taking precious time from their families. They also have the right to expect you to make a reasonable effort to learn and apply the skills and techniques of disaster management. You will be expected to make mistakes, admit them openly, and learn from them as you grow into your new role. You will also be expected to keep them informed as to what is happening in ARES and why. Unfortunately, some members will expect much more of you than they have a right to expect, and often more than you can do. They may expect you to change situations over which you have no control, force other volunteers to change their habits, provide them with privileged treatment or status, fire a useful assistant because they happen to dislike him, and other equally inappropriate actions. In short, they will tend to forget that you deserve the same treatment from them that they expect from you.

Each member has different job demands and family requirements, as well as other outside interests. This affects training and preparedness and is especially applicable to their availability in disasters, as some of them may be affected by the disaster. Some volunteers may join ARES and never be heard from again. Others will join and not find time for training, but will come out for disaster operations. The rest will be willing to take different amounts of training, and their availability for disaster service will change as their situations and interests change. Human traits are cyclic in nature and volunteers are no exception.

Further, very few will be willing to take sufficient training to be able to lead, and even less will be willing to do the extra work. Remember that volunteers are individuals and should be treated as such.

5.5 • The Cadre Concept

The "cadre concept" recognizes the variations in willingness to train for disasters and allows you to mitigate the problem by using a small, highly-trained and motivated group who will provide direction by example in a disaster. The concept is simple—you provide as much training to each member as he is willing to accept and absorb. Those who take the most training will usually be willing to assit you with the job of organizing and training the rest. They become the cadre of leader—the nucleus of your ARES group.

This concept works simply because it takes maximum advantage of the fact that people are gong to do exactly what they want to do. It operates on the assumption that no volunteer is worthless, that one day you may need all the volunteers you can get, and, finally, that you may have some claim on an amateur who carries an ARES card while you have no claim on who does not.

5.6 • Keeping the Volunteer

Your volunteers will stay members of your ARES group if you make a dedicated effort to ensure that :

a) Your ARES training process is tailored specifically to the needs of your unti and the individuals who comprise it. Obviously your volunteers have skills which they are bringing to ARES, but increasing those skills and educating your volunteers in new skills will probably keep them interested in ARES.

b) You provide timely information to your ARES members. Keep them informed of ARES activities as a group. Don't tell one or two members and expect the rest to find out "on their own."

c) You should be someone your members can turn to for assistance on ARES matters.

d) You should realize that, although some members may feel secure being given one responsibility and keeping that responsibility during their tenure with ARES, some members may enjoy being given different assignments. Those members who request different challenges may be your best AEC candidates.

e) You may wish to implement your own system of showing appreciation, recognition and rewarding of members for their services. Awarding certificates or having special occasions such as dinners are excellent means to reward your ARES members for a job well done.

5.7 • Suggested Approaches

First, most volunteers don't respond well to orders. They will honor requests, particularly if you have time to include information on the need for that request. An example would be: "Bill, we need a replacement operator at Buena High School shelter. Joe has to take his son to the doctor. Can you do it?"

Second, if you desire their loyalty, you must be prepared to give them yours. The responsibility for your ARES groups success or failure lies with you. Your loyalty must remain steadfast. Third, do not criticize a member in public unless you absolutely must. People will respond better to criticism in private. Remember that their pride and dignity are at stake. If you must criticize a member in public, or in private, make it brief, make it positive if possible, and don't criticize the member personally—direct your criticism toward the person's actions.

Fourth, recognize that factions and cliques will develop within ARES as they do with any other group. You must not become identified with any subgroup within your unit. Your impartiality will be questioned at times when it seems to members that you "always give Bill the best job."

Fifth, when a member of your group complains about another member's lack of knowledge or operating skills, keep in mind that some people simply learn quicker than others. In an emergency, you'll still want the member who is learning. You may wish to handle a problem such as this by asking the member who is upset to develop a training program in that area. Stress that his efforts will increase the effectiveness of the ARES unit.

Sixth, never discuss a member's weaknesses, faults or limitations on the air or in public. If someone complains to your publicly about another member, handle the situation as diplomatically as possible. If the conflict can be resolved by having the two members talk to each other, follow that route. If not, offer to discuss the problem privately. Your responsibility, as an EC in this situation, is to solve the problem—not to take sides. Lastly, when you find that a member is causing more harm than good to your ARES unit, it is important that you are diplomatic in your actions while keeping the effectiveness of your group as your primary consideration.

5.8 • Summary

Working with your volunteers is the most critical aspect of your job and will call for the most time and effort on your part. To work effectively with volunteers, you must first understand them and use that understanding to motivate them to do the job.

When you're leading your volunteers, you should not try to be "all things to all people." You must be a diplomat, a leader, a friend, an expert in your field, and an excellent listener. You probably won't be able to please all of the members in your group all of the time. However, you should attempt to please them whenever possible for the good of the ARES unit. Strive to "lead" you group, not simply "manage" it.

Chapter 6

Administrative

6.1 • General

Alongside your many operational duties as EC, you have administrative duties. These forms and reports may seem secondary to you now, but they will, in fact, assist you in performing your job under both routine and emergency circumstances.

The various forms and reports which you will be responsible for are, for the sake of convenience, listed under either "annual" or "as required" categories. Your SEC/DEC will determine when the "as required" forms are to be sent.

6.2 • Administrative Duties "As Required"

a) Begin an ARES membership roster listing each member's name, call, class of license, home and work addresses and phone numbers, equipment, availability, date of membership and any other pertinent information. Make this roster available to your AECs and general membership. You may wish to store this information on a personal computer which will aid in updating the data.

b) Keep an ample supply of ARES Membership Cards (FSD-224), and issue them when needed.

c) Report to your SEC/DEC as required, preferably using the Monthly EC/DEC Report form (FSD-212).

d) Keep an ample supply of ARES Registration Forms (FSD-98), and issue them as needed.

e) Issue certificates to AECs.

f) Keep an up-to-date inventory of all supplies and order new supplies as needed using the ARRL Requisition Form (FSD-124). A personal computer may aid you in keeping inventory.

g) Make Public Service Activity Reports (FSD-157) to ARRL HQ when appropriate (this includes recommending outstanding and meritorious amateurs for Public Service Awards).

h) Keep an ample supply of Certificates of Merit and award them at your discretion.

i) When deemed appropriate by your SM/SEC, submit Travel Reimbursement form (FSD-182) and/or Administrative Expense Reimbursement form (FSD-183) to your SM/SEC. Consult with them prior to applying for reimbursement to determine reimbursement policy in your section.

6.3 • Annual Administrative Duties

Listed below are the reports which you must submit annually:

a) Submit your Simulated Emergency Test (SET) report to both your SEC/DEC and ARRL HQ no later than January 31 of the following year.

b) Submit your EC Annual Report to both your SEC/DEC and ARRL HQ no later than January 31 of the following year.

Both the SET Report and EC Annual Report are mailed automatically to you from ARRL HQ in late summer.

6.4 • Supplies and Resources from ARRL HQ

Supplies you may request from ARRL HQ for yourself or your ARES members include:

ARRL Numbered Radiograms (FSD-3)
ARES Brochure (FSD-25)
ARES Registration Form (FSD-98)
Public Service Activity Report Forms (FSD-157)
Appointee Monthly Report Card (FSD-210)
Amateur Message Form (FSD-218)
Time Conversion, Prosigns (FSD-220)
ARES ID Card (FSD-224)
EC/DEC Monthly Report Card (FSD-212)
Amateur Radio Disaster Welfare Message Form (FSD-244)
Emergency Reference Information Card (FSD-255)
Field Organization Brochure (FSD-300)
ARRL Leadership Official Stationery
ARRL Placards
Assistant Emergency Coordinator (AEC) Certificate
You received many of the above items in your initial EC supplies.
There are additional resources available from ARRL Headquarters:
ARES Field Resources Manual (ARRL Product # 5439) ($5.00)
ARRL Net Directory (FSD-50; ARRL Product # 4998) ($3.00)
Public Service Communications Manual ($1.00)
Special Events Communications Manual ($5.00)

You'll find pertinent information on Amateur Radio public service and emergency communications on the ARRL World Wide Web Page, the ARRL Bulletin Board System and the ARRL Technical Information Server.

ARRL World Wide Web Page: **http://www.arrl.org**

ARRL Bulletin Board System telephone number: **860-594-0306**

If you have Internet e-mail capability, you can tap into the ARRL Technical Information Server. To have user instructions and a handy index sent to you automatically, address an e-mail message to: **info@arrl.org**

Subject: **Info Request**

In the body of the message enter:
HELP
SEND INDEX
QUIT

You may also reach us by mail, telephone and fax:

ARRL Headquarters
225 Main Street
Newington, CT 06111-1494
Telephone: 860-594-0200
Fax: 860-594-0259

Chapter 7

Training and Preparedness

7.1 • Introduction

Training your ARES group should be a continual process, and preparation for an emergency is an important part of that process. Your goal as an EC should be to make each member an excellent communicator. But, what is an "excellent communicator?" An operator may consider himself an excellent communicator if he can send CW at 50 wpm on a keyboard. He may think that regularly checking into your ARES net qualifies him as an excellent communicator. He may even think that his van which has enough radio equipment to be considered a "mobile Voice of America" makes him an excellent communicator. These qualities help, but our "Mr. Excellent Communicator" could probably use some training in procedures, operating practices and communication skills. Once he has mastered these skills, he can truly consider himself an "excellent communicator."

This may sound very basic, but training in these areas is essential if your ARES group is to be effective in an emergency. Remember: In an emergency, radios don't communicate, people do.

7.2 • Basic Communications Theory Training

The following information on basic communications was submitted by M. L. Gibson, W7JIE, and Earl Appleby, W6IIH. You may wish to plan a discussion around these principles.

Basic Theory of Telecommunications

There are six elements to any communications. Whether it is simply asking for the time of day or a complex logistic transmission, all six elements should always be present in your ARES communication.

1) *CONCEPT*: We must determine exactly what it is we wish to transmit. This is not as easy as it sounds. We must identify and understand a need, clarify and simplify it, then reduce it to its most basic and immediate essentials.

2) *DOCUMENTING*: Once we have the concept, we must determine how to deliver it to the intended receiver. We must consider the vocabulary and expression to be used and find the best way to deliver the message in a simple form. Complex word groups or difficult phrases can better be understood if simplified.

3) *TRANSMISSION*: We then have to send the message through either speech (phone), or written message forms (including CW or digital modes). Make sure the transmission is free from interference (such as loud talking in the background). Engines, aircraft, saws, and many items can

cause severe background noise that will create serious harm to the understandability of a verbal message. Plain, ordinary QRM or station interference can cause problems in many transmission modes. We must provide alternatives when QRM becomes a problem, so be prepared to change frequency or even mode of transmission as required.

4) *RECEPTION*: The person who receives a message must not only receive it, but must understand it. The relaying operator must also be able to legibly give the message to the intended receiver, thus minimizing the chance of error or misunderstanding.

5) *INTERPRETATION*: Here reception is not enough. The actual addressee must be able to correctly interpret the message as it was originally conceived and delivered to the ARES operator.

6) FEEDBACK: There must be a specific way to indicate that the first five steps have been completed successfully. This evidence of successful communication may be direct—a vehicle has been requested to return to base, and the vehicle returns to base. Or, a particular item is needed at the search camp and the item is delivered. In the case of radio messages, it may be best, depending upon the circumstances, to have the receiver repeat the message back in its entirety or at least its essential parts to insure that it is understood correctly. If there is any doubt, provide your own feedback by asking a question, requesting a repeat of the instructions, or obtaining physical proof, such as watching the direction of travel of a team dispatched to a problem situation. If you are the receiving operator, *make sure* you understand the instructions before action is taken.

Most breakdowns in communications are owing to omission of one or more of these six steps in message communication. The best-conceived and transmitted message is worthless if directed to the wrong person or if your instructions or question are ambiguous or over-ridden by other messages. Don't be afraid to ask for a repeat or an acknowledgment if you think the message is not clear. If you stick to the six elements, your messages will be nearly 100% perfect.

GENERAL PROCEDURES

1) To transmit in the voice mode, always remember to TALK ACROSS THE FACE OF THE MICROPHONE! It is unfortunate that TV shows don't use this technique when they present, for example, detective shows. Actually that mike the cop/actor appears to use is dead—they record him on a high fidelity system with a different mike. So to

make the picture appealing, the actor holds the mike six inches away and talks directly into it. This is how bad habits are picked up! If you are using a push-to-talk mike, put your lips right at the edge of the mike and talk across it. If you have a D-104 or similar fixed station microphone, it is still a good way to get crisp, clean speech across. Talking across the mike cuts down on sibilants, breath sounds, the "popping" of "P's" and similar sounds. This technique makes the communication more understandable.

2) Speak slowly, distinctly, clearly, and do not let your voice trail off at the end of words or sentences.

3) On FM, hold the transmit button down for a least a second before beginning your message. This will assure that the first part of the message is not cut off by a slow squelch system.

4) Know what you are going to say before you push the mike button. Don't clutter the air up with: "Net Control, uh, this is WA, uh, seven, uh, xyz, anda, uh will you call Mister, uh, uh, Black to uh, the radio uh, for Mister Green, uh, over?" It is very easy to confuse the whole transmission if the operator does not have the facts right on the tip of the tongue and ready to put out the message in a crisp and orderly fashion.

5) Make sure you are not on the air with someone else. Listen before transmitting—the pause you hear from the Net Control Station (NCS) may be deliberate to allow two other stations to complete a transmission.

6) Chewing gum, eating, and other similar activities tend to clutter up the clarity of your speech. Don't.

7) On 2-meter and other VHF fragment frequencies, look for a receiving "hot-spot" site and use it, particularly when on the fringes of communications. Don't walk around talking while in communications fringe areas. Repeaters have much more power than your handheld. Even if you have a good signal from the machine, it does not mean you are good into the machine.

8) Under stress, many operators have a tendency to talk fast. Even if you are in the midst of the action, remember to talk slowly and clearly in order to get the message across correctly. ACCURACY FIRST, SPEED SECOND.

9) Avoid angry comments on the air at all costs. Also, obscene statements and reflect on the Amateur Radio fraternity. Remember there are many "scanners" in use by unlicensed but interested people and, as such, your operating techniques are under observation all the time.

10) If you are relaying a message for another person, be sure you repeat the message exactly, word-for-word, as it is given to you. If it makes no sense to you, get an explanation before you put it on the air. Refer the message back to the originator for clarification.

11) Sound alert. Nothing destroys confidence as much as a bored or weary-sounding radio operator. If you are tired, get a relief operator.

12) Forget humor on the air during drills and obviously in real emergencies. A radio system suffers enough confusion without wisecracks and jokes. Amateur Radio may be a hobby to enjoy, but the ARES function is serious business and should be treated as such at all times.

13) Watch certain words. They sound almost like the opposite meaning. For example, "can't" almost sounds like "can," and with a poor signal—who knows. "Unable" is a better choice. Use "affirmative" instead of "yes." Use "negative" instead of "no." "Roger" is a good word. It means "message received," implying that it is understood. It does not mean "affirmative" or "yes." The use of Q signals on ARES voice circuits is not advisable! They are too easily misunderstood, rarely save time, and often result in errors.

14) Identification of units in a multi-station ARES function is a requirement by FCC. However, if the NCS and each of the outlying ARES stations give a complete identification at least once in a ten-minute period during the contact, the use of abbreviated call-sign identification or tactical ID is acceptable. As an example, W7XYZ can use "7XYZ" or "First-Aid 1" or "Command Central" as long as the complete call is given by W7XYZ at 10-minute intervals during the contact and at the end of the communication. See 97.119(a) of the FCC rules.

15) Always identify your unit at the beginning of each transmission. The NCS, or anyone else for that matter, needs to know who is calling because voice identification may be difficult. Identify your unit again when the message exchange is completed, as required by FCC rules.

16) The word "break" is never used UNLESS there is an emergency. Otherwise, use your call letters to gain access to the net.

17) Remember that the strongest signal "captures" the receiver on FM. When two or more stations are on the air at the same time, confusion can result. Check to see that you are not overriding someone or blanking out their communications with your signal.

18) Do not act as a "relay station" unless the NCS, or another radio station, asks for a relay—and you can fulfill the requirement at your station.

19) When transmitting numbers (house numbers, street numbers, telephone numbers), always transmit the number sequences as a series of individual numbers. Never say numbers in combinations. Example: "12345 SW 148 Ave." is given as a series "one, two, three, four, five, south west, one, four, eight Avenue." Do not say: "Twelve three forty-five south west A-hundred forty-eight Avenue." There is much confusion when sending combinations of numbers.

20) There is no such thing as "common spelling" in ARES work. If there is a proper name to be transmitted, always spell it out using the ITU (International Telecommunication Union) phonetic alphabet. Do not improvise a phonetic alphabet; if you don't know the ITU-recommended phonetics, now is a good time to learn it and use it in your daily operations (see the sidebar below).

21) Always acknowledge calls and instructions. You can acknowledge by just giving your unit identification or tactical call sign. Nothing is more disruptive to the smooth flow of communications than dead silence in response to a message. If you cannot copy, or respond to the call immediately, then tell the caller to repeat or stand by. Otherwise, acknowledge each call immediately.

22) Never acknowledge calls and instructions unless you un-

ITU-RECOMMENDED PHONETICS

A—Alfa	F—Foxtrot	K—Kilo	P—Papa	U Uniform
B—Bravo	G—Golf	L—Lima	Q—Quebec	V—Victor
C—Charlie	H—Hotel	M—Mike	R—Romeo	W—Whiskey
D—Delta	I—India	N—November	S—Sierra	X—X-Ray
E—Echo	J—Juliett	O—Oscar	T—Tango	Y—Yankee
Z—Zulu				

derstand the call or instructions perfectly. If you do not understand, ask for a repeat. Make sure you have the instruction right before acknowledgment.

23) NCS stations frequently are very busy with work that is not on the air. If you call the NCS and do not get a reply, be patient and call again in a minute or two. If it is an emergency, call more often and so state; otherwise, just space the calls to the NCS until they answer. You may be in a dead spot; try moving your position slightly until acknowledged. Above all, be patient.

24) ONLY TRANSMIT FACTS. If your message is a question, deduction, educated guess, or hearsay, identify it as such. Do not clutter up the air with non-essential information. Particularly important is information regarding ARES emergency work where rumors can be started from overhearing a transmission on a scanner or other non-ARES receiver. Be careful what you say on the air!!

25) Always know where you are located. If you are mobile or portable and moving around, always keep a sharp lookout for location identification. The NCS and many others may need to know exactly where you are physically located, so keep a sharp eye on surroundings. If called upon, you can accurately describe your location at any time. This is particularly important if you are with a search team or other mobile units.

26) Always keep a monitor on the net frequency. If you must leave the frequency, ask permission from the NCS to change. Advise the NCS of the change and always report back to the NCS when you have returned to the net frequency. It is vital that the NCS knows the whereabouts of each station in the net, and it is up to you to keep the NCS advised.

27) Stay off the air unless you are SURE you can be of assistance. It does no good to offer advice, assistance, comments or other input to a net unless you can truly provide clarification. It is better to remain silent and be thought a fool than to open your mouth and remove all doubt!

28) Many times radio conditions are poor and words must be over-exaggerated to be understandable. In general, speak very slowly and distinctly to carry through static or weak signals. The following list provides pronunciation of numbers in poor conditions:

One-"Wun"   Two - "Too"   Three - "Tharee"
Four-"Fower"   Five-"Fiyuv"   Six-"Siks"
Seven-"Sevven"   Eight - "Ate"
Nine-"Niner"
Zero-"Zearow" (The number "zero" is not to be pronounced as "oh.")

29) If you do not understand the whole message given to you or if you missed a word out of the transmission, reply with "Say again." Do not say "Please repeat" because it sounds too much like "Received" when conditions are poor.

30) When you have understood the message, acknowledge the receipt with the words "received" or "acknowledged." DO NOT use "QSL" since it may be misunderstood or even missed under poor conditions.These few rules/ suggestions are intended to help you become a better operator whether in a ham contest or an ARES mission. As you can see, most of this material is directed toward phone operations. CW and digital operations are far better described in several other ARRL publications, such as the *ARRL Operating Manual.*

Above all, analyze your present operating methods and try to polish each element so your contribution to ARES is worthwhile. The NCS may have final authority, but good, crisp operating methods and procedures almost make a net run without an NCS.

7.3 Personal Preparedness for Emergency Responders
By Jerry Boyd, KG6LF

Natural and human-caused calamities which require an Amateur Radio response continue to occur on a frequent basis across the nation and around the world. With the proliferation of cellular telephones, and, increasing sophistication of public safety communication systems notwithstanding, it is clear Amateur Radio will have roles to play in emergency communications for years to come.

No one incident in recent history supports that contention more than the tragic bombing of the federal building in Oklahoma City in April, 1995. Though public safety resources responded in great numbers from throughout the United States, accompanied by large quantities of sophisticated communications equipment, Amateur Radio operators were still relied upon for a period of several weeks to provide overall communications support. It is, doubtless, our flexibility in terms of frequencies and modes of communications which speaks against our obsolescence as an emergency communications resource. Our use of such new technology as the Automated Packet Reporting System (APRS) linked by many users to the Global Positioning Satellite System (GPS) makes us an attractive support communications entity.

Much has been written over the years about the need for and desirability of amateurs serving as emergency communicators. Even more has been written concerning the various approaches to establishing agreements and good working relationships with our clients, the types of training we need to ensure success, and how we ought to attire and comport ourselves when responding. Personal experience, along with the input of many other amateurs who have been front-line responders indicate, however, that we do not always perform well in terms of preparing ourselves to overcome the rigors of the events we respond to. The purpose of this article is to address that deficiency, discussing a personal preparedness system that will see us through our response, minimize the wear and tear on us as human beings, contribute to a better overall operation, and hasten our full recovery from the effects of a tragic incident.

Personal Preparedness

Certainly, none of us can predict exactly where or when the next calamity will occur, what type it will be, whether we will be called to serve, and if so, for how long and under what conditions. How then do we prepare personally to meet the unknown challenges which lie ahead. Public safety professionals are taught that certain "lifestyle approaches" will significantly benefit them in terms of alertness, stamina and tolerance for less than ideal working conditions, regardless of the type. I believe we can learn from them. Consistent proper diet, regular aerobic exercise such as walking or bicycling, and an adequate amount of sleep on a daily basis are important steps we can all take to prepare for those hours or even days when normality is interrupted by catastrophe.

In addition to physical preparation, the need exists to prepare psychologically for what we may one day face. Participating in realistic training exercises which utilize actual video footage of the carnage one may expect to see

in real life is one means of thus preparing. Talking about one's reaction to what is seen with a post-traumatic stress counselor in a small group setting with other responders is good "pre-event therapy;" and, by the way, participating in post-event counseling following a response to a real-time incident makes very good sense as well. Realizing that your reactions to terrible, unsettling, and often violent efforts are "normal" is very helpful both in preparing for and dealing with tragedies at the time and after the fact.

Response Kits

It is becoming very common for amateurs to respond to major calamities far from their residence and normal base of operations. In such responses, there is no fall-back to the comforts of home until one's participation is complete. While the Salvation Army, Red Cross and local residents who want to be helpful will readily supply emergency workers (including amateurs) with some hygienic necessities, the wait for these to arrive can often be uncomfortable. A small backpack-sized response kit always at the ready and carried along when responding will make a big difference in terms of the responder's comfort.

What should a good, relatively small, light weight response kit contain? Certainly, properly designed, it can carry the transceivers, batteries, cables, earphones, microphones, etc, which are the "tools of our response." That

component, however, is grist for another article. What it must also contain are items for our physical survival and comfort.

Personal Survival Kit

Disaster preparedness experts advocate a 72-hour supply of food, water and medicine on the theory (proven correct) that it may take up to three days to transport such essentials into a stricken area. For disaster service workers, such as ARES personnel, a one-day supply of food and water will suffice. Emergency responders will be the first to be provided access to water and food stuffs based upon the fact that emergency responders must be "fueled" if they are to capably assist victims. A one-day supply of water (in easy to carry/use U.S. Coast Guard-approved packets) along with a one-day ration of high energy, high fiber food bars, in an easy to wear "fanny pack" is a good idea. Both are available at marine supply outlets, mountaineering and backpacking stores, and some at drug and hardware stores. Prescription medicine needed should be carried in an amount sufficient for one week. Remember, even if you have a prescription with you there may not be a pharmacy open to fill it. Other "medicines" such as aspirin, ant-acid tablets and protective lotions such as sunscreen and insect repellent should also be carried. Some cash and coins need to be included. Don't count on open banks or function-

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PACKAGED EMERGENCY STATION

By Lee Aurick, W1SE

Perhaps you've played with the thought that it would be nice to have a "go-anywhere, anytime " HF station such as the one described here. If you have, you can start to collect and organize the various items. It's easier than you think, and now's he time to do it.

Emergency Preparation

Sitting in the back of the room during an ARES/RACES meeting some months ago, waiting to be called to have a photo made for a county ID card, my thoughts began to wander as to what could be done if I were called upon to setup an HF emergency station on short notice in a completely unplanned location. Emergencies never occur at convenient times. The advent of repeater nets and the number of people who participate in them has pretty well solved the local-area communication problems. But what about long-haul emergency traffic? From here in central Florida, the state capital at Tallahassee is more than 200 miles north. There's a real need for a reliable emergency communications link between any of several possible points here and the capital. Thinking about it, and the fact that I wouldn't know where to start, scared the daylights out of me. This area is known as the "Thunderstorm Capital of the World," with more than 100 mild to violent storms each year. In addition, we live with a six-month-long hurricane risk.

The next week or so was spent planning. What would I need to have if the Emergency Coordinator (EC) asked me to fill an important communications role at a moment's notice? Already on hand was a 1-kW gasoline-powered generator that could be loaded in or out of a car by one person. It consumes 0.8 gallons of gas every four hours; so 10 gallons of gasoline,

always on hand, provides emergency power for 50 hours of operation. Not a bad start; but a long way from a complete station.

The List Grows

The longer I thought about it, the larger the number of essential items appeared to grow. There had to be a limit. What to leave and what to take? Finally, the list of essential items began to jell. Three categories of inventory were developed. The first was principal items, such as a microphone, a key and headphones. What other items would be needed for an extended period of time in an unknown environment? What would I need to ensure a successful operation? It was much like preparing for an unscheduled Field Day, to be held at an unknown location. Small parts and tools would be secured in two suitably-sized plastic bags.

Antenna(s)

The most appealing antenna design for portable emergency work, because of its ease of installation, is the inverted V. I'd solved the challenge of hoisting ropes into trees to support antenna wires several years earlier by using a slingshot and a fishing reel. This arrangement makes it possible to shoot a one-ounce lead fishing weight over trees up to 80 feet tall. Light nylon twine is attached to the far end of the lightweight fishing line and then it's reeled in. If necessary, a heavier rope may be secured to the nylon line and pulled back over the tree. The slingshot was destined to be an important part of the portable station. But what about the antennas?

I dismissed the idea of a single multiband antenna because

ing ATM machines to convert your "plastic" into spendable cash. Proper identification, including your Amateur Radio license and ARES card should be carried along with a list of important telephone numbers to refer to when calling your employer or relatives to update them on your status and determine theirs.

Hygiene is important and a toothbrush, toothpaste, comb, shampoo, antiperspirant, and chemical hand wipes should be carried. A flashlight or chemical light stick and a portable AM/FM radio are important as are extra batteries for them. Extra clothing (including a light jacket, even in the summertime) and some type of head covering are likewise important.

Convenient carrying of the items which comprise your personal survival kit is as important as the contents. In addition to your survival kit, you will likely have radio equipment, spare batteries, power cables, an external antenna, and maybe even a computer and TNC to carry to briefcase or a duffel bag. The ability to strap your survival kit around your waist (in a large fanny pack) or carry it in a backpack should not be overlooked.

Finally, the issue of accessibility of your personal survival kit. It needs to be close at hand at all times, since if it is in one location and you are far removed in another, it does you no good at all. If you travel by motor vehicle most of the time, keep it in the vehicle. If you have a locker at work or school, that may be a good place to store such a kit. And, when you are at home, keep it where you will see it when you rush out the door in route to whatever emergency summons you. Like the commercial for a well-known credit card says, "Don't leave home without it."

7.4 • ARRL EC Training and Certification Course

The ARRL EC's Training and Certification Course (available to all ECs and DECs from your SEC and/or SM) is part of the League's commitment to excellence in modern emergency communications support. It serves to insure that official Field Organization appointees engaged in ARES work will acquire, develop and refine the skills needed to perform at a high standard when asked to respond in any emergency communications situation.

All ECs now have the opportunity (on a voluntary basis) to take this course. The principle training materials suggested for successful completion of the course are: this manual, *The FCC Rule Book*, *The Public Service Communications Manual* and *The ARRL Operating Manual*.

Upon completion of the course, each EC takes a certification exam for grading by the SEC (or other designated examination administrator). If you pass, you will receive a special certification sticker for your EC appointment certificate attesting to your successful completion of the course. Contact your SEC or SM for further details on becoming a fully certified EC.

of the bulk of the loading coils. Several other ideas were discarded before the final design suggested itself. I bought 100 feet of 22-gauge speaker wire and "zipped" it apart. From this, I cut the basic 40-meter antenna (65 1/2 feet long), then soldered lugs with "eyes" on each end of the antennas. Extensions can be easily bolted on to provide the additional length to resonate in the 75-meter band. (This adds approximately 27 feet to each side of the 40-meter antenna, and attaches with #6 bolts and nuts.) The antenna is small enough to be folded compactly and stuffed into a coffee mug. End insulators are unnecessary, as nylon twine tied to the ends of the antenna serve as insulators and as tie points for the inverted V. The compact antenna requires a center insulator with a coaxial connector that's considerably smaller than those commercially available. I used a small piece of double-sided circuit board on which a female coaxial connector was mounted. I took a small piece of Lucite and taped the mounted it at one edge with #40 machine screws. This became the terminal for the "hot" side of the antenna, connected to the coaxial connector's center conductor. The other side, the "cold" end of the antenna, is soldered to the circuit board foil through a strain-relief solder terminal.

Putting it All Together

The transceiver I use, a venerable Kenwood TS-520S, still puts out at least 100 watts on five HF bands. The reliability of this equipment is well known and its operation is understood by most hams. The rig is also forgiving of "cockpit errors" made by the occasional operator who may not be completely familiar with it. With radio and antenna assigned to the package, the next question comes to mind. How to keep all accessories, parts, tools and the radio together, and how would the station operate under unknown emergency conditions?

I've operated under emergency conditions in five hurricanes and several floods. There was often little room to operate, no place for the rig, and writing space was nonexistent. I got the idea for a self-contained box that would provide a safe enclosure for the rig and all components of the station, and offer a convenient place from which to operate and write messages.

After determining that such a satisfactory enclosure wasn't available, I decided to build one myself. Because I'm not particularly gifted in woodworking, it was perhaps the most formidable part of the project. The result was a pine box made from 1 X 12-inch lumber. I attached heavy-duty footlocker-type handles to the sides. Smaller handles are used to pull down the hinged front for an operating table (supported by short lengths of ball chain). A small handle also lifts the back half of the top for easy access to the accessories. The final design is 21 1/2 inches wide, 23 inches deep and 11 inches high. I added small wheels to the bottom of the box, a last-minute touch that became a joy, considering the weight of the fully-loaded station. I inserted L-shaped screws into the bottom of the case, just outboard of the wheels, and wound 45 feet of extra RG58A/U coax around the screws to have sufficient cable for virtually any situation.

This was a fun project and has proven to be a vital link in the emergency preparedness of Seminol County, Florida. The station has been demonstrated before a number of emergency groups. I thank Wayne Davis, KO4FY, for encouraging me to describe this project.

Chapter 8

Simulated Emergency Test (SET)

The ARRL Simulated Emergency Test is a nationwide exercise in emergency communications, administered by ARRL Emergency Coordinators and Net Managers. Both ARES and the National Traffic System (NTS) are involved. The SET weekend gives communicators the opportunity to focus on the emergency communications capability within their community while interacting with NTS nets. SET weekend is held in October, and is announced in *QST*.

Purpose of SET

To find out the strengths and weaknesses of ARES and NTS, the Radio Amateur Civil Emergency Service (RACES) and other groups in providing emergency communications.

To provide a public demonstration—to served agencies such as Red Cross, Civil Preparedness, and through the news media—of the value to the public that Amateur Radio provides, particularly in time of need.

To help radio amateurs gain experience in communications using standard procedures and a variety of modes under simulated-emergency conditions.

SET Format

The scoring format reflects broad objectives and encourages recruitment of new hams and use of digital modes for handling high-volume traffic and point-to-point Welfare reports out of the affected simulated-disaster area. Participants will find SET an opportunity to strengthen the VHF-HF link at the local level, thereby ensuring that ARES and NTS are working in concert. The SET will give all levels of NTS the chance to handle exercise-related traffic. The guidelines also recognize tactical traffic on behalf of served agencies.

8.1 • Designing Successful Exercises

By George Washburn, WA6YYM
District Emergency Coordinator
Chief Radio Officer
Santa Clara County, CA

Drills, exercises, tests. By any name, periodic exercises are used to evaluate the effectiveness of training just as classroom tests are used to test the effectiveness of teaching. Exercises are particularly important to measure the response readiness of trained organizations: military units, public safety agencies or ARES/RACES groups. They provide low risk—if not low stress—opportunities for the leadership to determine what works and what needs further development and for the membership to sharpen their personal communication skills. That is why the League strongly recommends an annual Simulated Emergency Test (SET).

However, exercises are only valuable if three conditions are met. First, the goals of the exercise must be clearly articulated. Second, the right type of exercise must be designed. And third, feedback on exercise performance must be promptly given to all participants.

This article is not a cookbook recipe for your next exercise, but rather a collection of observations about exercise design form my five years as District Emergency Coordinator and Chief Radio Officer for Santa Clara County. Perhaps some ideas may prove useful in your next communications exercise.

Exercise Goals

To be meaningful, exercises must have clearly defined goals. Such goals may include introducing new procedures, stressing some particular skill, or re-testing some aspect of a prior exercise to measure performance improvement.

The past four SETs in Santa Clara County comprise a progression in the use of our Emergency Bulletin Board System (EBBS) which links city Emergency Operations Centers (EOC) to the Operational Area EOC and to our two Red Cross chapters. In 1991, we first utilized our EBBS and that SET's goal was simply to expose EOC operators to this new system. The 1992 SET tested operator familiarity with EBBS use and introduced our new countywide net plan. In our 1993 SET, we introduced the Operational Area damage assessment form and had city EOCs send local data via the EBBS so that a countywide damage assessment could be compiled at the Operational Area EOC.

These three SETs were primarily fixed base nets—the cities communicated with the Operational Area EOC. The 1994 SET added the dimension of field damage reporting by voice radio to city EOCs with transmission of summary data by packet to the Operational Area EOC on the EBBS. This exercise closely simulated a primary role for ARES/RACES in Santa Clara County—the gathering and transmission of damage assessment information to the State Office of Emergency Services to request a Gubernatorial

Declaration of Emergency in order to obtain state aide for stricken areas.

It took four SETs to introduce and develop the EBBS and to train operators and measure their effectiveness with this new communications tool. At first, this may seem excessive for a group of volunteers who came together because of a hobby interest. However, the value of ARES/RACES to the community and its integration into local government emergency plans depend upon its effectiveness as an auxiliary communications service which will only come about by planning, training and personal commitment. So when you plan your next SET, poll the leadership to determine what your goals should be and articulate these goals to all who will participate in your exercise.

SETs are typically full scale exercises with operators responding to EOCs and field locations. They're fun, complex and prone to failure, especially when something new is introduced. The year we introduced the new countywide net plan, two cities misunderstood the new plan and spent much of the exercise calling the Operational Area EOC on the wrong repeater. While identifying areas which need improvement is a valuable part of any exercise, it's equally important for the volunteer responders to have a positive experience.

Table top and functional exercises are alternatives to the full scale exercises and are especially valuable for introducing new procedures or techniques. Their primary limitation is that fewer participants are involved.

Table top exercises are essentially role playing meetings. With one person serving as moderator, participants representing various locations or functions review their roles or respond to questions from other participants. No timeline is required although the discussion should follow a typical sequence of events. Table tops allow the participants the luxury of interrupting the exercise to discuss any aspect of the drill. They are the best way to introduce new procedures because the feedback is immediate and heard by all present. Table tops should be attended by ARES/RACES leadership personnel who can take lessons learned back to their membership for training prior to large-scale exercises.

Functional exercises utilize the same facilities as full-scale drills, whether physical facilities such as EOCs or radio nets are used. Most participants perform their typical roles while a smaller group serves as simulators. Functional exercises can be run with all participants communicating from their homes, simply adopting the roles they would have in a full-scale drill. Like the table top, a functional exercise can be moderated by a net control station. Functional exercises held on the air can be scaled to allow as many or as few participants as the exercise designers decide, but all ARES/RACES personnel can monitor the exercise for its training value.

Consider table top or functional exercises as mid-term events to be held prior to the annual full-scale SET. They provide low-stress training opportunities which can be adjusted as they progress, something which is nearly impossible during full-scale exercises.

Exercise Feedback

Table top exercises provide immediate feedback to all participants. On the air functional exercises can be immediately followed by critiques. Full scale exercises, on the other hand, are usually of such large scope that the demobilization process precludes immediate on-the-air critiques. Also, SETs have reporting requirements which contribute to delays in providing feedback.

It has been our practice in Santa Clara County to conclude our SETs with an exercise termination announcement on all nets, thanking all participants, and to demobilize. Usually by the next day, I have prepared the SET report and a summary of my observations, both of which are posted on local packet bulletin boards. Since we have a weekly training net, we hold on-the-air critiques of our exercises. I also publish my observations and the SET report in local club newsletters and invite other ARES/RACES personnel to do the same. Finally, exercise review is on the agenda for the next quarterly county-wide meeting of all Emergency Coordinator/Radio Officers (EC/RO).

Letting exercise participants know how they did is important. Doing it in a timely manner and in a positive way are equally important. Prior to the exercise, determine what facilities exist to communicate feedback to all participants.

Exercise Planning

The success of any exercise is directly proportional to the amount of planning that goes into it. Exercise design is a major responsibility of the Santa Clara County ARES/RACES staff which also coordinates RACES mutual aid, develops county-wide policies and procedures and provides overhead management teams for large events. The design of SETs in Santa Clara County has been greatly influenced by experience gained by the county staff while participating on county government exercise design teams.

A number of documents were prepared by the county staff for last year's SET. First, an outline listing the date and time, goals, scenario, responder locations, message types, net structure and exercise evaluation criteria was developed for internal use and to obtain the concurrence of the County Office of Emergency Services and the County Emergency Managers Association since, in Santa Clara County, SETs are RACES training events. An announcement, developed from that outline, was sent to all EC/ROs providing the when, where, who and what of the SET.

This announcement was followed by a complete SET package which included a set of instructions covering the dispatching of field responders and the process of gathering and consolidating field data for transmission to the Operational Area EOC. A complete scenario was included which, in addition to describing the simulated incident, addressed conditions affecting field responders such as whether their response would be impeded by simulated events. Also in the package was a timeline showing the start and stop times and the timing of messages to be sent to or generated by the Operational Area EOC. A radio plan was included to show the function of each net and the primary and alternate net frequencies and CTCSS tones. Although exercise nets generally follow our county-wide net plan, there are enough variations in each SET to warrant an exercise-specific plan. Instructions for field responders and a supply of simplified damage assessment forms completed the package.

Santa Clara County has long followed the practice of naming a simulator in each jurisdiction to receive the entire exercise package. Other participants only receive a brief overview of the exercise since, in a real incident, they would not know the entire sequence of events. In some cities, the EC/RO appoints a simulator while, in others, the EC/RO takes the simulator role and appoints an Assistant EC to assume command. To facilitate this process, all documents except the announcement and instructions are sealed in an envelope which is opened only by the simula-

tor. Simulators are encouraged to expand the SET to meet local goals provided they remain consistent with the countywide exercise scenario.

Summary

While exercise design is complex and time consuming, your design team can build on prior exercises. Documents can be updated rather than re-created each year. But, as previously stated, the value of any exercise is wholly dependent upon the effort which the exercise design team puts into it. The key elements are a clear understanding of exercise goals and a consistent approach to exercise preparation. I hope that some of these ideas and experiences can have a positive influence on your next communications exercise.

8.2 • Simulated Emergency Test Scenario: Hurricane Zoe

This is an excerpt from the transcript of the Amateur Radio Emergency Service emergency preparedness drill held May 29- June 1, 1996. It was written and performed by the Sarasota County, Florida, ARES.

During the first couple of days of the simulated emergency, ARES members followed the "progress" of Hurricane Zoe in real time with simulated National Weather Service advisories. Following protocol, preparations were made at each interval.

THIS IS A DRILL, REPEAT THIS IS A DRILL

HURRICANE ZOE FORECAST/ADVISORY NUMBER 18

NATIONAL WEATHER SERVICE MIAMI FL

2200 FRI MAY 31 1996

HURRICANE ZOE APPROACHING WEST COAST OF FLORIDA

AT 6 PM EDT, 2200Z, A HURRICANE WARNING HAS BEEN ISSUED FOR THE FLORIDA PANHANDLE, FROM PENSACOLA, FL EASTWARD TO APALACHICOLA, FL AND ON FLORIDA'S WEST COAST FROM SANIBEL, FL SOUTHWARD TO KEY WEST, FL.

A HURRICANE WATCH HAS BEEN ISSUED FROM APALACHICOLA, FL EAST AND SOUTHWARD TO SANIBEL, FL.

A COASTAL FLOOD WATCH HAS BEEN ISSUED FOR FLORIDA'S WEST COAST FROM APALACHICOLA, FL TO SANIBEL, FL. COASTAL STORM SURGE FLOODING OF UP TO 12 TO 18 FEET ABOVE NORMAL TIDE LEVELS, ALONG WITH DANGEROUS BATTERING WAVES, IS POSSIBLE IN HURRICANE WATCH AREAS. BARRIER ISLANDS AND OTHER LOW LYING AREAS SHOULD MAKE PREPARATIONS FOR POSSIBLE EVACUATIONS.

AT 6 PM, 2200Z, THE CENTER OF ZOE WAS LOCATED NEAR LATITUDE 26.8N LONGITUDE 85.0W OR 170 MILES WEST-SOUTHWEST OF TAMPA, FL.

ZOE IS MOVING NORTHEAST AT 11 MPH. THIS MOTION IS EXPECTED TO CONTINUE. LANDFALL IS NOW EXPECTED AROUND CEDAR KEY, FL, WITHIN 18 HOURS.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 970 MILLIBARS. MAXIMUM SUSTAINED WINDS 100 MPH WITH GUSTS TO 140 MPH, MAKING THIS A MINIMAL CATEGORY II HURRICANE. NO FURTHER STRENGTHENING IS EXPECTED OVER THE NEXT 24 HOURS.

HURRICANE FORCE WINDS EXTEND OUT 30 MILES FROM THE CENTER. TROPICAL STORM FORCE WINDS

EXTEND OUT 120 MILES FROM THE CENTER.

REPEATING THE 6 PM, 2200Z POSITION, LATITUDE 26.8N LONGITUDE 85.0W MOVING NORTHEAST AT 11 MPH.

THIS IS A DRILL

12 HOUR FORECAST POSITION LONG 27.5N LAT 84.0W

24 HOUR FORECAST POSITION LONG 28.0N LAT 83.0W

36 HOUR FORECAST POSITION LONG 28.5N LAT 81.5 W

THIS IS A DRILL

THIS IS A DRILL

ARES is still in "Condition One," but will go to "Condition Two" if evacuations are ordered. Emergency ARES net will be called in the event evacuation shelters are opened. Advise ARES members to gather their supplies, including the "ARES Package," and be prepared to leave for shelters on short notice.

8:30 AM (1230 Z) 1 June 1996

High water compounded with strong westerly winds are increasing the likelihood of barrier island evacuations. High level meeting with Emergency Management and Red Cross officials are being held to determine the next course of action.

8:45 AM (1245 Z) 1 June 1996

Emergency Management and Red Cross officials agree to issue evacuation order and open shelters at 9:30 AM (1330 Z). Red Cross shelter personnel are preparing shelters for opening. Sarasota County ARES is requested to supply operators for the following evacuation shelters:

#46 Tuttle Elementary School, #52 McIntosh Middle School, #56 Sarasota High School, #60 Wilkinson Elementary School, #74 North Port Glenallen Elementary School, #79 Red Cross Chapter House, #85 Laurel Middle School.

9:15 AM—approximately— (1315 Z) 1 June 1996

Activate "telephone alert" plan and advise ARES members of Emergency ARES net on 146.730 MHz. ARES now in "Condition Two," shelters are opening and evacuation begins. Read latest intermediate advisory from the National Hurricane Center.

Begin assigning and deploying amateurs to shelters. (There will be a "scenario package" placed at each shelter location. This package will contain instructions for the amateurs to follow while they are stationed at the shelters.)

As each shelter become active, have them open the "scenario package" and begin with envelope "A." Item "A" is a list of evacuees. Fill out the Red Cross forms with these names. As each shelter completes the Red Cross evacuee form, move stations to a simplex frequency to pass list information back to the Red Cross.

Ask other net check-ins who are not currently assigned to a shelter to originate a piece of traffic to the EC at the Red Cross describing their emergency station configuration, and if known, latitude and longitude. Pass this traffic on simplex if possible.

Envelope "B" asks participants at the shelters to send messages to the Red Cross headquarters requesting additional help, supplies, and to provide status information.

10:13 AM (1413 Z) 1 June 1996

A tornado spawned by Hurricane Zoe, touches down near US 41 and Stickney Point Road causing damage at

Gulf Gate Mall and tying up traffic of evacuees leaving Siesta Key.

10:17 AM (1417 Z) 1 June 1996

Advised by Emergency Management to set up ARES/RACES mobile communication trailer at Gulf Gate Mall. Assemble Communications Assistance Trailer (C.A.T.) team at staging areas ASAP. Deploy C.A.T. team when assembled. Advise when they arrive on scene. Give latitude and longitude if possible.

Send ARRL formatted traffic to Communications Assistance Trailer team.

The message content: Need accurate information on the extent and type of conditions now existing at your location. Please furnish this information and reply without delay.

NR 9 WELFARE DRILL WB4NJV ARL3 SARASOTA FL (TIME) 1 JUNE

TO: C.A.T. TEAM LEADER

ARL TWENTY TWO

GREGG, EMERGENCY MANAGEMENT

Await a reply.

In the meantime, the team members with the communications trailer open up their Scenario Envelope "A." The following simulated conditions are found at the scene:

Very severe property damage, there are many injured people, there are people trapped in buildings, search and rescue assistance is needed, and help for evacuation of injured people is needed.

In response to the Message #9 sent by Gregg, of Emergency Management, the C.A.T. team replies with the following ARL Numbered Radiograms in the text: thirteen, sixteen, twenty one and twenty six.

After all traffic has been completed, all locations open their final envelope and reply by radiogram. The message content: Thank you for your participation in this drill. To show our appreciation for your efforts, you are invited to a small picnic at the Red Cross. Advise NCS of your intentions to attend.

Thanks and 73,

Ron, WD4AHZ, Emergency Coordinator

George, AE4MH, Assistant Emergency Coordinator

Before closing the net, other participants are also invited to attend the picnic at Red Cross.

8.3 • Simulated Emergency Test: Spokane County, Washington

The Spokane County Amateur Radio Emergency Service/Radio Amateur Civil Emergency Service presented the following Simulated Emergency Test on October 21, 1995. Thanks to Gordon Grove, WA7LNC, EC Spokane County, Eastern Washington Section.

Upon leaving the meeting at Red Cross, check in immediately with VHF NCS WV7Y (on 147.30 MHz repeater) who will monitor your progress to your destination and throughout your SET operation. Make all requests of directions to VHF NCS. Check in with VHF NCS when you arrive at your assignment. Continue monitoring 147.30 MHz and notify VHF NCS anytime you leave or return to the frequency. Report any change in station operating status to VHF NCS.

HELP! Refer technical and operational questions to VHF NCS.

As you install antennas, do not climb on trees, poles or towers. Enter buildings only with the knowledge and permission of those in charge of the property.

This is a learning experience. Rotate station chores and responsibilities so that all group members get a chance to work all modes and send formal written traffic. Remember that you represent not only yourself, but Spokane County ARES, both on the air and in the field. People are watching and listening. Be professional and leave a good impression.

You will begin all three operating tasks immediately after your group's HF station is officially checked into the net on 3992 kHz. To check in, call KA7CSP on the net frequency. KA7CSP will advise you of net procedure and guide you through your passing of traffic.

TASK ONE: PARTICIPATION MESSAGE (Read very carefully!)

Each individual in each group must send one participation message to an ARRL official of his/her choice. A list of officials and addresses is included with these instructions on a separate page.

CONTENT: Your message must show a precedence of "TEST R," handling instructions of "HXB 24," and opening text of "Test message." Your message must state that you are participating in the 1995 Simulated Emergency Test, with what ARES group you are participating and the geographical location of your participation. Choose your own words but be concise.

SENDING: Participation messages are to be sent via HF only. Call HF NCS to list traffic. Expect NCS to direct you to call the station to which you need to send the traffic. You should arrange with that station to move off net frequency to pass the traffic. After the traffic is passed, move back to the net frequency and check in with HF NCS. READ CAREFULLY! Instructions follow regarding to whom you send participation message traffic. This is an originating and relaying exercise. All participation messages are to be sent "round robin." That is, all participation messages sent will be, in turn, relayed through all HF stations, Group 1 through 6 and back to the originating group station.

Group 1: 1) Originates traffic from its individual operators and sends it to Group 2;
2) Receives original and relayed traffic from Group 6 and sends it to Group 2.

Group 2: 1) Originates traffic from its individual operators and sends it to Group 3;
2) Receives original and relayed traffic from Group 1 and sends it to Group 3.

Group 3: 1) Originates traffic from its individual operators and sends it to Group 4;
2) Receives original and relayed traffic from Group 2 and sends it to Group 4.

Group 4: 1) Originates traffic from its individual operators and sends it to Group 5;
2) Receives original and relayed traffic from Group 3 and sends it to Group 5

Group 5: 1) Originates traffic from its individual operators and sends it to Group 6;
2) Receives original and relayed traffic from Group 4 and sends it to Group 6.

Group 6: 1) Originates traffic from its individual operators and sends it to Group 1;
2) Receives original and relayed traffic from Group 5 and sends it to Group 1.

TASK TWO: PERSONAL TRAFFIC

You have been asked to bring two addresses to this exercise. Using these addresses, compose two separate messages to be sent out of the county.

CONTENT: Your message must show a precedence of "TEST R," handling instructions of "HXB 48," and opening text of "Test message." The remainder of the message may be of your own design. Please keep it under 24 words in length.

SENDING: Personal messages are to be sent via VHF only. Call VHF NCS to list traffic. Expect NCS to direct you to call the station to which you need to send the traffic. NCS will assist you both in arranging to move the traffic off 147.30 and onto another repeater frequency (145.43, 146.88, 147.06 or 147.36). After the traffic is passed, move back to the net frequency and check in with VHF NCS. READ CAREFULLY! Instructions follow regarding to whom you send personal message traffic. As with TASK ONE, this is also an originating and relaying exercise. All participating messages are to be sent "round robin." That is, all personal messages sent will be, in turn, relayed through all VHF stations and back to the originating group station. CAUTION: the following table is different from that for TASK ONE traffic.

Group 1: 1) Originates traffic from its individual operators and sends it to Group 3;
    2) Receives original and relayed traffic from Group 5 and sends it to Group 3.
Group 2: 1) Originates traffic from its individual operators and sends it to Group 4;
    2) Receives original and relayed traffic from Group 6 and sends it to Group 4.
Group 3: 1) Originates traffic from its individual operators and sends it to Group 5;
    2) Receives original and relayed traffic from Group 1 and sends it to Group 5.

Group 4: 1) Originates traffic from its individual operators and sends it to Group 6;
    2) Receives original and relayed traffic from Group 2 and sends it to Group 6.
Group 5: 1) Originates traffic from its individual operators and sends it to Group 1;
    2) Receives original and relayed traffic from Group 3 and sends it to Group 1.
Group 6: 1) Originates traffic from its individual operators and sends it to Group 2;
    2) Receives original and relayed traffic from Group 4 and sends it to Group 2.
NOTICE: All stations are required to keep a log of messages originated and relayed.

TASK THREE: SERVED AGENCY TRAFFIC

Instructions may be sent to you at any time via packet concerning traffic you must originate on behalf of a served agency. These instructions will be originated by WA7LNC. The packet message you receive should be treated like a signed office message that is handed to you by an official; one that must be formatted to the ARRL form and transmitted as requested. IMPORTANT! Watch for high-level precedence that will require you to give priority to certain traffic over any routine traffic on which you may be working at the time. Remember that TASK THREE is not subject to any "round robin" relay rules. It should be delivered directly to the station of destination as requested and should not be relayed unless it is absolutely necessary for delivery.

Packet Frequencies: EWARG1 (then connect ARES) 145.53 MHz
WS7I   **144.93 MHz.**

Note: Please save hard-copy of your formal written messages and return them as advised on the air at the end of the exercise. These messages will be injected into the National Traffic System.

Chapter 9

Traffic and Net Operation

As an Emergency Coordinator, you should know how to handle messages using the ARRL format. This segment is to assist you in re-enforcing your skills. As EC, you may also find it necessary to help train your ARES members in traffic handling. Please refer to the appendices for handy operating references on traffic handling. The chapter on packet radio contains pointers on how to handle a message via packet. Here's a brief description of each part of the message and the order that it should be sent:

9.1 • From Origination to Delivery

An amateur message is first originated, then relayed and finally delivered. To make the traffic flow smoothly, there are certain forms and procedures for message handling. The station that initiates the message is called the "originator." You can originate a message on behalf of another individual whether such an individual is licensed or not. It's up to the originating station to see that the message is in its proper format.

1) Number. You assign a sequential number to each message you originate.

2) Precedences. There are four precedences that tell the stations relaying the message how important the message is. Most messages take the R or routine precedence. Others are EMERGENCY which is always spelled out. The W or Welfare precedence is used on messages asking about the health and welfare of an individual in a disaster area, or on messages originated within a disaster area saying all is well. If not all is well, then the P or Priority precedence is used to indicate the message is of high importance. Those messages with a time limit, official messages not covered by the emergency category, press dispatches, emergency-related traffic not of the utmost urgency qualify for the priority precedence.

3) Handling instructions are optional cues to handle a message in a specific way.

4) The station of origin is the call of the station that originated the message and is never changed.

5) The check is the number of words of text, letter groups and number groups in the message only. This excludes everything before the text and the signature. The receiving station will count the number of words, letter groups and number groups he has written down in the text. That number should equal the number in the check that you sent. A telephone number, such as 860 594 0200, would

count as three numbered gruops.

6) Place or origin is usually the city and state of the originating station. It can also be the location of the third party wishing to initiate a message through the originating station.

7) The filing time is optional and is the time in UTC the message was filed at the originating station.

8) The date is the month and day (year is not needed) that the message was filed at the originating station.

9) The address is the name, street and number, city and state of the party to whom the message is being sent. The telephone number of the person who is to get the message also should be part of the address.

10) The text is the message itself. It is normally hand-written 5 words per line (10 if typed) That makes counting words for the check a snap!

11) Finally, the signature. Remember that words like "sincerely" or other complementary closings are part of the text.

The term "X-ray" is often used for the period. On CW, punctuation marks are spelled out, though the X-rays are just sent as an X.

On CW, the prosign AA (sent as you would SK or AR) is used between each line of the address. The prosign BT is used to separate the Preamble (items 1 through 9) and the text. Another BT is used to separate the text from the signature. After the signature is sent, you say "end of message" on voice and send AR on CW.

On voice, if you have more messages, you say "more to follow." On CW, you send B. If you don't have any more messages to send, you say "no more" or N on CW.

Transmitting the Message

When transmitting a message on voice, it will go like this: "Copy number one, routine, WB9ZZZ, ten, Chicago, Illinois, 2125 Zulu, April 12. Miss Michelle Smith, one nine zero eight Moon Street, Northeast, Albuquerque, New Mexico, eight seven one one two, telephone two nine eight six four zero eight. Break. Mother and Dad arrived home safely Sunday afternoon X-ray love. Break Bob. End of message, no more."

On CW: NR 1 R WB9ZZZ 10 CHICAGO IL 2125 APR 12 MISS MICHELLE SMITH AA 1908 MOON STREET NORTH-EAST AA ALBUQUERQUE NM 87112 AA 298 6408 BT MOTHER AND DAD ARRIVED HOME SAFELY SUNDAY

AFTERNOON X LOVE BT BOB AR N.

Missed something?

If the receiving station didn't receive all of the message, he will ask for fills. If the street was garbled, the receiving station will simply ask "street?" Perhaps the last part of the text wasn't copied. The receiving station will ask you for "all after arrived." The receiving station missed everything after the word "arrived," so you will have to repeat the part of the message after "arrived." Don't repeat the whole message!

Common abbreviations used on CW for fills are AA (all after), AB (all before) WA (word after), WB (word before), or BN (between). Digital communication modes have handshaking between the transmitting station and the receiving station to ensure that all of the message is received.

Receiving a Message

We've already covered "fills." On phone, most stations let their VOX drop so that they can hear between sentences so if you miss something, you can easily let them know. On CW, most experienced ops use break-in, which lets the transmitting station hear between words, if not between letters! Even without break-in, the transmitting station can be broken when he pauses between AAs or BTs.

Relaying a Message

You know how to receive a message and how to transmit one. Relaying is a simple combination of both. You send the message just as it was received. The only thing you can change is to add a corrected check only if there is a problem with the word count. You send the original check corrected to the word count you have.

Delivering the Message

Suppose you pick up some traffic on a net that's for someone in your immediate area. Delivery is the object of all message handling and a message should be delivered as soon as it is within non-toll telephone range. A good way to start out is to say, "This is Amateur Radio operator Bob Smith, and I've received a greeting message from a relative of yours." Speak clearly and offer to handle a reply. If you can't deliver the message for some reason, send a service message back to the originating station, explaining that the message can't be delivered.

9.2 • The National Traffic System

The National Traffic System includes four different net levels which operate in an orderly time sequence to effect a definite flow pattern for traffic from origin to destination. A message flows through the National Traffic System in a manner similar to an airline passenger who starts out in a small residential town with a destination across the continent in another small town. He has to change carriers many times in the process, starting with a local ground conveyance to a feeder airline, to a transcontinental airline, to another feeder airline, then local transportation to deliver him to his destination. In a very similar manner, the transcontinental message starts with the originating station in a local net, is carried to the section net, the region net, the area net, via Transcontinental Corps (TCC) to a distant area net and then back down the line to delivery.

Of course the message, like the passenger, can "get on" or "get off" at any point if that's the origin or destination. Thus, a message from, say, New York to Detroit would never get on TCC, but would "get off" at area level. A message from San Francisco to Los Angeles would not go beyond region level, and one from Syracuse to Buffalo would remain inside the section net.

Messages may also be passed through NTS-affiliated Local and Section traffic nodes that employ digital modes such as AMTOR and packet, with store-and-forward capabilities and bulletin board operations. Long hauls can be made by NTS Digital Stations at HF, that interface with Section traffic nodes, and the traditional nets of the system.

A detailed explanation of the National Traffic System is found in the *Public Service Communications Manual*, published by the ARRL.

9.3 • Emergency Net Operations

This discussion of net operations is from the 1996 Northern Florida ARES Plan. Thanks to Rudy Hubbard, WA4PUP, Northern Florida Section Manager and George Thurston, W4MLE, Northern Florida Section Emergency Coordinator.

Section Nets

Emergency nets function both as traffic nets and as an ARES official liaison net. A Section National Traffic System (NTS) net becomes an emergency net frequency when the Section Emergency Coordinator or Net Manager alerts the Emergency Net. During operation, the net uses the name Northern Florida Emergency Net

The Northern Florida Emergency Net operates on the frequency of the Northern Florida Phone Net and the Northern Florida ARES Net (3950 kHz), or their alternate (7254 kHz), plus or minus a few kHz as necessary to accommodate conditions. The Emergency net may operate simultaneously on both the 40-meter and the 75 meter frequencies, each with its own Net Control and its own set of side frequencies. The "prime net" is where net control is. Frequencies on either side of the primary net, used for exchanging traffic, are called "secondary nets" or "side frequencies." The primary frequency and all its secondary frequencies are referred to together as "the net."

Each net is called the "Northern Florida Emergency Net." They are distinguished from each other by reference to the band.

Net Management

The Emergency NM is directed by the SEC. During Emergency Net operation, the managers of the Phone Net and the ARES Net alternate as Emergency Net Managers, each having full authority while on duty. Between them, they cover the full 24-hour period of operation when necessary, arranging their duty periods to suit their mutual convenience. His/her duties include appointment of Net Control Stations (NCS), keeping attendance records and maintaining a work log of net activity while in emergency session. During simultaneous operation on both frequencies, the NM has overall responsibility for both nets, and designates and Assistant NM to supervise operations on one of them.

Responsibilities of the Net Manager include:

* Overall supervision of the net's operation to maintain net discipline and efficiency, intervening as necessary to smooth out procedural problems.

* Arranging relief for NCS operators at reasonable intervals.

* Replacing NCS operators who cannot maintain effec-

tive control of the net.

    * Notifying the SEC or SM when, and if, the net encounters persistent destructive interference.

    * Recommending timely measures to the SEC to improve over-all operation of the ARES system in the existing emergency.

Secondary Nets

Traffic should not be handled on the primary frequency of the Emergency Net except during periods of slow operation. If the net frequency is continuously busy, it blocks the listing and dispatching of traffic and the conduct of other business. Mobiles, weak stations or those with MAYDAY or SOS traffic may have trouble being heard.

Net Control

Net control of a Section or District Net should not be located in the disaster area, where it would be subject to too many adverse factors. Rather, NCS should be located so as to hear stations in the impacted area as well as possible. The Net Manager should select net control operators on the basis of signal quality/strength and operating skills, and should take propagation into account. NCS will appoint relay stations as necessary.

A two-hour emergency net control shift is the norm, but the NM may adjust this duty cycle as convenience and necessity require. Gateway stations should not be used as NCS, except during very slow activity hours or when their Gateway services are not being utilized.

If destructive QRM occurs on an Emergency Net frequency, the SEC should be notified promptly by telephone or radio (but not on the net frequency). If the NCS is unable to move the troublesome station by polite request, the SM or SEC may ask the FCC to intervene.

Free Mode Operation

Free mode is always the preferred method of net control, conditions and traffic loads permitting, i.e., when net business is light. The NCS remains silent except to identify itself and the net at nine-minute intervals, and to respond to calls. Free mode or actively directed, NCS is always in charge of the frequency. Member stations still address NCS before calling another station, but the frequency is allowed to be idle between burst of activity. Weak stations have a better chance to be heard when the frequency is not continuously occupied. Directed mode is used when necessary to maintain decorum, reduce confusion and/or to facilitate traffic management. When business gets brisk enough to require an NCS, directed status resumes.

Net control operators should not maintain a constant drone, even in directed mode. This can interfere with stations trying to contact the net. During free operation, NCS should make a brief announcement about every nine minutes, identifying him/herself and the net. Something like: "This is NZ4ZZ, net control for the Northern Florida Emergency Net, in free mode operation." If curious operators ask what's gong on, NCS should have a brief, "canned" response ready, such as, "We're supporting the National Weather Service in a weather emergency."

NCS should respond immediately if other stations, not realizing the frequency is occupied, try to begin operation there. A polite but firm request to respect the emergency frequency is usually all that's required. A slight shift in frequency by the emergency net should be made if reasonably necessary.

Frequencies

Section-wide coverage during an emergency will be maintained using nets on 75 and/or 40 meters. The Net Control operator on duty will decide whether to keep the net on its current frequency or to shift to its designated alternate frequency, or to move up or down a few kHz to avoid QRM.

Note: The practice of using "BREAK" or "BREAK BREAK" to announce distress traffic should be strongly discouraged; it has no universally understood meaning. Always use the international standard "MAYDAY" or universally understood "EMERGENCY" to announce traffic of life-or-death importance. The standard CW signal is "SOS," sent as a single character—not spaced as three letters.

Chapter 10

Packet Radio

10.1 • Packet Radio Applications in ARES

The following material is adapted from two papers presented by Bob Neben, K9BL, at the Second and Third ARRL Amateur Radio Computer Networking Conferences and shows a great deal of thought and effort in attempting to "mesh" ARES/NTS and packet radio into a reliable and realistic communications alternative in the future.

Traffic handling originated in radio, using CW, as a continuance from the landline systems. This limits copy to about 15 to 25 words per minute, depending upon the operator's ability. The reliability of this system is very good, since a CW signal can punch its way through a lot of QRM and QRN. Accuracy, however, is limited to the accuracy of the sending operator and the receiving operator, both of whom are subject to fatigue.

SSB or FM adds a new dimension, though, and we can talk about 150 to 200 words per minute. At these speeds, however, QRM is more of a problem. Also, traffic cannot be passed at that speed. Assuming we have to write the traffic on a message form, speed decreases to about 25 words per minute, and we are really not much ahead of the process than with CW.

RTTY somewhat automates what we were doing manually at speeds of 60 to 100 words per minute. Reliability is about the same as voice, and accuracy is only slightly better, due to the lack of error correction. Maintaining good accuracy requires careful tuning, listening for a "hit," and human attention while typing.

The type of traffic influences both speed and accuracy. Ragchewing requires neither speed, accuracy, nor hardcopy. Formal traffic, is, however, certainly different. Any media or system used has a maximum capacity. For instance, suppose we are passing messages using 100 words per minute RTTY, with no QRM, by continuously feeding paper tape to a TD (Transmitter Distributor). The system capacity would approach 100 words per minute in this case, but the accuracy of the system—though increased—still suffers from a total lack of error correction.

Equally important though, is the type of traffic. Normal day-to-day message traffic demands only a small percentage of system capacity. Even at peak periods such as holiday traffic, it can normally be handled during the allotted time for the traffic net. System accuracy is fairly good since there is time for re-transmission requests, and no one is under any particular pressure.

Special events such as weather nets or public service events are difficult, as the traffic is not constant. System capacity is still constraining us, and the traffic demanded begins, reaches a peak, and tapers off. In the case of a weather watch, there is a scramble to get the watchers in position. Traffic builds as the NWS, EOC or whatever agency being assisted, demands more information. Occasionally just about the time information is most critical, such as when the storm is directly overhead, the system becomes overloaded, and traffic demands exceed capacity. What happens?

Well, if the net control can keep a cool head and the net is well disciplined, some of the more routine traffic becomes delayed. Accuracy decreases, however, and sorting priorities becomes a problem. Is the Mayor's "routine" acted upon before the NWS "priority"? In time, the delayed traffic is transmitted, but some of it will disappear, because it is no longer timely. This is not important, but we missed our chance. Somehow we need a better way of conducting traffic nets.

Disaster nets have less efficiency. The traffic demands build to gargantuan proportions following tornado touchdowns and other major events. The system is worked to capacity, but it takes days and even weeks to chip away at the workload. Accuracy is horrible, and faith in the system and Amateur Radio suffers in the long run. I could justify this scenario in the 1930s, but what do we answer in the computer age?

The answer to this problem is to move that system capacity line up so high that we couldn't run into it if we tried and at the same time do error checking to insure 100% system accuracy. This is exactly what packet radio will do for us in the amateur community, and it will do this at a

relatively low cost.

A packet radio station consists of your present rig (1930 vintage if you so desire, but preferably a modern FM transceiver), some kind of terminal or personal computer, and a TNC, which does the packet formatting, error checking and several other functions. TNCs generally sell in the $100-500.00 range. So the cost to upgrade your station to packet radio is perhaps the cost of a 2-meter rig.

Packet radio will do a number of things for you. It will change the system capacity line from 100 words per minute in our example (74 bauds) to 1200 bauds on VHF. On paper, that's a sixteen-fold increase. In reality, it will be less because of packet overhead, but the increase is still phenomenal. The accuracy is virtually 100%, because of error checking and system acknowledgments. Previously, the net controls could talk to one station at a time. In packet radio, numerous stations can send data to other stations on the same channel simultaneously.

Computers don't have much effect on our present traffic systems, since human intervention is usually required to check status, stored messages, etc. In packet radio, there are many uses for the computer. Messages can be sorted for a station not yet logged in. Inquiries could be handled, such as Welfare traffic. This may best be done computer to computer, which is fairly easy to set up. One computer could be tied to others in the area over landline, or another frequency to handle incoming traffic.

Our traffic nets are usually single function; VHF for local, HF for large area, etc. By using the gateway function, our LAN packet system can access worldwide via satellite. This provides a means to get traffic in and out of the local system. Perhaps we need local stations to handle the LAN. The other four stations (or more) could link to other LANs, gateways, computers, etc.

What could happen if the national emergency evacuation plan were implemented? Imagine moving 100,000 people in your community to an area 50 miles away. It is logical that Amateur Radio would be used to help coordinate this massive effort. How would we handle this? The logistics would involve massive vehicle movement, fuel, food, medical care, etc. A packet radio system could easily accommodate this. If one LAN becomes overloaded, just initiate another. The gateways would also be heavily used and again, if a gateway becomes overloaded, another gateway would be initiated.

We are still using old technological equipment. Old communications techniques are effective for day-to-day operation, but may become overloaded at the first sign of large scale activity. We have the technology to correct the situation, but we need to act now to adapt packet radio technology and procedures to our traffic-handling.

There is no such thing as a typical disaster as various officials will confirm; each one is different and unique. However, take a typical situation such as a flood. A flood affects a large area to some degree, but the flood is disastrous to only a localized area at any one time. This area is often densely populated although limited to a few square miles. Consequently it affects many people. The first priority is warning these people of danger and if necessary evacuating them to shelters. Then comes monitoring conditions, maintaining the shelters and finally cleanup. When things are habitable again, the people return to their homes and the shelters close down. The emergency is over.

The type of radio activity varies widely during the opera-

tion. Let's analyze the situation to see if there's a better way.

As soon as conditions warrant, you, as EC (or your designee), go into the area and establish the net in the temporary or permanent EOC. Local officials should already be located and have communications of their own to local public services including Red Cross and other agencies. Although slower, telephone service to these agencies can keep the amount of radio traffic manageable. Often, however, telephone service is either very limited or unavailable.

The EOCs tend to be beehives of activity. Everyone wants to head the effort to get the job done. Your group will be getting communications requests from all these agencies for everything from trivial to critical. It's nearly impossible to say "no" to the Mayor and other officials. The communication volume of traffic within the disaster area is higher than anywhere else. The farther you get from the disaster area, the less volume of traffic. With voice communication, there is no choice but to impact this high volume of traffic in the EOC. The high volume of traffic continues in the EOC and surrounding area; however, people outside the area also get on the same repeater or frequency and make the rest of the net wait.

Remember, only so many stations can actively be on a net with their traffic at one time before the frequency becomes saturated. The outlying stations with priority traffic are just as important as EOC priority traffic. Getting the activity away from the EOC doesn't help unless you can get that traffic off frequency also. You may be partially successful by using 220 MHz as an "administrative frequency," but that means listening to voice conversations on two radios. Another 2-meter frequency rig won't help because it will overpower the main 2-meter frequency and block reception. Is there a solution to this dilemma? Yes, packet radio! But how do you implement it?

For fast communication, it's hard to replace the various voice modes. But, while you don't even want to think about asking the Mayor to please type his or her message, the fact is that an enormous amount of critical data can be shifted to packet and other digital modes with ease. Why? Because the networks themselves are almost always in place. It's simply a matter of ensuring —in advance, of course—that the EOC can access the network with ease.

The 2-meter voice net would be handled pretty much as usual with a few exceptions. Routine requests should be significantly reduced, and your manpower efficiency will be increased.

EOCs usually have a least two people operating radios. One person serves as net control, and the other interfaces with officials, monitors conditions, maintains status boards, etc. It is usually difficult if not impossible for one person to serve all these functions. What's needed is one operator to be net control of the VHF FM net while the other operates the packet keyboard. Ideally, the keyboard operator screens the requests so only the urgent information is processed.

Lots of information can be transferred via packet, and a record of the traffic can be recorded to disk at one of the stations. If an item demands immediate attention at a particular station, the sender can ring the bell on that person's keyboard. Most traffic, however, will fall in the categories of either inquiry, status or update.

Any station can initiate an inquiry. Usually an inquiry is directed at the likely respondent, but perhaps it should go to everyone. If every station uses their own call, we do not

have a vehicle for an all-call. If they use a particular call sign for the duration of the emergency, such as the club call or repeaters trustee's call, then the extensions 0-15 take on a new meaning. We can call selectively (i.e., K9BL-3) or all call (K9BL). This is possible as a packet station uses a Secondary Station Identifier (1-15) at the end of the station's call sign.

Computers and packet radio go hand in glove. By using a data base program on our home or club microcomputer, disaster information can be managed like it has never been done before. Gone forever are the little scraps of paper all over the EOC. Instead there are neat, organized files that can be called out immediately by any station. It's a lot more professional to check a listing rather than searching through a yellow pad. Chances are a computer listing will be more accurate and up to date, too

These messages and associated programs will form the data base that can be examined by any of the packet stations desiring information. Within a short period of time, these data bases will contain a large amount of accurate information that will greatly aid the disaster effort and keep the workload manageable on the voice net. This means attaining a degree of efficiency never before realized while serving the needs of our community.

10.2 • Sending Messages via Packet Radio

Thanks to Don Simon, NI6A

Sending NTS messages on packet is simple and easy. If you have a friend that is already on packet and wish to send him or her a message, all that is necessary to know is that friend's home BBS (where he/she checks for mail and bulletins regularly. The format on any linked W***RLI type BBS is simply: "SP callsign @ BBS callsign." An example of sending a personal message to my friend Robby, N6LAM, who uses WD6BFC BBS would be:

"SP N6LAM @ WD6BFC." This message would be automatically forwarded from my local BBS to WD6BFC BBS and when N6LAM checked into the WD6BFC BBS in Redding he would see that mail was waiting for him. The "P" in "SP" makes the message personal so that only the originator and addressee can read it and it is not listed with the "L" command to others. This is a recommended practice as it saves congestion on busy BBS channels by not having to list irrelevant data.

Now comes NTS. What if you want to send a message to a ham friend who is not on packet? He can't pick the message up at a BBS. No one else can kill the message if it's sent to his callsign unless he/she kills it (or you do). Also what if you wanted to send a message to a non-ham (radiogram)? What if there is a disaster and the local disaster agency asks you if you can send thousands of radiograms out to relatives and friends of victims telling them that they are all right? This is where the National Traffic System (NTS) radiograms can do the job i.e., as a public service. W***RLI devised a way where third party traffic could be deleted by traffic handler. It is the "T" option. If you send a message "ST" then it can be read and killed by anyone. The message may be killed by typing "KT ####" where #### is the message number. Thus third party traffic is allowed to be deleted after it is safely in the hands of a traffic delivering or relay station even though the message is not sent to that person's own callsign. Let's now see how to actually use NTS and send a message. Remember that

the existing packet BBS system works fine for ham to ham communications as long as both hams are on packet and know each other's mailbox. Otherwise the message must be sent to special designators and in NTS format. It is important to use the accepted and nationally recognized designators if we are to not delay the traffic needlessly.

Use the Accepted Designators

Currently the nationally recognized and supported designator is the 5 digit zip code in the "to" column with the "ntsxx" abbreviation in the @ column. (Note that xx are the standard Post Office abbreviations found in the ARRL Net Directory for States and Provinces). @ NTSXX can be left out of any California bound traffic if sent within California and is only helpful for out of state traffic. Some examples for sending NTS traffic are:

ST 60625 @ NTSil	QTC 1 Chgo Il 312 453
ST 94610	QTC 1 Oakland CA 415 763
ST 06111 @ NTSCT	QTC 1 Newington CT 860 594
ST 91006	QTC 1 Arcadia CA (no phone)

If you do not know the zipcode and do not have a post office zipcode book, then the message may be sent to ntsxx @ ntsxx as we assume that everyone will know the State or Province. Messages sent with inadequate addresses and without phone numbers are not encouraged and delivery may be delayed or impossible. Remember that there is a ham on the other end who will have to deliver the message and we should make his/her job as easy as possible.

The title should indicate the destination city of the message as well as contain the first 6 numbers of the telephone number so that some delivery stations may be able to ascertain their ability to deliver without having to read the text.

NTS designators for packet depend on a complex system of HF/VHF gateways, NTS officials, linked VHF systems, BBS software support, and other groups to agree upon more efficient methods and designators. This system is constantly evolving and is subject to change. It is expected that the 5 digit zipcode @ ntsxx format will be supported for quite some time.

NTS Message Format

NTS radiogram format is like an envelope within an envelope. The outer envelope is the packet BBS message itself being forwarded via W***RLI forwarding protocols and headers. The NTS envelope is the age old NTS radiogram format which can interface with local and section nets and allows delivering stations all the necessary information to trace, service and deliver the message.

Radiogram format should follow the standard ARRL radiogram message format in order to maintain the necessary information to interface with section nets, tracing originators, and essential record keeping. Delivery nets all across the Continental USA will not accept traffic for delivery unless it is in standard NTS form.

Standard ARRL message form requires a number, station of origin, word count (check), place of origin, date and time. Give as a full an address as possible. Separate the text with a BT. End the message with the signature and the pro-sign AR. Sending "ctrl Z" will send the message to the mailbox.

For example, when connected to the WestNet linked BBS, the following commands should be used and the message format adhered to:

prompt >   (Note the ">" is your prompt)
ST 60625 @ NTSIL<cr> Use ST 5 digit zip @ NTSXX,
                           where xx is
Enter title for message> the state or province abbrevia-
                           tion.
QTC 1 Chicago Il 312 453 <cr> give quantity, qth, first
                           6 digits of
Enter text and close with a Ctl-Z (^Z):telephone number.

Nr 1 W6ABC 20 SAN FRANCISCO 1230Z NOV 25
(Standard NTS format)
MR GEORGE SMYTH   (Addressee)
2315 NORTH OAK ST   (Give FULL address)
CHICAGO IL 60625   (Include Zip as shown)
312 453 1793 BT   (Give Phone number)
                           (use BT to separate
                           text)
HI DAD ARRIVED SAFELY AT   (five words per line
SAN FRANCISCO X STOP OVER   makes it easy to
ONLY TWO HOURS THEN GUAM   check the word count)
X WILL WRITE SOON LOVE BT   (give BT at end of text)
JOHN AR   (Use AR at end of mes-
                           sage)

Include all helpful information in the address. If there is an apartment number or a space number (mobile parks), zip code, area code, etc be sure to include it when entering the message. Always check for typos.

Operating Procedures

Remember to use the "T" in the "ST" command or your message will not be able to be killed with the "KT" command at the end point. When you check into a mailbox type "LT" to get a list of NTS traffic. If you can deliver any, type "R Number" and after making sure you have 100 % copy, delete the message. To kill (delete) NTS traffic use the "KT" command followed by the message number. [Do so only after you are sure you have confirmed copy]. This erases the message so it won't be delivered twice. On some systems it also services a message back to the originator that the message has been picked up and by whom and when.

Summary:
LT   Lists all NTS traffic on the BBS
R ####   Reads the message number ####
KT ####   Kills the message number #### (Use only after you are   sure of 100% copy)
ST ZZZZZ @ NTSXX Sends an NTS message to zipcode zzzzz @ the state or
        province of xx.

Service Messages

If the message that you have QSL'd and deleted cannot be delivered because of an incorrect telephone number, incorrect address, no listing, etc., then we request that all users generate a service message back to the originating station as to the reason why the message was undeliverable. The message should be sent in standard NTS form and should be sent therefore to the 5 digit zip @ ntsxx of the originating station; who by the way, may not be the station who first put it on packet. You may not have a *Callbook* or a zip code for the originating station but the ARRL radiogram format guarantees that you have a callsign, message number, and place of origin. Thus the message is addressed to the station of origin telling him or her what message number was undeliverable and why. For example, if the *Callbook* says that W6ABC in the above example was located in San Francisco with a zip code of 94102, the message may be sent something like this from Illinois:

ST 94102 @ NTSCA <CR> QTC 1 W6ABC SF CA
NR 5 K9OZM ARL 21 CHICAGO IL DEC 5
ALAN ALLEN W6ABC
2345 MERCENARY DR
SAN FRANCISCO 94102 BT
ARL SIXTY SEVEN 1 PHONE
INCORRECT AND NO LISTING FOR
GEORGE OR G SMYTH OR
SMITH X ADDRESS INCORRECT ALSO
73 BT
DON K9OZM @ W9CD BBS <CTRL Z>

This would give W6ABC all the information necessary to be able to see what message did not get delivered and determine why. Maybe his phone book was inaccurate or maybe he made a typo when entering the data. Please refer to another portion of this manual for information on the ARL Numbered Radiograms.

Unbundle Your Messages (No Book Traffic)

If you have more than one message even if they are going to the same state or section, please send them as individual packet BBS messages. Please remember that traffic eventually will have to be broken down to the individual addressee somewhere down the line for ultimate delivery. When the originator places two or more NTS messages destined for different addresses within one packet message, eventually the routing will require the message to be broken up by either the BBS sysop or the relay station; placing an additional unreasonable burden being on them both. Therefore it is suggested that the originator to expend the extra word processing in the first place and create individual messages per city regardless if there are common parts with other messages. This means that book messages are not suitable in packet at this time unless they are going to the same city.

Amateurs are encouraged to use the NTS frequently-- the experience will be fun and your friends will appreciate hearing from you—but, most important, the experience will also give you training for emergency communications.

Chapter 11

The Emergency Plan

11.1 • General

Your ARES Emergency Plan is the culmination of your efforts as EC. It may be only one page in length or as long as a short novel. The scope of your plan depends upon the responsibilities your ARES unit has been given and the resources at your disposal.

When developing your plan, remember that it should be Flexible, Understandable and Rational (FUR) to your group and to the agencies you serve. It is impossible to plan for every emergency, so lay the groundwork which can be adapted to fit the need. Don't get caught using jargon indigenous to Amateur Radio. You may impress your fellow amateurs with your knowledge, but you may find yourself left out in an emergency simply because an official couldn't understand exactly what your group is supposed to do. Finally, your plan should be rational to all concerned. Know your personnel, their capabilities and their resources. Don't rely on a member of your group with a one-watt handheld 30 miles away to act as a relay station. You should also realize that your group should respond in a different fashion in a flood watch as compared to a search for a missing person.

11.2 • The Federal Response Plan

When disaster threatens a community—a flood, an earthquake, a chemical spill—local responders, government agencies and private organizations take action. Their goal: to save lives and help people cope with the chaos. And most of the time, with the help of the State, they have the skills and equipment to do the job. But sometimes the destruction goes beyond local and state capabilities. That's when Federal help is needed as well.

Typically, the Federal role is financial. But when State and governments are overwhelmed by a catastrophic disaster, the Federal government is called in at once to mobilize resources from any number of Federal agencies, and sometimes to perform the response functions normally carried out by State and local governments. This is when the government implements the Federal Response Plan (FRP).

Concept

The concept of the FRP is simple: In a catastrophic disaster, the Federal government provides State and local governments with the personnel, technical expertise, equipment and other resources, and assumes an active role in managing the response.

Resources are provided by one or more of 26 Federal departments and agencies and the American Red Cross. Resources are grouped into 12 Emergency Support Functions (ESFs) including transportation, fire fighting, mass care, health and medical services, publilc works, urban search and rescue and communications. Each ESF is headed by a Primary Agency. Other agencies provide support as necessary. Each agency responds within its own authorities.

Federal assistance is coordinated by the Federal Coordinating Officer (FCO), appointed by the President, and the Emergency Response Team (ERT). They work from a Disaster Field Office (DFO) near the disaster scene.

A Streamlined Process

National emergency personnel, supplies and equipment are pre-positioned. An Emergency Response Team—Advanced Element (ERT-A) is dispatched to the potential disaster area, ready to: Establish communications, help the State assess damages and identify needs, direct response activities, or handle State requests for assistance. Amateur Radio is mentioned in three places in the FRP:

ESF 2: Communications. Under Resource Requirements, asssets critical for the initial 12 hours, support for field activities, the plan refers to Amateur Radio networks/systems providing daily and emergency public service communications during emergencies and major disasters. It further refers to the League's ARES and NTS programs, and recognition of RACES and MARS.

ESF 6: Mass Care. Under the DWI (Disaster Welfare Inquiry) System, communications support agencies identified will be tasked with transmitting information to the DWI Center. "In no instance will fatality lists be transmitted via Amateur Radio or the American Red Cross 47.42 MHz system."

ESF 8: Health and Medical Services. Under "communications," Amateur Radio frequencies and networks and the United States Army Military Affiliate Radio System (MARS) will be utilized to the extent necessary to help meet the communications requirements."

11.3 • Examples of Emergency Plans

Below are examples of emergency plans (edited for use in this manual) after which you may model your specific plan, tailored to your specific needs of course.

The first plan is from the city of Bristol, Connecticut. The plan is straightforward and simple, yet it covers all bases. This is an excellent plan for a small community.

The second plan is a model section communications plan for Nevada.

11.4 • Excerpts from the Nevada Section Communications Plan

Bill Smith, Jr, W4HMV, Section Manager
Bob Davis, KG7IY, Assistant Section Manager
Joe Giraudo, N7JEH, Section Emergency Coordinator
Revised March 14, 1996

Background

The Amateur Radio Service is authorized under Part 97 of the Federal Communications Commission's rules as a "voluntary non-commercial service, particularly with respect to providing emergency communications." The American Radio Relay League (ARRL), facilitates emergency communications through its Field Organization in general, and the Amateur Radio Emergency Service (ARES) in particular.

The ARES is the emergency branch of the ARRL Field Organization. It operates under the direction of the Section Manager, an elected position within the Field Organization. There are 70 sections in the United States and its possessions. The State of Nevada is comprised of one Section.

The ARES operates to serve both governmental and non-governmental agencies through "Memoranda of Understanding," (MOUs). These MOUs are non-binding letters explaining the participating parties' roles and responsibilities and are initiated at both the national and section levels. All section-level MOUs must be approved by the Section Manager prior to execution. Agencies signatory to MOUs are referred to a "Served Agencies."

Purpose:

The purpose of this plan is to outline the ARES organization in the Nevada Section, and present the basic material required to operate effectively during an emergency situation. It will also contain in appendices, the bult of the "living document," as submitted by the various District Emergency Coordinators (DECs) and Emergency Coordinators (ECs). This plan is intended to be updated periodicallly, on an as-needed basis.

This plan is not intended to be the "last word" in emergency operations, but to be a resource in planning and operations. Any additions, deletions or corrections should be brought to the attention of the Section Emergency Coordinator. All submissions will be given due consideration for inclusion in updates as they are released.

Acronyms and Abbreviations that are utilized in the document are defined, and a roster of the Nevada ARRL Field Organization leaders is presented.

Plan Activation: In the event that a member station feels that a situation exists that could be construed as an emergency requiring the ARES organization, that station should monitor the assigned Amateur frequency utilized in the affected area. This would include apporpriate repeater output frequencies and organized, pre-determined high frequency net frequencies. If electrical service to a repeater is interrupted, stations should monitor the repeater output frequency or other pre-determined simplex frequency, as directed by the local leadership.

It is important that stations not "butt into" existing emergency communications, but instead listen and only transmit if specific assistance is requested from that station or if a clear relay can be given in times of difficult copy. Stations should conform to established net protocol at all times. Deviating from established net procedure slows and con-

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SAMPLE EMERGENCY PLAN

Amateur Radio Emergency Service
Emergency Plan for Bristol, Connecticut
1. INTRODUCTION
   1.1 The Bristol Amateur Radio Emergency Service (ARES) is composed of FCC-licensed Amateur Radio operators who have voluntarily registered their capabilities and equipment for public service communications duty.
   1.2 Under Federal regulations, Amateur Radio public service communications are furnished without compensation of any kind.
   1.3 The Bristol ARES functions under this Emergency Plan under the direction of the Bristol Emergency Coordinator (EC), who is appointed by the ARRL Connecticut Section Emergency Coordinator in consultation with the District Emergency Coordinator.
   1.4 The EC may appoint assistant ECs as needed for the ARES to function efficiently.
2. PURPOSE
   2.1 The purpose of this plan is to provide a written guide containing the minimum information that would be needed in an emergency. Each emergency is different and flexibility to provide an adequate response to each is a necessity.
   2.2 The primary responsibility of the Bristol ARES is to furnish communications in the event of a natural disaster, when regular communications fail or are inadequate.
   2.3 All drills, training and instruction shall be carried out to insure readiness to respond quickly in providing effective amateur emergency communications whenever an occasion may arise.
   2.4 The following agencies could be served during a communications emergency: Bristol Chapter, American Red Cross; Bristol Hospital; Civil Preparedness; City Hall; Fire Department; Police Department; Salvation Army; and any other agencies requesting assistance from the ARES.
3. ACTIVATING THE PLAN
   3.1 Any member of the Bristol ARES who for any reason suspects a communications emergency exists should monitor the assigned net for activity.
   3.2 If local telephone service is available, the EC and/or assistant ECs should be notified by telephone.
   3.3 In an emergency in which Amateur Radio might serve the community, Amateur Radio operators may be alerted by any city, Red Cross, Civil Preparedness, or similar official notifying the Emergency Coordinator.
4. NEED A SUBHEAD HERE?
   4.1 Local broadcast station WBIS will be contacted by the EC or his representative, as possible, for spot announcements alerting ARES members.
   4.2 If telephone service is available, the telephone tree is activated.
   4.3 Upon the awareness or notification that a communications emergency exists, members of the Bristol ARES will call into the Bristol Emergency Net on the 146.085/685 FM repeater with 146.52 FM simplex as an alternate frequency.

fuses operations.

If a member station determines that a true emergency situation exits, every effort should be made to notify the appropriate EC so that formal net operations may be established. If the appropriate EC is unavailable, the chain of command should be followed. This does not preclude operators from "auto-patching" to the emergency dispatch center or requesting assistance for smaller incidents, such a initial fire, medical, or traffic accident calls.

Calls for assistance from served agencies should be reported to the appropriate EC. This will result in the most efficient and appropriate response.

Emergency Net Call Up By the Elko ARES Team

The following is the procedure for calling a net for an actual emergency or drill.

Preamble:

"This is (YOUR CALL)... Attention all stations on frequency. Please stand by for emergency traffic. Attention all stations on frequency. Please stand by for emergency traffic. This is (a drill/ an actual emergency). This is (YOUR CALL)..."

Wait 5 to 10 seconds

Net Operations:

"Attention all stations on frequency, this is (YOUR CALL), net control station for the Elko County ARES net. This is (a drill/ an actual emergency). This is a directed net. All stations not connected with the emergency are asked to please stand by. All member stations are asked to stay on frequency until the close of the net. Please give your current availability status when you are polled during roll call.

"The communication services of the ARES TEAM is requested by (REQUESTING AGENCY). There is (VERY BREIF DESCRIPTION AND LOCATION OF THE INCIDENT). All stations stand by for roll call."

Follow standard roll call procedure noting status of each member checking in. Give a second call for late or missed members, but take no visitors. The AEC, EC, DEC and/or SEC will be copying down the status of each member as the net progresses.

Following the roll call, the AEC, EC, DEC or SEC will take over the net and direct the appropriate resources to their assigned locations. They may also request some people on net to telephone others on frequency if added personnel are required.

Net Closure:

Net Control re-assumes control of the net.

"This is (YOUR CALL). I would like to thank all stations for participating in the net. This repeater is now returned to normal amateur operation. (YOUR CALL) clear.

Section Alerting System

Primary Method: The primary method of alerting ARES personnel at the section level or outside an individual district would be via commercial telephone service.

Alternate Methods: In the event normal communications are interrupted, the following methods may be employed:

High Frequency, Emergency Nets:

The following frequencies are utilized within the State of Nevada for organized emergency nets. Contact may be attempted on these frequencies in the event that you are cut off from commercial telecommunications. Listen before transmitting! If an emergency net is in progress, do not

4.4 Mobile units are activated and dispatched.

4.5 The EC will assume net control or delegate another station as net control station (NCS). Control will be from Bristol Civil Preparedness Emergency Operating Center (EOC).

4.6 This station is designated as a "Key Station" and will be extensively utilized during a communications emergency. Key Stations have full emergency power capability with relief operators assigned to ensure continuous operation.

5. DUTIES OF NCS

5.1 The Bristol Emergency Net will be called to order by the NCS.

5.2 Members of the Bristol ARES are checked into the net from their mobiles and home stations to await further instructions.

5.3 Liaison stations to the following National Traffic System nets will be assigned:

*Connecticut Phone Net, 3.965 MHz, 6 PM

*Connecticut Net, 3.640 MHz. 7 PM and 10 PM

*Connecticut Nutmeg VHF Net, 146.28/88 FM repeater, 9:30 PM

A liaison station is also sent to 146.04/64, the FM repeater link to the "Key City" of Hartford.

5.4 Mobiles are dispatched as needed to the Bristol Chapter, American Red Cross Headquarters and the Bristol Hospital and any other agencies as required.

5.5 Operators of home stations not on emergency power

are coordinated to effectively operate the "Key Stations" as required.

6. OPERATIONS

6.1 All written messages must be in standard ARRL form.

6.2 All messages must be signed by the official who originates them, with his title, taking responsibility for their contents.

6.3 Message precedences of EMERGENCY, Priority, Welfare and Routine, as defined on ARRL Form FSD-3, shall be used on all messages.

6.4 Stations do not transmit unless invited to do so by net control.

The only exception to this is for a station having EMERGENCY traffic.

7. DRILLS, TESTS AND ALERTS

7.1 An annual test will be conducted in October in conjunction with the nationwide ARRL Simulated Emergency Test.

7.2 The Bristol ARES will regularly supply public safety communications in conjunction with local events, to test the effectiveness of the operation.

7.3 The Bristol Emergency Net meets the first Tuesday of the month at 8 PM.

7.4 At the discretion of the EC, the ARES will be activated unannounced via the telephone tree at least once per year.

interrupt! Monitor the frequency and follow the directions of the net control station.

(A detailed list of HF and VHF nets for Nevada is presented.)

The Emergency Plan shows copies of local Memoranda of Understandings. The Elko Amateur Radio Club has signed agreements with the U.S. Forest Service and the Elko Interagency Dispatch Center.

The plan includes a roster of section ARES members, sorted by district, and a list of recommended emergency supplies.

11.5 • Standard Operating Procedure (SOP)

In any emergency, situations change constantly. Your ARES group's performance will be determined by how quickly and effectively you respond to those changes. You do have several "constants" on which you can depend in an emergency, however. Your constants should be called your Standard Operating Procedure (SOP) which you may add as appendices to your emergency plan.

Your SOP should include:

♦ Members of your ARES group, their calls, responsibilities, addresses, (at home and work), telephone numbers, equipment, availability, a relative (to contact in an emergency) and any specialized training or vocation which may be pertinent.

♦ Frequencies and modes you plan to use (including back-up frequencies).

♦ List of those authorized to call an alert including alerting procedures.

♦ A detailed map (or maps) showing the staging positions (if any) for your group, offices or buildings of importance (Red Cross, etc.) and repeater sites including their coverage areas.

♦ Training procedures listing types of training and frequency of training.

♦ Floorplans of buildings your group may need to enter (such as a hospital or county courthouse).

♦ Mobilization procedures, possibly as a "check-off" sheet.

♦ List of equipment the ARES member should have ready for an emergency.

♦ Net and message handling procedures on ARES and NTS nets.

♦ Samples of paperwork needed and examples of how to properly utilize it.

♦ Names, addresses and phone numbers of key people you may need to contact in an emergency, such as: ambulance services, elected officials, fire departments, government administrators (health, social services, public works), hospitals, media (radio, TV and newspaper), pharmacies, police (local, county and state), schools, utilities.

Your ARES group's SOP should provide quick reference to your members when they are in an emergency situation. When they are in doubt, they should "read the SOP." As with the emergency plan, the SOP should be flexible (as the demands on your ARES group change), understandable (in any emergency), and rational (to an operator who may be "drafted" into service during an emergency).

11.6 • Example of Standard Operating Procedures

Generally, most SOPs cover disaster communications, SKYWARN operations, equipment checklists, hazardous materials information, personnel rosters, net procedures, message format and NTS operating procedures. An SOP designed specifically for SKYWARN net use by the Montgomery County, Maryland, ARES/RACES group is shown.

MONTGOMERY COUNTY (MD) RACES/ARES OPERATION SKYWARN WEATHER WATCH NET

I. General

Operation SKYWARN is a plan sponsored by the National Weather Service for reporting destructive storms or other severe, unusual or abnormal weather conditions. All members of Montgomery County RACES/ARES should monitor the 146.06/64 MHz repeater for call-up advisories, or 146.46 MHz simplex for operations, whenever a severe weather condition is apparent or appears to be developing. The Operation SKYWARN Weather Watch Plan will be implemented in the following sequence:

1. Non-Alert Readiness—The Emergency Coordinator (EC), or any of the assistant ECs based on his or her own judgment, may inform stations via the 146.04/64 MHz repeater that a severe weather condition may soon develop and request that all stations keep their transmissions as short as possible and allow several seconds between transmissions so that other stations may break in if necessary. This should be given as an informal advisory and not as a request to clear the frequency, but rather to keep the frequency reasonably open.

2. Standby Alert—This alert is sounded only by the EC, Assistant EC, or a Net Control Station specifically designated by the EC or an Assistant EC to issue the alert for the particular situation. This action is taken when the National Weather Service has contacted the EC or one of the Assistant ECs to request the establishment of an Operation SKYWARN Weather Watch Net. A call-up is issued over the 146.04/64 MHz, and participating stations are requested to monitor 146.46 MHz simplex for additional information.

3. Emergency Alert—This alert is issued by the EC, Assistant EC, or a Net Control Station specifically designated by the EC or an Assistant EC to do so. A directed net is established on 146.46 MHz, participating stations are checked in, and information requested by the National Weather Service is provided as well as the times at which that information is to be reported.

When requesting the establishment of an Operation SKYWARN Weather Watch Net, the National Weather Service will specify the information they wish to have reported and the times at which they wish to receive the reports. For example, they might request that observed wind speed, wind direction, temperature, type of precipitation, and presence of ice on trees be reported every hour on the half hour. The National Weather Service may also indicate particular areas in which they are interested. If they do so, attempts will be made to locate participating stations in that area.

II. Operation Procedures

The EC, Assistant EC, or a designated Net Control Station will execute the following procedure:

1. Issue a Standby Alert on the 146.04/64 MHz repeater advising all stations that an Operation SKYWARN Weather Watch Net is being established on the 146.46 MHz simplex frequency. If the alert is issued while the Net Control Operator is enroute to the Operations Room to establish the Net, an estimate of the time when the Net will be established should be given. The following call up mes-

sage is read over the repeater:

"This is __(call)__, Net Control Station for the Montgomery County RACES/ARES Public Service Amateur Radio Association. A Standby Alert is hereby issued in preparation for establishing an Operation SKYWARN Weather Watch Net. All stations are requested to monitor 146.64 MHz simplex for additional information. The Operation SKYWARN Weather Watch Net will be established at (approximately) __(time). This is __(call)__. Out."

2. Issue an Emergency Alert and establish the Operation SKYWARN Weather Watch Net. Read the following message on the 146.46 MHz simplex:

"This is WA3YOO, Whiskey Alpha Three Yankee Oscar Oscar, Montgomery County RACES/ARES Public Service Amateur Radio Association, establishing the Operation SKYWARN Weather Watch Net at __(time). This is a directed net and all communications will be carried out at the direction of this Net Control Station. Only stations with EMERGENCY traffic should break into this net. The purpose of this net is to provide information to the National Weather Service in accordance with their requests. The following has been requested from participating stations (list the requested items of information)."

Take check-ins and request all stations to standby by until the first report is due.

3. Remind all stations to monitor the frequency but to not call in unless they have emergency traffic or important information related to the alert.

4. When stations are reporting requested information, be certain that the location of the reporting station is stated. Well-known areas of the county (rather than street addresses) should be specified, e.g., Aspen Hill section of Rockville, five miles north of Gaithersburg, Montgomery County Airport, etc. After each report is given, the Net Control Operator shall relay the report by telephone to the National Weather Service (763-8300).

5. Identify the Net periodically as follows:

"This is WA3YOO, Net Control Station for the Montgomery County RACES/ARES Public Service Amateur Radio Association, conducting an Operation SKYWARN Weather Watch Net (repeat the reminder in paragraph 3 above)."

6. Keep track of all stations participating in the Net and the information reported by them. If reports of unusual weather phenomena are received, e.g., funnel clouds aloft or a tornado touchdown, ask if any other station in the same area can confirm the sighting.

7. Hold all reporting stations to short, abbreviated communications limited to the requested information only. Keep NCS transmissions as brief as possible and allow for breakers during communications with reporting stations.

8. When the National Weather Service indicates that the Operation SKYWARN Weather Watch Net is no longer needed, secure the Net. The Net is secured by reading the following message:

"This is WA3YOO, Net Control Station for the Montgomery County RACES/ARES Public Service Amateur Radio Association, thanking all stations who have participated in this Operation SKYWARN Weather Watch Net. Your help has been greatly appreciated. All stations may now secure. This Net is now secured at __(time). This is WA3YOO. Out."

NOTE: A minimum of two operators are required at the Operations Room during the conduct of an Operation SKYWARN Weather Watch Net.

Chapter 12

Disaster Communications

12.1 • Introduction

Most public-safety radio systems are designed to perform in emergencies at any time of day or night. Such systems generally fulfill the demands placed on them by "normal" (i.e., limited duration) emergencies and operate within the limits of the system's design. The inadequacies of radio systems emerge when they are over-extended or expected to perform functions beyond their design as in disasters. Communications in a bona fide disaster constitute a minor portion of any organization's yearly efforts, but constitute a critical element in the preservation of lives, property and the public welfare.

Significant technological advances have been made in radio communications equipment in recent years. Yet, while most agencies' systems perform well during every-day emergencies, it is extremely rare that any agency or jurisdiction communications system is capable of coping with a major disaster. Disaster communications can be well-organized, chaotic or somewhere in-between. Not only do disaster communications vary from disaster to disaster, they vary minute by minute in each disaster.

Preparation is the key. Your organized, well-trained ARES group with a flexible, understandable and rational emergency plan will provide communications in a professional manner, be it an emergency or full-blown disaster.

12.2 • ARES Principles of Disaster Communication

It is impossible to state exact rules that will cover every situation that arises. The good amateur faced with a disaster situation may, however, benefit greatly from certain rules of thumb. These rules are, or should be, part of his/her training in his/her ARES group. They are presented here somewhat at random and should be reviewed by all amateurs, even those not active in disaster communications preparation.

Keep the QRM level down. In a disaster, many of the most crucial stations will be weak in signal strength. It is most essential that all other stations remain silent unless they are called upon. If you're not sure you should transmit, don't. Our amateur bands are very congested. If you want to help, study the situation by listening. Don't transmit unless you are sure you can help by doing so. Don't ever break into a disaster net just to inform the control station you are there if needed.

Monitor established disaster frequencies. Many localities and some geographical areas have established disaster frequencies where someone is always (or nearly always) monitoring for possible calls. When you are not otherwise engaged, it is helpful simply to sit and listen on such frequencies, some of which are used for general ragchewing as well as disaster preparedness drilling. On CW, SOS is universally recognized, but has some legal aspects that should be considered where the need is not truly crucial. On voice, one can use "MAYDAY" (universal, the phone equivalent of SOS) or, to break into a net or conversation, the word "emergency." Avoid spreading rumors. During and after a disaster situation, especially on the phone bands, you may hear almost anything. Unfortunately, much misinformation is transmitted. Rumors are started by expansion, deletion, amplification or modification of words, exaggeration or interpretation. All addressed transmissions should be officially authenticated as to their source. These transmissions should be repeated word for word, if at all, and only when specifically authorized. In a disaster emergency situation, with everyone's nerves on edge, it is little short of criminal to make a statement on the air without foundation in authenticated fact.

Authenticate all messages. Every message which purports to be of an official nature should be written and signed. Whenever possible, amateurs should avoid initiating disaster or emergency traffic themselves. We do the communicating; the agency officials we serve supply the content of the communications.

Strive for efficiency. Whatever happens in an emergency, you will find hysteria and some amateurs who are activated by the thought that they must be "sleepless heroes." Instead of operating your own station full time at the expense of your health and efficiency, it is much better to serve a shift at one of the best-located and best-equipped stations, suitable for the work at hand, manned by relief shifts of the best-qualified operators. This reduces interference and secures well-operated stations.

Select the mode and band to suit the need. It is a characteristic of all amateurs to believe that their favorite mode and band is superior to all others. For certain specific purposes and distances, this may be true. However, the merits of a particular band or mode in a communications emergency should be evaluated impartially with a view to the appropriate use of bands and modes. There is, of course, no alternative to using what happens to be available, but there are ways to optimize available communica-

tions. Long experience has developed the following advantages:

CW Mode
Less QRM in most amateur bands.
Secrecy of communications—contents of communications are much
less likely to be intercepted by the general public to start rumors or undue concern.
Simpler transmitting equipment.
Greater accuracy in record communications.
Longer range for a given amount of power.

Voice Mode

More practical for portable and mobile work.
More widespread availability of operators.
Faster communication for tactical or "command" purposes.
More readily appreciated and understood by the public.
Official-to-official and phone-patch communication.

Digital Modes

Advantages (1) and (2) of CW, advantage (2) of voice mode, plus greater speed in record communication than some of the other modes, and—in most of these modes—error detection. In addition, digital modes offer the potential for message store-and-forward capability from within the disaster site to the "outside world." Finally, packet provides the capability of "digipeating" messages from point A to point Z via numerous automatically-controlled middle points.

The well-balanced disaster organization will have CW, phone, and digital mode capabilities available in order to utilize all of the advantages. Of course, one must make the best use of whatever is available, but a great deal of efficiency is lost when there is lack of coordination between the different types of operation in an emergency. Absolute impartiality and a willingness to let performance speak for itself are prime requisites if we are to realize the best possible results.

Use all communications channels intelligently. While the prime object of emergency communications is to save lives and property (anything else is incidental), Amateur Radio is a secondary communications means; normal channels are primary and should be used if available. Emergency channels other than amateur which are available in the absence of amateur channels should be utilized without fear of favoritism in the interest of getting the message through.

Don't "broadcast." Some amateur stations in an emergency situation have a tendency to emulate "broadcast" techniques. While it is true that the general public may be listening, our transmissions are not and should not be made for that purpose. Broadcast stations are well equipped to perform any such service. Our job is to communicate for, not with the general public.

Within the disaster area itself, the ARES is primarily responsible for communications support. When disaster strikes, the first priority of those NTS operators who live in or near the disaster area is to make their expertise available to their Emergency Coordinator where and when needed. For timely and effective response, this means that NTS operators need to talk to their ECs before the time of need so that they will know how to best respond.

12.3 • 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 Southwestern 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 a widespread disaster. A "taste" of what you might be facing in such a calamity will no doubt be of benefit to you in 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, procedures. In general, the management of most agencies is reluctant to use another agency's 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 those vital resources.
B. The greatest concentration of relief efforts is generally to be found in the incorporated cities served by agencies with paid professionals—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 public's 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. Interorganizational (multiorganizational) 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 & rescue team, and so on.

C. In some disasters:

1) It's the solitary volunteer who, alone and by chance, happens upon the 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 ECs, DECs and SECs, STMs and NMs 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.

12.4 • ARES Mutual Assistance Team (ARESMAT) Concept

The ARESMAT concept recognizes that a neighboring section's ARES resources can be quickly overwhelmed in a large-scale disaster. ARES members in the affected areas may be preoccupied with mitigation of their own personal situations and therefore not be able to respond in local ARES operations. Accordingly, communications support must come from ARES personnel outside the affected areas. This is when help may be requested from neighboring sections' ARESMAT teams. To effect inter-sectional support mechanisms, each Section Emergency Coordinator (SEC) should consider adopting the following principles in their ARES planning:

Pre-disaster planning with other sections in the division, and adjoining sections outside the division. Planning should be conducted through written memoranda and in-person at conventions and director-called cabinet meetings. An ARESMAT inter-sectional emergency response plan should be drafted.

Development of a roster of ARESMAT members able, willing and trained to travel to neighboring sections to provide communication support inside the disaster area.

Inter-sectional communication/coordination during and immediately following the onslaught of the disaster.

Post-event evaluation and subsequent revision/updating of the inter-sectional emergency response plan.

When developing ARESMAT functions, ARES leadership should include the following basic action elements:

Pre-Departure Functions

Team leaders should provide ARESMAT members with notification of activation/assignment. Credentials should be provided for recognition by local authorities. They should provide a general and technical briefing on information drawn principally from the requesting authority, supplemented by reports from Amateur Radio, commercial radio, W1AW bulletins, and ARRL officials. The briefing should include an overview of equipment and communication needs, ARESMAT leadership contacts, and conditions in the disaster area.

The host SEC's invitation, transportation (including routes in disaster area) and accommodations considerations, and expected length of deployment should all also be reviewed with the team members.

In-Travel Functions

Before and while in travel to the affected areas, team leaders should review the situation's status with the team: job assignments, checklists, affected area profile, mission disaster relief plan, strengths and weaknesses of previous and current responses, maps, technical documents, contact lists, tactical operation procedures, and response team requirements.

Arrival Functions

Upon arrival, team leaders should check with host ARES officials and obtain information about frequencies in use, current actions, available personnel, communication and computer equipment, and support facilities that could be used by the team to support the relief effort. The host's ARES plan in effect for the disaster should be obtained. A priority upon arrival should be the establishment of an initial intra-team communication network and an HF or VHF channel back to the home section for morale traffic.

Team leaders should meet with served agencies, Amateur Radio clubs' communications staff, local ARRL communications authority, and others as needed to obtain information and coordinate the use of frequencies. Communication site selections should take into account team requirements and local constraints.

In-situ Functions

Team leaders should make an initial assessment of

functioning communication facilities, and monitor host ARES officials' communications, and other response team relief efforts to coordinate operations and reduce duplication of effort. Team members should be monitored and their capabilities to perform their duties evaluated. Proper safety practices and procedures must be followed. A daily critique of communication effectiveness with served units and communication personnel should be conducted.

Pre-Demobilization and Demobilization Functions

An extraction procedure for ham communicators should be negotiated with served agencies and host ARES officials before it is needed. To get volunteers' commitment to travel and participate, they must be assured that there will be an end to their commitment. Open-ended commitments of volunteers are undesirable, partly because they make potential volunteers hesitate to become involved.

Leaders must coordinate with the host ARES officials and served agencies, and other functions to determine when equipment and personnel are no longer needed. A demobilization plan should be in effect.

A team critique, begun on the trip home, should be conducted, and individual performance evaluations on team members should be prepared. Copies of critiques should be sent to both the home SEC and in-disaster SEC. Problems stemming from personality conflicts should be addressed and/or resolved outside of formal reports, as they only provide distractions to the reports. Equipment should be accounted for.

A post-event evaluation meeting should always be conducted, and a final report prepared upon which an update to the inter-sectional ARESMAT plan can be made.

ARESMAT Member Qualifications

The individual filling the role of ARESMAT member must have high performance standards, qualifications, experience, and the ability to work with a diverse group of team members that will be required to provide relief to the affected areas. He or she must be able to work efficiently in a disaster relief operation under the most adverse conditions.

Additionally, a member should have demonstrated ability to be an effective team player, in crisis situations, a strong personal desire, and strong interpersonal communication skills. A knowledge of how ARRL, Red Cross and other agencies function at both the national and local levels is helpful. A working knowledge of the incident command system is useful as many events are managed under this system.

Members should be respected and recognized by officials and peers as a competent communicator, and should understand a broad range of disaster response organizations' capabilities and communication requirements.

Obvious, perhaps, but important: Members must be available with the consent of their employer to participate!

They should be physically fit to perform arduous work under adverse environmental conditions.

Summary

It should be noted that there is a fine balance of authority over a deployed ARESMAT. The in-disaster SEC (or delegated authority) should be able to make decisions as to use and deployment of an incoming team. Therefore, an incoming team should be prepared to submit themselves to such authority; this is evidenced by the fact that any team, internal or external, has only a limited view of the overall operation. The supervising authorities will naturally have a better overview of the whole situation.

In turn, however, the in-disaster authority should be discouraged from abusing the resources of incoming teams. Should a team no longer be required, or a situation de-escalate, the team should be released at the earliest possible time, so that they may return home to their own lives.

The ARESMAT tool should be one of "last resort—better than nothing." Whenever possible, amateurs from the affected section should be used for support. It is a lot to ask of a volunteer to travel far from home, family and job for extended periods of arduous and potentially dangerous work.

12.5 • Incident Command System

The Incident Command System (ICS) is a management tool that is rapidly adopted by professional emergency responders throughout the country. ICS provides a coordinated system of command, communications, organization, and accountability in managing emergency events. Due to the wide-spread use of ICS, Amateur Radio operators should be familiar with the system, as well as how they will interface with agencies employing ICS.

Integral to the ICS is the concept of *Unified Command*. There is only one boss, the Incident Commander, who is responsible for the overall operation. For any incident, there are a number of functions that must be performed ranging from planning and logistics to handling the press. The functional requirements of planning, logistics, operations, and finance are always present despite the size of the incident. They may be handled by a single individual for a small incident, or a "Command Staff" in a large incident. Another characteristic of ICS is "span of control." In simple terms, any manager should only directly manage a small number of people. ICS uses the number of five for organizational purposes. The number five isn't hard and fast, but provides a useful organizational guide line.

How does the Amateur Radio volunteer fit into the Incident Command System? We are expected to be communicators, and within the ICS, this would place us in the Logistic Section in the Service Branch as part of the Communications Unit. The communications unit provides all communications services for the operation.

Chapter 13

Liaison with Served Agencies

13.1 • Introduction

Your ARES group was formed to serve the public. If you're not serving the public, your unit isn't fulfilling its mission. In practical terms, this means that you must continually strive to establish and maintain a close working relationship with public safety and disaster relief agencies. This chapter will assist you in determining the agencies you can serve, the proper method of contacting them and the approach to use in order to present ARES in a professional manner.

The suggestions offered in this chapter are simply that, suggestions. Feel free to modify them to fit your situation.

13.2 • ARRL Agreements and You

ARRL has signed a number of formal statements, or memoranda, of understanding with several organizations that officially recognize mutual cooperation. These agreements lay the groundwork at the national level for joint local efforts in disasters. As EC, it is your responsibility to implement these agreements at the local level.

The following agreements will assist both you and the local office of the agency concerned. The agreements will give you a bearing of legitimacy when you are discussing ARES with the administrator of that agency. The agreements will also serve to inform—possibly for the first time—the administrator that the agency officially recognizes ARES. When you discuss ARES with organizations with which we have no agreement, mention the agencies we do have agreements with, as well as the League's involvement with NVOAD (see section 8.10). The fact that we do have several agreements with national and governmental organizations may impress upon the administrator that ARES is indeed a bona fide emergency communications service. Use these agreements as you wish, but use them!

ARRL has entered into written agreements with the following organizations:

The American National Red Cross
The Associated Public Safety Officers, Inc. (APCO)
The Federal Emergency Management Agency (FEMA)
The National Communications System (NCS)
The Salvation Army
The National Weather Service (NWS)

These six agreements are reproduced in full in the appendix of this manual. Individual copies are provided with your initial EC supplies.

13.3 • Red Cross/Salvation Army

The American National Red Cross and the Salvation Army, non-profit disaster relief agencies, should be quite familiar to you as they have been League-allies of long standing. Contacting the local offices of these two agencies is simply a matter of looking them up in your telephone directory and asking for the person in charge of communications. When discussing your group's capabilities with the administrators, emphasize the role of ARES particularly in Welfare traffic.

13.4 • APCO-International

The ARRL/APCO agreement paves the way of more cooperation between police/fire officials, etc., and ARES. The agreement is designed to establish your credibility with law enforcement personnel in emergency planning and response. The Association of Public Safety Communications Officer, International represents over 5,000 members whose primary responsibility is the management, design, maintenance and operation of communications facilities at the federal, state, county and municipal levels. The address of the APCO-International chapter in your vicinity can be obtained from APCO-International, Inc., 2040 S. Ridgewood Ave., South Daytona, FL 32119-8437.

13.5 • NCS

NCS is neither a volunteer agency nor a professional association, but an arm of the Federal government. NCS is a confederation of government agencies, established by Presidential order, responsible for ensuring that Federal telecommunications resources meet the most critical requirements for conditions ranging from normal to national emergency. The ARRL Field Organization plays a major role in communications tests sponsored by NCS to enhance the nationwide posture of telecommunications readiness for any conceivable national emergency. In helping to insure that the most critical telecommunications needs of the Federal government can be met in any possible contingency, the capabilities of radio amateurs have received recognition at the highest levels of our government.

13.6 • FEMA

FEMA is the Federal agency that provides support to the state and local civil preparedness and emergency management agencies that you will undoubtedly be working

with. FEMA HQ is located in Washington, D.C. with ten regional offices throughout the country. FEMA provides technical assistance, financial assistance and guidance to state and local governments wishing to upgrade their emergency communications and warning systems. FEMA also provides support, when required, during and after disasters. FEMA is also in charge of administering the Radio Amateur Civil Emergency Service (RACES) program. RACES is administered by your local or state civil preparedness officials. FEMA recognition of ARRL sponsored emergency preparedness programs can be a powerful tool in selling your ARES capability to local emergency management officials. Such agreements should put to rest forever the "war stories" of the long ago past when an amateur inquiry drew a "slammed door" response.

13.7 • RACES

97.407 of the FCC rules provides for RACES, the Radio Amateur Civil Emergency Service. RACES is a special phase of amateur operation sponsored by FEMA, that provides radio communications for civil preparedness purposes only, during periods of local, regional or national civil emergencies. These emergencies are not limited to war-related activities, but can include natural disasters such as fires, floods and earthquakes.

As defined in the rules, RACES is a radio service using amateur stations for civil defense communications during periods of local, regional or national civil emergencies. It is important to note that RACES operation is authorized by the FCC upon request of a state or federal official, and is strictly limited to official civil preparedness activity, in the event of an emergency communications situation. Amateurs operating in a local RACES organization must be officially enrolled in that local civil preparedness group. RACES operation is conducted by amateurs using their own primary station licenses, and by existing RACES stations. The FCC no longer issues new RACES (WC prefix) station call signs. Operator privileges in RACES are dependent upon, and identical to, those for the class of license held in the Amateur Radio Service. All of the authorized frequencies and emissions allocated to the Amateur Radio Service are also available to RACES on a shared basis. But in the event that the President invokes his War Emergency Powers, amateurs involved with RACES would be limited to the certain frequencies (while all other amateur operation would be silenced) as specified in 97.407(b)(1).

While RACES was originally based on potential use for wartime, it has evolved over the years, as has the meaning of civil defense (which is also called civil preparedness), to encompass all types of emergencies. It should be emphasized again that RACES is part of the amateur service, its regulations are part of the amateur regulations, and it operates in the amateur bands. The segments of the amateur bands it uses are shared with the rest of the amateur service in peacetime; in the event of war, its frequency segments would be exclusive.

13.8 • ARES and RACES

Although RACES and ARES are separate entities, the League advocates dual membership and cooperative efforts between both groups whenever possible. The RACES regulations make it simple and possible for an ARES group whose members are all enrolled in and certified by RACES to operate in an emergency with great flexibility. Using the same operators and the same frequencies, an ARES group

also enrolled as RACES can "switch hats" from ARES to RACES and RACES to ARES to meet the requirements of the situation as it develops. For example, during a "non-declared emergency," ARES can operate under ARES, but when an emergency or disaster is officially declared by a state or federal authority, the operation can become RACES with no change in personnel or frequencies.

Both ARES and RACES still exist, separately, in many areas. League Officials will have to determine the situation in their own area. Where there is currently no RACES, it would be a simple matter for an ARES group to enroll in that capacity, after a sophisticated presentation to the civil preparedness authorities. In cases where both ARES and RACES exist, it is possible to join both or to be involved in either. As time progresses, the goal would be the merger into one strong organization, with coordination between ARES and RACES officials using the same groups of amateurs. In some sections of the US today, the ARES structure has also been accepted as the RACES structure. For more information on RACES, contact your state emergency management or civil preparedness office, FEMA or the FCC.

13.9 • NWS

The National Weather Service (NWS) is an important agency to contact. ARES groups across the nation have established excellent working relationships with the NWS through the SKYWARN system.

SKYWARN is a tornado preparedness and severe weather program sponsored by the NWS. Radio amateurs have assisted as communicators and spotters since its inception. In areas where tornadoes have been known to threaten, NWS recruits volunteers, trains them in proper tornado and severe weather spotting procedures, and accepts the volunteers' reports during tornado or severe thunderstorm watches and warnings. By utilizing the SKYWARN volunteers, the NWS has "eyes and ears" throughout the affected area in conjunction with their sophisticated weather monitoring equipment.

Your ARES unit's services to the NWS in the SKYWARN system are twofold. Your members can be trained to be educated weather observers and you can supply real-time weather information to the NWS when requested.

In areas exposed to other weather phenomena such as hurricanes, the NWS can probably use the services of ARES as well. For example, amateurs in the Miami area are not only assisting, they are depended upon by the NWS to provide hurricane information and to disseminate that information as needed. A complete Amateur Radio station has been installed at the National Hurricane Center in Miami for this purpose.

13.10 • NVOAD

Another organization that hs emerged recently at the state level, and which has enjoyed support from ARES in some parts of the country is the National Voluntary Organizations Active in Disaster (NVOAD). After Hurricane Camille in 1969, organizations that had been involved in providing resources and services to victims and communities affected by disaster shared their mutual concern over the frequent duplication of services. These voluntary organizations encouraged each other, and representatives began to meet on a regular basis. Their purpose: to share their respective activities, concerns, and frustrations in accomplishing disaster response to victims and communities. These organizations, which today make up what is

called National Voluntary Organizations Active in Disaster (NVOAD), have met together at an annual meeting each year since 1971. Their main goal is to increase cooperation, coordination, communication, and to improve disaster legislation. ARRL has been a member of NVOAD for more than 15 years. NVOAD today provides advise and leadership, and cooperates with state VOAD organizations. It has its own logo, publishes a newsletter as well as a directory of participating organizations.

13.11 • NDMS

From time to time, ARES members may come into contact with the National Disaster Medical System. Although ARRL does not currently have a formal agreement with this organization, it has lent informal support to its operations, usually at the section level. Here are some frequently asked questions and answers on this program that may assist you in effecting your support in your section.

What is NDMS?

The NDMS is a federally-coordinated initiative to augment the nation's emergency medical response capability. The overall purpose of NDMS is to establish a single national medical response capability for: 1) assisting state and local authorities in dealing with the medical and health effects of major peacetime disasters; and 2) providing support to the military and Veteran's Administration medical systems in caring for casualties evacuated back to the US from overseas armed conflicts.

NDMS has three major components:

1). Disaster Medical Assistance Teams (DMATs) and Clearing-Staging Units (CSUs) with necessary supplies and equipment which will be dispatched to a disaster site within the United States from the country's major metropolitan areas. DMATs/CSUs may also provide NDMS patient reception services at their home locations.

2). An evacuation capability for movement of patients from a disaster area to locations where definitive medical care can be provided.

3). A voluntary hospital network which will provide definitive care.

In a domestic disaster, NDMS can be activated by Health and Human Services (HHS) when state resources have been overwhelmed and the state has requested Federal assistance. The Department of Defense will activate the system for providing care for casualties of an overseas armed conflict.

What is a Disaster Medical Assistance Team?

A Disaster Medical Assistance Team (DMAT) is composed of about 35 volunteers which include physicians, nurses, technical staff and other health professionals as well as support staff. Team members will be trained to respond to a disaster as an organized group. DMAT capability includes triage and stabilization of patients at a disaster site and provision of austere medical services at transfer points during transfer to definitive care. When teams are dispatched to the disaster site, they will bring necessary medical supplies and equipment, and also food, water and other necessary supplies.

How will patients be evacuated, received and transported to the participating NDMS hospitals?

At the disaster site, patients will be stabilized by a Disaster Medical Assistance Team and/or Clearing-Staging Unit for transport. In most cases, patients will be evacuated by air. At the airport of the NDMS reception area, patients will be met by a local DMAT which will sort, assess, and match those patients to participating hospitals, according to procedures developed by local authorities and the local area's NDMS Coordinating Center. Patients will be transported to participating hospitals using locally organized ground and helicopter transport. There are presently 107 metropolitan areas that serve as potential hosts to NDMS patients. For each NDMS area, there is a Coordinating Center , which is a Federal hospital.

Amateur Radio Support Functions

One or two, perhaps more, ARES members from the DMAT's home base could be appointed as full members to the DMAT. They would be trained and be prepared to travel with the DMAT to the disaster area.

The section ARES organization and the DMAT would cooperatively develop a plan for broad-based support in the event that the team is deployed locally for an intra-state disaster.

All ARES members in general could be trained to meet the needs of DMAT teams in a disaster area under the direction of DMAT member-hams. This is because ARES members located just outside of the disaster area could be called in to provide communications support as hams living in the disaster area would be preoccupied with personal situations and unable to assist.

ARES organizations would need to develop a plan to support each of the 74 Federal Coordinating Centers. These centers are responsible for receiving patients that have been evacuated from the disaster area and distributing them to local participating hospitals.

13.12 • Other Agencies

You may be able to assist any search and rescue groups in your area. Many of these groups rely on CB radio for communication. They may prefer Amateur Radio or use your ARES group in a supplemental communications capacity. ARES groups and REACT teams may be able to complement each other in many situations at the local level.

Your local hospitals may need back-up communications in an emergency. Some hospitals essentially lack emergency back-up communications and communications capacity between hospitals. In a large scale disaster, lateral communications (i.e., hospital to hospital, hospital to paramedic groups) is essential.

The Civil Air Patrol (CAP) is another agency you should contact. The CAP primarily assists in downed aircraft searches and other aviation-related services. In most instances they do have their own communications; however, your ARES unit may be able to assist in specialized instances.

Don't neglect charitable agencies that sponsor walk-a-thons, parades or other special events. Many of these organizations would welcome reliable communications provided by your ARES group.

While you're contacting the many agencies and organizations listed, consider lateral communications. ARES groups are in an optimum position to provide agency to agency communications in a disaster. Rarely, for example, can a public works manager talk to the Red Cross administrator under routine conditions. In an emergency it may be impossible. Your well-trained ARES group can fill this void.

13.13 • On Serving "Served" Agencies
By Rick Palm, K1CE
Field Services Manager, ARRL

Meeting the communications needs of "served" agencies is a challenging and often daunting proposition in today's complex disaster/emergency relief arena. With the proliferation of emergency relief organizations, their increasingly sophisticated needs, all competing for that scarce resource—the volunteer—coupled with the emergence of other non-ARES providers, it's enough to make an ARRL Emergency Coordinator's head spin. As more of the population moves to disaster-prone areas, and less government funding is available, more pressure is consequently placed on agencies to use (and sometimes abuse) the volunteer sector for support of their missions in disaster mitigation. Toes are sometimes stepped on and volunteer morale can be undermined.

For example, during the catastrophic flooding that occurred in northern Florida in the summer of 1994, local Red Cross officials were seen as "stealing" away ARES members from local ARES groups. The local Red Cross was reported to have undermined the local ARES management structure by directing ARES members to assignments without coordinating with the ECs in charge. In some cases, Red Cross shelter managers assigned ARES members tasks unrelated to communications support including disaster assessment, meteorological observation and shelter management. Other misunderstandings arose over Red Cross' insistence that their message format be employed over the ARRL radiogram format.

But, don't get us wrong: The League's formal relationships with the Red Cross (and other served agencies) are vitally important and valuable to radio amateurs. They provide us with the opportunity to contribute meaningfully to the relief of suffering among our fellow human beings. Another substantial benefit not to be overlooked is that these relationships lend legitimacy and credibility for Amateur Radio's public service capability, and that is important when it comes time to defend our frequencies and privileges before the FCC and Congress, and ever more challenging task. So, ARRL's relationships with the emergency/disaster relief world are to be nurtured.

What to Do?

Feel caught in the middle? Nobody can blame you, but here are some things you can do to help yourself and your ARES members in similar positions.:

It is imperative that you develop a detailed local operational plan with Red Cross (or any other served agency) managers in your jurisdiction that set forth precisely what each of your expectations are during a disaster operation. You must work jointly to establish protocols for mutual trust and respect. Make sure they know that you, as Emergency Coordinator, are the principle official of the ARES in the jurisdiction. All matters involving recruitment and utilization of ARES volunteers are directed by you, in response to the needs assessed by the Red Cross Chapter manager or his designee. Make sure your Red Cross counterpart is aware of your policies, capabilities and perhaps most importantly, your resource limitations. Let them know that you may have other obligations to fulfill with other agencies, too. Technical issues involving message format, security of message transmission, Disaster Welfare Inquiry policies, and others, should be reviewed and expounded upon in your detailed local operations plans.

Pulled Every Which Way But Loose

Another challenge you may face is the number of agencies that demand your ARES support during a disaster.

You only have some much to go around, and you can't possibly meet every agency's needs. Don't worry: we're not asking you to!

While the League maintains several formal Memoranda of Understanding (MOUs) with disaster and emergency response agencies, these documents merely set forth a framework for possible cooperation at the local level. While they are designed to encourage mutual recognition, cooperation and coordination, they should not be interpreted as to commit, obligate or mandate in any way that you must serve a particular agency or meet all of its needs in your jurisdiction. MOUs are "door openers" to help you get your foot in the door—that's all. It's up to you to decide whether or not to pursue a local operational plan with an agency, a decision that will be based on a number of factors including the local needs of the agency and the resources you have available to support those needs, given that you may have other prioritized commitments as well.

So, what to do? First, sit down with your ARES members and your SEC, and determine what agencies are active in your area, evaluate each of their needs, and which ones you are capable of meeting, and then prioritize these agencies and needs. Then, after you're all in agreement, sit down with your counterparts in each of the agencies and execute local, detailed operational plans and agreements in light of your priority list based on the above.

Having said the above, however, you should also be working for growth in your ARES program, making it a stronger, more valuable resource and hence able to meet more of the agencies' local needs. There are thousands of new Technicians coming into the amateur service now that would make ideal additions to your ARES roster. These new Technicians have hand-helds and a strong interest in emergency communications and public service. They're ripe for the picking for your ARES program! A stronger ARES means a better ability to serve your communities in times of need and a greater sense of pride for Amateur Radio by both amateurs and the public. That's good for all of us.

Another Kind of Competition

With a strong ARES program, and a capability of substantially meeting most of the local served agencies' needs, you might avoid another problem that is cropping up in some parts of the country, that of "competition" with emerging amateur groups providing similar communications services outside of ARES. Some of these groups may feel that their local ARES doesn't do the job, or personality conflicts and egos get in the way, so they set up shop for themselves, working directly with agency officials, and usurping ARES' traditional role. Some agencies have been receptive to their assistance.

There continues to be "RACES versus ARES" polarization in some areas. And some agencies, including at lease one with statewide jurisdiction, are forming their own auxiliary communications groups, and recruiting their own hams, some away from ARES.

There's not much you can do about this, except to work to find your ARES program's niche and provide the best services you can as outlined above. Strive for growth and enhancement of ARES members' abilities, and make sure you present a "professional" face to potential served agencies and your opportunities will grow. Make your program better than the next guy's, and agencies will be attracted to you.

If possible, setting egos and personalities aside, seek

out these other groups and take the initiative to try to establish a rapport, and the fact that "we're all in this together," for the good of the public and Amateur Radio. With good communication, mutual respect and understanding between you and the other groups, at the least, you should be able to coordinate you program's missions with theirs (i.e., divide up the pie, or who will do what for which agency) to foster an efficient and effective Amateur Radio response overall. At best, you may find other groups willing to fold their tents and join your camp! Try it.

13.14 • "Selling" the Agencies on ARES

In contacting a possible ARES user, remember that your final goal is to "sell" the user on your ARES groups services. Unlike professional sales, no money changes hands, but an agreement is reached benefiting both parties. The mechanics of professional sales will assist you in your efforts to increase your ARES users list. The sales approach best suited to your needs, as an EC, is consultative selling. This approach follows the rationale that the better you understand or know your user, the better position you are in to assist him.

If you're not a professional "salesperson," here are some pointers on how to "close" the sale:

1) *Know Your Product*: It's terribly hard to attempt to sell something you know nothing about! Take the time to consider both the positive as well as the negative aspects of your ARES group. The better you know your group's capabilities, the less likely you are to overstate or understate them.

2) Prospect: Sit down, preferably with your AECs, and think of agencies, organizations and groups that may need the services of ARES. The agencies and organizations ARRL has agreements with should top your list. Write all of your "prospects" down on paper. Once you've done that, think of ways you can find groups or organizations of which you may not be familiar. If you're unsure as to whether or not a group can use the assistance of your ARES group—list them anyway, at least for discussion purposes. You should have quite a list of "prospects" by this time.

3) Qualify: Consider each organization in depth. Can they really use the assistance of ARES? If so, how can they use ARES? Qualify each agency organization and group by listing at least two ways in which each can use the assistance of ARES. Those which, in your estimation, can use ARES at least three different ways will be considered your primary prospects. Those which can benefit from ARES in possibly one to two ways will be considered your secondary prospects. Those left over should be placed on a separate list and considered possibilities.

4) Contact: Set up appointments with or personally visit your primary prospects by a pre-determined date (in this way, you are setting a goal for yourself and your AECs). Your secondary prospects can be contacted at a later date (i.e., within six months). Your possibilities list can be delegated to an AEC for research, who can determine if any of the possibilities are viable. Contact them later if they are; file them for reference if they aren't.

How do you contact your prospects? The following paragraphs will deal with that question. Throughout the process, however, remember that your final goal in contacting the agency or organization is to personally meet with the person in charge and give your ARES presentation. Follow through the process one step at a time.

If you decide to initially contact the agency by telephone, you may wish to use the following introduction (although it may be modified to suit your personal style and/or the uniqueness of a particular situation):

*EC: "Hello, my name is _____. I would like to talk to the person in charge of communications."

(Experience has shown that a short introduction tends to get a better initial response than a paragraph.)

*Ask for the person's name and immediately write it down.

*When you get to talk to the person, you should explain briefly who you are and what you would like to discuss during your presentation. Don't attempt to make your "sales pitch" over the telephone. If at all possible, set up a definite appointment. Remember, the purpose of the phone call is to *set up an appointment*—not to discuss all of the advantages provided by ARES. You will cover ARES in depth during your presentation.

*Once you've set up the appointment, thank the person. You've done your job.

*Occasionally, you may have to simply walk into the agency and ask for the person in charge of communications. Do this only if repeated telephone calls have not been returned and only if you can determine that this approach will not alienate the official. If you follow this approach, remember to write that person's name down for future reference. If that person has the time to see you, you're in luck. Get ready to give your presentation.

5) Presentation: Your ARES presentation is probably the most critical element in selling ARES. This is your chance to close the "sale"! Refer Table 13-1 for a basic scenario for a successful presentation.

Table 13-1 General Format of Your Presentation

1. Formal Introduction.
2. Brief explanation of your duties and responsibilities.
3. Brief explanation of the ARRL Field Organization.
4. Statement of Purpose.
5. Demonstration (handheld, videotape, etc.).
6. Question and answers.
7. Comments about your local ARES group.
8. Determine the agency's needs.
9. Leave information.
10. Schedule second appointment.
11. Thank the administrator.
12. Leave.
13. Pat yourself on the back!

Go over your presentation several times. Consider the agency/organization and person you will be meeting. What do you know about the agency? What do you know about the person? Is the information you have factual or hearsay? Have you properly and adequately researched the agency? Are you up to speed on the capabilities of your own ARES group? It is imperative that you evaluate everything you will say or do completely—from the minute you walk in the door until the minute you leave. Remember, you are representing Amateur Radio, ARRL, ARES and yourself. Ensure that the information you intend to give during your presentation is accurate.

If you plan to demonstrate ham radio communications (through handhelds, etc.), it would be extremely wise to check and double-check that your rig is in full working order prior to your presentation. If you're going to do a roll call, make sure that as many ARES members as you can muster are standing by for you. If you're going to demonstrate the use of the autopatch, verify the following: Is the repeater up? Are you sure you can hit it? Is someone listening? Do

you have the correct access codes for the autopatch? Are your batteries good?

If you're planning to use a video or audio cassette, is it rewound to the proper point or do you have five minutes of leader prior to the program? Are you sure which format the VCR uses?

One of the best ways of getting the Amateur Radio public service message across is by showing a video from Volume 3 of the ARRL Library Tape Series. Volume 3 is titled *Disaster Preparedness/Public Service*. A most appropriate segment of this tape is titled, *At Any Moment*. It gives an overview of Amateur Radio disaster preparedness and introduction to ARES, RACES and the National Traffic System (NTS) . It was produced in 1983 and is 14 minutes long. An update to this program, *When Disaster Strikes*, is also included and was produced in 1996. The update is 7 minutes.

Volume 3 also includes the following titles: *Field Day Fever* (25 minutes); *Disaster Drill: The Big One*(12 minutes)*; Last Voice From Kuwait* (25 minutes). The cost is $12.00, and that covers duplication and shipping charges. To order Volume 3 (Product # 5463), please contact the Publications Sales Office at ARRL Headquarters.

Before leaving your home or place of business for the presentation, dress in a neat and professional manner; a conservative business suit is preferred.Please leave your bright orange ARES jumpsuit, baseball cap with scrambled eggs on the bill and your matching pocket protectors at home. Look both professional and comfortable. Try to put yourself in the place of the administrator. What would he expect to see you wearing?

When you walk into the administrator's office, make immediate eye contact, and walk toward him and shake hands. Introduce yourself by giving your name (call sign only if appropriate) and title. Speak clearly. Thank the administrator for his interest and mention that you realize his time is important so you will "get down to business." In so doing, the administrator should realize that you have no intention of "wasting" his time, and that you are acting in a professional manner.

Begin your presentation. It may go something like this:

Mr. _____, I am the Emergency Coordinator for (area of jurisdiction). I have been appointed to this position by my Section Manager who is in charge of (SM's section/state).

"If you're not familiar with the Amateur Radio Emergency Service, here is an organizational flow chart showing the persons I am responsible to and the personnel I am responsible for.

By giving him the flow chart, you've accomplished three goals: 1) he knows that you're part of a large organization, 2) he may know someone on the chart, which will aid in your credibility, and 3) he knows that you've prepared for this presentation.

"The Amateur Radio Emergency Service has been service the public in a communications capacity since 1917. We are sponsored by the American Radio Relay League, which is our national organization, and work solely on a volunteer basis. We have national working agreements with the American Red Cross, the Salvation Army and the Federal Emergency Management Agency—to name just a few.

"As Amateur Radio operators, we are licensed by the Federal Communications Commission only after passing written exams on electronic theory, communications skills, radio regulations and Morse code.

"You're probably asking yourself, `what does he want from me?' I am only asking for your assistance. My role is to serve the public in a communications capacity—and a communications capacity only—when needed. Our Amateur Radio Emergency Service group is waiting to assist you in an emergency. We just need to know how we can help.

Now you have all your cards on the table. The administrator should know exactly why you are there. With that out of the way, you can get a bit more specific in your comments.

"We cannot, and will not, guarantee that we can solve any communications problems that you may have. We can guarantee that we can assist you, and possibly help you, in any communications problem you may encounter in an emergency. We will furnish the manpower, equipment and expertise at no cost to your organization when you want us to.

Stress the fact that your group wishes to help him in a communications capacity only. Reassure him that he is the boss.

"Our Amateur Radio Emergency Service group totals _____ members who serve in a volunteer capacity. We hold drills (weekly,_etc.) to increase our communications skills and to improve our emergency procedures.

"Here is a list of our ARES members which doubles as a call-up list in an emergency. (Again, this will reinforce the goals you met with the flow chart.) If an emergency should happen, we can have _____ operators on the air in _____ minutes ready to provide communications. I am sure of this, as we practice our call-up procedure every _____."

If you have a demonstration planned, now is the time to begin.

If you have a handheld—and are certain that you can contact someone on frequency or hit the autopatch—show him the handheld and explain that virtually all of your ARES members have similar radios.

Explain, in general terms, what a handheld is, how you use it, and the fact that you can legally use the autopatch. Experience has shown that the more comfortable the administrator feels about the radio, the more impressed he will be with your demonstration.

If using a handheld with an autopatch, you may wish to call the administrator's office, home or friend. You may even wish to have the administrator "dial" the number. Ensure that he knows how to operate the handheld in autopatch operation, i.e., when to depress the push-to-talk button.

Mention to the administrator that the handheld operates just as well out in a field or wooded area as it does in his office. Tell him, in generalized terms, how long your handheld can operate on battery power, the range of your handheld and the range of a mobile in your area.

If you have planned to show a videotape, such as *At Any Moment* or *When Disaster Strikes*, now is the time to do it. Give a short introduction of the tape which you should have previewed several times to increase your familiarity of the tape's topics.

If the administrator has any questions during your presentation and demonstration, consider it an indication of interest. If he doesn't, you're going to have to decide on some way to interest him. You may want to invite him to listen to your ARES net during its next session or to visit a hamshack.

It is extremely important not to get "bogged down" in

technical details or ham jargon when answering his questions. Answer his questions honestly, and in a way that he can understand.

If the administrator has no questions—or after the question and answer session—you may wish to add any additional information bout your ARES group, as appropriate.

Your next step will be to determine the agency's (or user's) communications needs. By consulting with the agency, you must find out exactly: a) how they communicate on a daily basis; b) how they plan to communicate under extreme circumstances; c) how effective and realistic their plans are; and d) how an ARES group can assist. Refer to Table 13-2, a questionnaire to assist you during your initial consultation.

Don't make the mistake of talking to an administrator for 15 minutes during your initial presentation and then saying, "You can depend on us in an emergency." You are in no position to even attempt to make such a statement until you thoroughly understand the communications needs of that specific agency.

If you are referred to another person to get the answers from, write that person's name down immediately, but stay in the administrator's office. He is the person who will ultimately decide whether of not your ARES unit will be utilized.

Now is the time to leave any pertinent hand-outs or brochures. Give him something to read, but don't burden him with stacks of information. Consult with your SEC/DEC about the information you should leave, if you are in doubt. Ensure that you leave a letter of introduction and your name, call, address and telephone number for his files. Refer to Table 13-3. You may wish to design a folder for the hand-outs. This will look more professional and will aid in keeping your information together in his files. Arrange to have a second, follow-up, meeting with the administrator to discuss your communications plans for his agency. If at all possible, arrange to meet within the next two weeks when the administrator will be more likely to have the initial meeting fresh in his memory.

Thank the administrator for his time. Shake his hand and leave the office. Don't overstay your welcome. You've done your job.

6) Follow-up: Within two days, send a letter to the administrator thanking him for his time and interest. Type the letter on ARRL Leadership Official stationery.

Table 13-2: Sample ARES Questionnaire for User Agencies

1. Has your agency been in an emergency situation in this area? What emergency? When?

2. If so, how would you rate your present communications systems? Why?

3. If your local agency has not been involved in an emergency situation, do you think your communications systems are sufficient? Why?

4. Do you depend on telephone for communications in an emergency situation?

5. If so, would lack of telephone service cause a problem with your agency in
an emergency? How would you correct the problem?

6. In an emergency, would your agency need personnel in the local area of the disaster?

7. Would you need communications with these people? Which people (i.e. supervisors, key people, etc.)?

8. If so, how would you communicate?

9. Would your agency find it advantageous to have interagency communications with other agencies in an emergency? Which agencies?

10. What area does your agency cover? Will your personnel be mobile or on foot in an emergency?

11. Would you need a communications outlet in this building? Where?

12. Do you depend on a commercial repeater for mobile or pager communications?

If so, do they have emergency power?

13. Do you have a back-up communications system? Does it work as well as expected? Has it been tried in an emergency?

14. Would your personnel be in favor of having a radio operator "shadowing" them and relaying your decisions and comments to them?

15. (Optional) Would your agency find it advantageous to have a telephone via radio from the disaster area?

Table 13-3: Sample Letter of Introduction

The Amateur Radio Emergency Service (ARES) comprises volunteer Amateur Radio operators who desire to assist other public service agencies and non-profit organizations whenever needed.

ARES is sponsored by the American Radio Relay League (ARRL), and is dedicated to public service, not to any governmental agency. ARES is organized from the national to the local level through a series of managers, each with specific duties and responsibilities.

Local level managers, or Emergency Coordinators (ECs), are appointed by a Section Manager (who usually has jurisdiction over an entire state), and have certain parameters in which they must operate. ECs are appointed on the basis of expertise in communications, dedication to public service and a sense of responsibility to their community.

Amateur Radio operators daily communicate next door, across town, across the state, around the world, and even to satellites (which they've built) in orbit. They have assisted thousands of times providing back-up communications, and in hundreds of instances, provided the only communications outlet.

ARES members simply desire to offer their services—at no fee whatsoever—for the public good.

ARES will assist you in a communications capacity only.

For more information on ARES, please contact:

Emergency Coordinator

Telephone

13.15 • Summary

Grass-roots action is the name of the game when it comes to achieving effective liaison. Formalized memoranda as discussed earlier in this chapter serve to facilitate the interface between League officials at the section and local level with your counterparts in the served agencies. (Note: the Field Services Department at HQ has made available a "generic" Local Memorandum of Understanding to assist you in reaching formal agreements with local serviced agencies. Since your SM must logically be aware of any agreements signed by ARRL Leadership officials within the section, these LMOUs are available only from your SM or designee. Contact your SM or SEC for further details.) With the proper groundwork accomplished in advance, recognition among those agencies having communications needs can be dramatically increased. It's symbiotic. These agencies need us, and we want to help. Now that all the necessary introductions have been made, the rest is easy, for we are indeed the experts in meeting communications requirements of every sort.

Chapter 14

The Michigan Story— Interacting with Public Officials

ARRL Great Lakes Division Director George Race, WB8BGY, filed the following reports when he served as Section Manager of Michigan. The reports have been edited for use in this manual. The story concerns their organizational efforts within the Michigan section. Their successful experiences should have broad-based applicability to ARES groups throughout the nation.

The Michigan Section Structure—Concepts and Organization

As well defined and organized as a Section structure may appear, there is still a major missing link that is sometimes difficult to overcome, that is, the link between state and local government officials and the League's volunteers. In some areas, these volunteers have worked closely with government agencies, have earned their respect and confidence, and are utilized to the fullest extent. In other areas, ARES volunteers find it difficult to become associated with government agencies to any extent. What makes the difference?

In every emergency, there is a government agency directly charged with the first response. Any volunteer assistance must be first accepted by the government and then controlled by a government agency. No matter how great your Amateur Radio resources are, or what needed communications services your group can provide, you will, for example, have great difficulty getting through the police barricades at the extremes of any disaster area without the proper credentials. This is a real-life situation that many volunteer's have faced over the years. How do you become accepted as a bona fide government volunteer resource? It takes a major commitment on the part of both government and its volunteers.

How Government Sees You

The first and most important step is to meet with the local government official who is in charge of emergency management for your area. To many emergency management officials, the word "volunteer" invokes an immediate sense of one or more of the following: we don't need them; they are the source of an unpleasant experience in the past; they want to tell us how to do our job; we can't seem to control them; or they are unwilling to make a commitment

to the kind of training our volunteers need and must have.

Unfortunately, most of this is true from their point of view. The bottom line is simple; government agencies must be able to give direction to, and have control of, all of their volunteer resources during any emergency operation. In any situation, volunteers must be part of the solution and never a part of the problem.

By now, I seem to have painted a pretty bleak picture. But, let's not give up quite yet! Let's look at the volunteer resources that government officials do use—volunteer firemen, reserve police officers and deputies, emergency medical technicians and CAP just to name a few. What makes these groups special? They have an inside track, they are part of government, they train, they plan, they have organization, they know how to follow orders and take direction. I can hear you saying it now, "hey, wait a minute, we do all of these things so why are we not part of the plan?" The answer is simple, we need a category to fall under that is part of government. That category exists and is called RACES.

RACES Past and Present

During World War II, Amateur Radio operation was of course suspended. RACES was formed in the early 1950s when the Federal government realized it probably was not in the best interest to shut down all Amateur Radio operation in time of war. RACES groups flourished in the 50s and early 60s. When Federal funding for the RACES program and RACES equipment was removed in the middle 60s, the RACES program suffered a major blow. Most officials looked at RACES as a wartime program only, providing one last means of communication using Amateur Radio when everything else had failed or was destroyed. This doomsday outlook by officials has led to the near death of the total RACES program. The program was put aside, for the most part, with the bucket of sand and the white civil defense helmets.

This is not to say that RACES did not survive in some areas. There are still core groups of RACES operations all over the country. But, in some areas there is still stiff competition between ARES and RACES. I view this as a total undermining of the combined resources, using Amateur Radio, that we can make available to government

officials in times of emergency. Here in Michigan, we have taken the first steps to put aside the ARES/RACES barrier that has separated these groups.

In the middle 70s, I became the EC of Jackson County. Even though our Jackson County emergency management coordinator used Amateur Radio to it's fullest extent in the county plan, there seemed to be other wide-reaching problems that needed to be addressed. A major problem occurred when amateurs were needed in other counties; the local county government ID card only allowed you to gain access, as a volunteer, to disaster areas in the county of issue.

It was at this time that I learned that there was a State RACES card available through the county emergency management coordinator. I took the required exam, loyalty oath, and background check. Finally I had in my possession one of the prize State RACES cards.

The following spring, a tornado devastated the village of Augusta, in Kalamazoo County, about 50 miles away. In a very few hours, it become apparent that the amateurs providing the communications at the sight were going to need relief. The call went out for help. Two stipulations were made by officials. You must have your own portable 2-meter equipment, and must have a State RACES card to be admitted to the area. We were able to get together a group from our county that met these requirements.

The next morning, we arrived at the outer perimeter. We were signed in at the National Guard roadblock and passed through. Two miles further, our RACES cards were checked at the State Police roadblock. When we finally arrived at the parking area, we were escorted to the disaster communications center where our RACES cards were again checked. Each of us was assigned to an official to provide communications back to the disaster-control area.

During my 12 hours in the disaster area, I finally realized what public service was all about. Prior to this operation, it never occurred to me that all of the various official agencies involved had no common intercommunications frequency. Separate operations by the National Guard, State Police, Sheriff, civil defense, Red Cross, and local police created an intermod alley within the quarter-mile -square disaster area. The small part we seemed to be playing, linking the various served agencies together, was the virtual hub of communications for the disaster recovery effort being put forth by the many official agencies involved. Never again would I doubt the value of reliable amateur communications in an emergency situation. This single experience has without doubt shaped the focus of all my Amateur Radio activities in the past 11 years. My goal? Simply to provide the best resources possible, through Amateur Radio communications, to our served agencies in time of disaster.

On December 31, 1977, the Michigan State Police RACES card expired. We didn't realize at the time, that this marked the end of the Michigan RACES program as we had known it. Many attempts were made, through local and state officials, to have the RACES cards reissued. But state officials were not at all interested in the reorganization of RACES.

Years passed, and more and more we heard that FEMA was promoting RACES. Research showed that FEMA was requiring state emergency management divisions to put a State RACES plan in place. A meeting with the Michigan State Police, who were in charge of the emergency management division, followed. It became clear at this meeting that there was great reluctance, on the part of state offi-

cials, to reissue the State Police RACES ID card because of some past abuse by a few RACES members. The few who used their RACES cards in this fashion gave all a bad name. Once we explained that we did not want a State Police ID, but simply a State-issued RACES ID card, a major stumbling block was removed. A short time later, the State printed our new RACES card—the beginning of the new RACES program in Michigan. We now had a card but still no formal program. A few months later, the State named a State RACES Director who was both a local emergency service coordinator and a licensed Amateur. What a winning combination for both sides, state government and Amateur Radio. At about the same time, I became the ARRL SEC for Michigan.

The New Plan

Now the work began. A RACES task force was formed to write a RACES plan and create a list of goals and objectives for the program. We identified what we felt were the major divisions of the plan: Purpose, Concept of Operation, Organization, Tasks and Execution and Addendum. We filled in the various subparts keeping in mind that the final result had to be an overall plan that fell in line with other Federal, state and county guidelines. The plan was submitted to state emergency management officials in May of 1985. With the exception of a few minor changes, the plan was approved as written a month later. At this point, we had made a major breakthrough; RACES was reborn in Michigan.

All emergency management officials are guided by the Michigan Emergency Preparedness Plan. This state-provided manual outlines the emergency response actions to be taken in any kind of disaster. Our RACES plan, which was an appendix to the Michigan Emergency Preparedness Plan, was mailed to all state emergency management officials. In so doing, for the first time in many years, state government was recommending the formation of local RACES organizations. The most important step in history for Michigan ARES was born out of this document. At the very end of the plan appears the following line. "A. Attachment 2—State ARES Plan (under development)." This single entry, for the first time in Michigan ARRL history, gave recognition to the Michigan ARES, a small but permanent official bond finally established between Michigan ARES and RACES.

ARES and RACES Join Forces

After the issuance of the RACES appendix to the emergency preparedness plan, I wanted to make ARES even more visible to officials. I felt that it would be helpful to notify the local emergency management coordinator of impending EC appointments, and give them an opportunity for input into the process. My goal was to create a closer relationship between them. A form letter was sent to the emergency management coordinator for the area of coverage of the proposed new EC. This letter was greatly appreciated by most recipients and was usually answered promptly. This helped to avoid any situations in which there clearly was going to be a conflict between the proposed EC and the local emergency management coordinator.

I was able to obtain a list of all emergency management coordinators from the state emergency management division. This simplified the process of determining who to notify in any given area. The following shows the form used for this notification:

City/County Emergency Management
Attn: John Doe, Coordinator
123 Zap St.
Somewhere, MI 12345

Dear Mr. Doe:

The individual listed below is being considered for appointment by the American Radio Relay League (ARRL), as the Amateur Radio Emergency Service (ARES) Emergency Coordinator (EC) for (City/County).

If you have any objections to the appointment of this person, please contact me by (date).

If I don't hear from you by (date), I will assume the proposed appointment meets with your approval.

Proposed EC Appointee:
John M. Handmike
7532 Adamsapple Blvd.
Anywhere City, MI 12346
tel: 555-1234
Amateur Radio call sign: W8XXX
Thank you in advance for your cooperation.

Sincerely,

George Race, WB8BGY
ARRL Michigan Section Emergency Coordinator

Emergency management coordinators are completely used to chain of command by organization that they call upon in times of emergency. Along with the preceding form letter, I enclosed several items describing the types of services we could provide, and would give them an overview of our organization. These items (ARRL FSD-25, FSD-300 and the FEMA RACES brochure) clearly demonstrate our abilities and spell out the benefits of using Amateur Radio in times of need. One additional step, that can be very beneficial, is to put the local official on your club newsletter mailing list. This would keep him abreast of your ongoing activities. Also use your club newsletter to play up the local ARES organization in your county.

If accepted and appointed, one of the first duties of the new EC should be to make an appointment with the local emergency management official. The EC should follow the general guidelines presented in this manual for personal interviews with city/agency officials.

Implementing the State Plan

As prescribed by the RACES plan, four Deputy RACES Officers were appointed to serve with the State RACES Director. These Deputy Officers were selected from the amateur community, and all of whom were involved in various facets of Amateur Radio emergency communications. This formed the "task force" that was charged with development and initial implementation of the plan from the state level. The first objective was to provide a statewide communications link into the state EOC (SEOC).

A Packet Network Emerges

Simultaneously, band plans were being developed for packet, PBBS operations were being established, and it appeared that in the future this would be a viable means of transferring information to the SEOC. We envisioned a network of packet stations operating from county EOCs and a state-operated PBBS at the SEOC. It appeared that our network concept was gaining more creditability with each new station that came on the air.

As the months passed, more and more activity ap-

peared on 145.01 MHz. PBBS stations started to take over the airways. Their beacons were crisscrossing the state announcing their presence. It didn't take long for us to realize that our hoped-for network was becoming QRM alley. Several packet interest groups and organizations were formed around the state. Band plans were proposed to the Michigan Amateur Repeater Council. Local Area Networks (LANs) started to develop on other frequencies. Packet radio had developed far beyond our dreams of a year before.

Now some major decisions on our emergency network had to be made. We monitored the packet frequencies for activity, particularly for PBBS stations operating LANs. To our amazement, 145.09 seemed to be wide open across the state. We communicated with other packet groups and indicated our interest to keep 145.09 reserved for an emergency network throughout the state. Our interest was also communicated to the Michigan Area Repeater Council. Through these efforts, a mutual understanding and agreement was achieved throughout the state that 145.09 was for use by emergency network stations, and the home ground of those who were involved in ARES, RACES and communications with Michigan League Officials. Our network now seemed to be assured; we named it the Michigan Emergency Packet Network (MEPN). A Network Manager was named to help oversee the daily operation of the MEPN system.

Today, this packet network is in place and serving the needs of ARES/RACES, and is available to serve others in any emergency operations. The SEOC in Lansing now has a PBBS dedicated to MEPN. NWS in Ann Arbor is part of the network, as are many county/city EOCs around the state. Our Upper Peninsula amateurs have even developed their network across their isolated portion of the state. Our MEPN Manager provides and operates our MEPN PBBS. Many other PBBS operators around the state have installed dual port systems that provide a two-way interface for formal traffic into and out of our system from their LAN. With each station that becomes part of our network, and provides yet another path, the network expands still further. Three years ago, we had an idea, it is now a fully functional network serving our emergency communications needs.

FEMA Home-Study Emergency Training

Remember, the whole idea of a joint ARES/RACES operation started years ago with the quest for a State RACES ID card. The recommended guidelines for the issuance of RACES cards to amateurs is established at the local level by the local government emergency management official/coordinator. Michigan RACES and ARES leadership recommend, as a minimum qualification, the successful completion of the FEMA home study course "Emergency Management USA," HS-2/May 1986. Upon completion, the examination answer sheet is sent to FEMA in Emmitsburg, MD, for grading. Each examinee who makes a passing score on the exam is awarded with a certificate issued by FEMA. The certificate is then presented to the local emergency management coordinator for issuance of the RACES ID Card.

This home-study course gives you a basic understanding of emergency management and also helps you to understand the role, in any emergency, your local coordinator plays. The home-study course takes about 10 hours to complete. Here in Michigan, group study has been

proven to provide a good comprehensive overview of the HS-2 materials. The ARRL EC (who has already passed the course) obtains the HS-2 course materials and leads the group in discussion and completion of the questions and answers. In this manner, groups can complete the course in 4 to 5 hours. It also makes it a lot more fun then working on it alone. This requirement for card issuance demonstrates each ARES member's willingness to take part in formal training, gain knowledge of the emergency management system, and helps to assure local government that each amateur has a sincere interest in taking part in his local RACES program. You can obtain the HS-2 course (and information on other FEMA courses offered) by writing to:

FEMA Home Study Program
Administrative Office
Emergency Management Institute
16825 S. Seton Ave.
Emmitsburg, MD 21727

ARES/NTS: Breaking Down Barriers

A couple of years ago, I decided to keep the SET a more local operation within each county. Intercounty communications using VHF was recommended, and all ECs were asked to originate a piece of formal traffic to the SEOC via packet radio.

My emphasis on a VHF-and-packet scenario was the biggest mistake any SEC could have made. The RACES PBBS at the SEOC was not able to be manned on the day of the SET. Our state RACES Director attempted to simulate the SEOC operation on packet from his home. Several of the wide-area digipeaters were asked to move from 145.01 to 145.09, our MEPN frequency. We thought this would help to move the SET traffic around the state.

When this happened, many packet operators who were not involved with the SET also moved to 145.09 to continue their normal conversations and PBBS operations. This also being Boy Scout Jamboree On The Air weekend added another twist. Many amateurs were working with Boy Scouts and were using packet radio to demonstrate communications to the groups. These groups also moved to 145.09! We had moved many of the wide area digipeaters, so they just naturally followed along. It didn't take very long to realize that our packet portion of the operation was impossible because of the many stations using the frequency. The whole situation just got out of hand. By late afternoon, there seemed to be no salvaging of the proposed statewide scenario.

I was soon to learn that an even bigger mistake had been made. By trying to relieve the load on the Michigan NTS operation during SET weekend, there was a perception that I had totally written traffic handlers out of the SET. This widened the already present gap between ECs and traffic handlers. During the months that followed, it was obvious that a barrier had been formed.

For many years, every Sunday evening we held the Michigan ARES Net, which gave ECs an opportunity to meet with the SEC and other League Officials for training and sharing of comments about their local operations. Unfortunately, the STM, NMs and other traffic handlers were almost totally absent. Something had to be done to close the gap between ARES and the NTS; often the first step is the most difficult, particularly when changes in existing procedures are involved.

So I wrote a new net preamble for the Sunday net. It was

to be the Michigan Section ARES/NTS, League officials and State RACES Net. I presented my idea to our SM, and he felt the concept was exactly what was needed to reform the thinking of Michigan amateurs and bring all of the various communications areas into a common bond. A mailing was sent to all League officials outlining the upcoming new format. Slowly the word got around, and ECs, NMs and others began to work together again, everyone sharing information on their individual operations and concepts. It was a new beginning.

ARES/RACES Redistricting

About this time, a new State RACES Director was named. As before, he was both a ham and an a county emergency services director. A meeting was called by State Police officials to review the RACES program. A day was spent on a total review of the ARES/RACES concept. State officials agreed that the goals and concepts of both ARES and RACES would best be served by a combined program. The ARES DEC program was targeted as the most logical place to form the official bond. They also recommended that, if possible, the county EC should also be the county RACES Radio Officer. This would serve to tie the two programs together at the local level as well.

The combined ARES/RACES redistricting plan was announced at our ARES/NTS workshop some months later. To achieve the ARES/RACES DEC goals, the State RACES plan had to be modified to officially support the new program direction. Our new RACES Director believed that a further simplification of the plan was necessary to create a well-structured document that we could build upon in the future. The original plan was rewritten, approved by state officials and sent to all Michigan emergency management officials for inclusion in their copy of the Michigan Emergency Preparedness Plan. (See Exhibit #10, RACES Plan, October 1987) This new plan now in place, gave us official authority to proceed with the ARES/RACES DEC program. The ARRL SEC is now part of the state decision-making committee for the appointment of future state District RACES officials.

During the past three years, I appointed DECs to cover several areas of Michigan. These districts were formed along county lines and were designed to achieve better ARES coverage in some of the more remote areas of the state. Under the new District plan, the state would be divided into State Police Districts. Each of these eight Districts are headed by a State Police lieutenant who coordinates all emergency operations within the District. Under our new District plan, each of these eight areas will be served by an ARES DEC who would also be appointed as a District RACES manager (DRM).

The selection of DEC candidates was probably one of the most difficult steps in the process. Each had to have an outstanding record in public service/ARES as well as being a licensed amateur and a League member of course. After completing the DEC selection process, I talked with each candidate to assure they understood the commitment and scope of the position that they would each be expected to fill. Feeling fortunate to have picked an outstanding group, I presented the slate of candidates to the State RACES Director. A short time later, a state meeting was called to explain the program to these candidates and get their overall thoughts and ideas on the implementation process. Within a few weeks, eight Michigan District RACES Managers were appointed by the state. As Michigan SEC, I also

appointed each as an ARES DEC. We all realized that this was just the beginning. Now we needed to present the overall program to all amateurs and state emergency service officials.

Workshops

To properly introduce the new program, and demonstrate the commitment from the state level, several public officials workshops were scheduled. Formal invitations were sent to all emergency management coordinators; DECs, ECs and interested amateurs were also invited to take part. All were scheduled for Saturdays and were three hours long. Each meeting was hosted by the State Police District Headquarters or a city/county office of emergency management Coordinator. Our State RACES Director presided over each meeting. Each meeting was also attended by the person is in charge of the Michigan FEMA RACES program.

Our RACES Director outlined the problems, trends and technology associated with using Amateur Radio to provide a backup in any type of emergency. He also presented the goals of the official blending of ARES and RACES on the state/local level. Our FEMA representative outlined the Federal prospective of RACES.

This series of workshops has been most successful at all levels. This bringing together of Federal, state and local leaders responsible for public safety and ARES/RACES leadership has to be the most progressive step ever taken for the in the ARRL Michigan section. All who attended these meetings have left with a new respect and understanding for the kinds of problems faced on both the state and amateur sides of emergency communication. Each participant also received a Certificate of Training from the State Police for taking part in the workshop. We are at the beginning of what promises to be a rewarding and challenging program ahead for all involved.

Message Format

When dealing with the government, the various official forms and the flow of paperwork are most important. In most of our formal traffic handling, we use the ARRL message form. When passing messages between government agencies in times of emergency, we may have to adapt to their standard forms to convey the necessary information. Here is one of the places where packet radio can play an important role in your overall operation.

When disaster strikes any county, one of the first steps is for the county coordinator to file a lengthy "Governor's Emergency Flash Report." This two-page report gives the State EMD a quick overview of the disaster situation and helps them to quickly formulate the state response. This report is normally sent over a landline teletype network. This is a busy network, particularly in times of disaster, and in some cases it can take many hours to get the proper information to the State EMD. We had a better idea. Why not use the SEOC BBS to receive and reformat this information into the desired form and print out hard copy for immediate use?

An IBM-compatible program was written to input the information in the proper order. The program creates the input screens, and you simply fill in the appropriate blanks. When all information has been entered, you use the communications port to send the file to the SEOC, using packet radio. Using another program, written for the SEOC, the packet file is reformatted and printed in the form of the "Flash Report." What has taken up to eight hours now can be done in about 30 minutes.

This system was proposed, demonstrated, and accepted by the State EMD as a viable way to receive disaster information, and is now in place as part of their emergency procedure during any disaster. The programs to format the required formal messages for transmission are provided to any EOC that has an IBM-compatible system and a 2-meter packet radio setup on the 145.09 MHz MEPN Network.

Future Growth

The Michigan DEC/DRM program continues to grow with each passing month. A program of this importance and magnitude cannot be put into place quickly. Much consideration must be given to each individual action taken, and its possible impact on the overall goals of the program. Equal emphasis must be placed on both the ARES and NTS.

Good traffic handling in any emergency situation has to be a major consideration with each EC as he forms his local organization. His county should be represented regularly in the state/section NTS nets. Here in Michigan, ECs are encouraged to take part in formal traffic nets, or assign an AEC for this particular duty on a regular basis. NTS traffic handlers are equally encouraged to take part in ARES emergency communications exercises and drills. This blending of resources is one of the major keys to a cohesive operation in any kind of emergency situation. Similarly, ECs are encouraged to do everything they can to stimulate the joint ARES/RACES structure.

When you look closely at ARES and RACES, the only major difference in any emergency operation is direction and control. In an ARES operation, amateurs "work with" the local emergency management coordinator under the direction and control of the local ARES EC. In a RACES operation, amateurs "work for" the local emergency management coordinator under his direction and control or the direction and control of his RACES Radio Officer. In Michigan, we encouraged the county EC also be appointed as the RACES Radio Officer. Dual registration is also encouraged for all amateurs in both the ARES and RACES programs. This lends itself to a totally coordinated effort whether ARES or RACES. In any given emergency situation, it is simply a matter of "switching hats" and changing "direction and control." Personnel, resources and operating frequencies remain the same. A short announcement is all that is necessary to go from ARES to RACES, or RACES to ARES, as the situation dictates.

Conclusion

We believe we have created a role model that can be followed by others that have a sincere interest in providing emergency communications anywhere there are amateurs willing to give of their time and resources. A program of this scope can only come about with the total cooperation of all parties involved. In Michigan, all levels of government working with the ARRL Field Organization have formed an official bond that is recognized and respected by all concerned. None of this would have been possible without the contributions and effort put forth by individual amateurs. They are the ones who deserve the greatest credit for the overall performance and success of this program, the ongoing Michigan story.

Appendix A

ARRL NUMBERED RADIOGRAMS

The letters ARL are inserted in the preamble in the check and in the text before spelled out numbers, which represent texts from this list. Note that some ARL texts include insertion of numerals .Example: NR 1 R W1AW ARL 5 NEWINGTON CONN DEC 25 DONALD R. SMITH AA 164 EAST SIXTH AVE AA NORTH RIVER CITY MO AA PHONE 73-3968 BT ARL FIFTY ARL SIXTY ONE BT DIANA AR. For additional information about traffic handling, consult *The ARRL Operating Manual,* published by ARRL.

Group One—For Possible "Relief Emergency " Use

ONE	Everyone safe here. Please don't worry.
TWO	Coming home as soon as possible.
THREE	Am in _____ hospital. Receiving excellent care and recovering fine.
FOUR	Only slight property damage here. Do not be concerned about disaster reports.
FIVE	Am moving to new location. Send no further mail or communication. Will inform you of new address when relocated.
SIX	Will contact you as soon as possible.
SEVEN	Please reply by Amateur Radio through the amateur delivering this message. This is a free public service.
EIGHT	Need additional _____ mobile or portable equipment for immediate emergency use.
NINE	Additional _____ radio operators needed to assist with emergency at this location.
TEN	Please contact _____. Advise to standby and provide further emergency information, instructions or assistance.
ELEVEN	Establish Amateur Radio emergency communications with _____ on _____ MHz.
TWELVE	Anxious to hear from you. No word in some time. Please contact me as soon as possible.
THIRTEEN	Medical emergency situation exits here.
FOURTEEN	Situation here becoming critical. Losses and damage from _____ increasing.
FIFTEEN	Please advise your condition and what help is needed.
SIXTEEN	Property damage very severe in this area.
SEVENTEEN	REACT communications services also available. Establish REACT communication with _____ on channel _____.
EIGHTEEN	Please contact me as soon as possible at _____.
NINETEEN	Request health and welfare report on _____. (State name, address and telephone number.)
TWENTY	Temporarily stranded. Will need some assistance. Please contact me at _____.
TWENTY ONE	Search and Rescue assistance is needed by local authorities here. Advise availability.
TWENTY TWO	Need accurate information on the extent and type of conditions now existing at your location. Please furnish this information and reply without delay.
TWENTY THREE	Report at once the accessibility and best way to reach your location.
TWENTY FOUR	Evacuation of residents from this area urgently needed. Advise plans for help.
TWENTY FIVE	Furnish as soon as possible the weather conditions at your location.
TWENTY SIX	Help and care for evacuation of sick and injured from this location needed at once.

Emergency/priority messages originating from official sources must carry the signature of the originating official.

Group Two—Routine messages

FORTY SIX	Greetings on your birthday and best wishes for many more to come.
FIFTY	Greetings by Amateur Radio.
FIFTY ONE	Greetings by Amateur Radio. This message is sent as a free public service by ham radio operators at _____. Am having a wonderful time.
FIFTY TWO	Really enjoyed being with you. Looking forward to getting together again.
FIFTY THREE	Received your _____. It's appreciated; many thanks.
FIFTY FOUR	Many thanks for your good wishes.
FIFTY FIVE	Good news is always welcome. Very delighted to hear about yours.
FIFTY SIX	Congratulations on your_____, a most worthy and deserved achievement.
FIFTY SEVEN	Wish we could be together.
FIFTY EIGHT	Have a wonderful time. Let us know when you return.
FIFTY NINE	Congratulations on the new arrival. Hope mother and child are well.
*SIXTY	Wishing you the best of everything on _____.
SIXTY ONE	Wishing you a very Merry Christmas and a Happy New Year.
*SIXTY TWO	Greetings and best wishes to you for a pleasant _____ holiday season.
SIXTY THREE	Victory or defeat, our best wishes are with you. Hope you win.
SIXTY FOUR	Arrived safely at _____.
SIXTY FIVE	Arriving _____ on _____. Please arrange to meet me there.
SIXTY SIX	DX QSLs are on hand for you at the _____ QSL Bureau. Send _____ self addressed envelopes.
SIXTY SEVEN	Your message number _____ undeliverable because of _____. Please advise.
SIXTY EIGHT	Sorry to hear you are ill. Best wishes for a speedy recovery.
SIXTY NINE	Welcome to the _____. We are glad to have you with us and hope you will enjoy the fun and fellowship of the organization.

ARL NUMBERS SHOULD BE SPELLED OUT AT ALL TIMES.

*Can be used for all holidays.

FSD-3 (2/94)

Appendix B

Hazardous Materials Awareness

Prepared by the staff of the Initiatives Division, US Department Of Transportation

There has been an increasing public sensitivity about the apparent increase in the number and severity of incidents involving hazardous materials. The Bhophal, India disaster raised the issues to a concerned world that the potential for disaster was present at every chemical factory. A subsequent (and smaller) incident at a similar facility in Institute, West Virginia brought home the fears of a similar catastrophe to this country.

There is also increasing public sensitivity to the impact of hazardous materials incidents on transportation systems. Whenever a gasoline tanker overturns or a rail tank car derails, the public hears concerned emergency responders discussing the great dangers to the public, the length of time required to open the road and the expense to repair or replace the road. Remember, a single hazardous materials incident has the potential for loss of lives and millions of dollars in property damage!

It is impossible to imagine a community which does not have hazardous materials transported on its streets, under its roadways in pipelines and in use in its homes and business establishments. It is important therefore, that Amateur Radio operators, as well as other concerned citizens, recognize the widespread presence of these materials, understand the possible consequences of a spill or release and be prepared to take appropriate actions in case of an incident involving hazardous materials.

What Are Hazardous Materials?

They are substances which, because of their physical and chemical properties (eg, their ability to burn, explode or cause sickness), present a high risk to people, property and the environment if they are released from their container. They may pose unreasonable risk to health, safety and property when transported in commerce. Some of the more commonly known examples of hazardous materials are flammable liquids, such as gasoline, which give off vapors which can burn at ordinary temperatures, and corrosives such as sulfuric acid, which can damage skin tissue or metals.

While one may not normally think about the amount of hazardous material in transport, one's sensitivity improves when stranded on a freeway because of a tanker accident or when suddenly asked to communicate the details of a hazardous material accident to the authorities. There is an amazing amount of hazardous materials being transported. The Congressional Office of Technology Assessment has estimated that more than 1.5 billion tons are transported per year!

Labels

Warning labels are an indication of hazardous materials and must be displayed on most packages containing hazardous materials. Labels are diamond shaped, 4 inches on a side, color coded and show a graphic symbol depicting the hazard class. In some cases, more than one label must be displayed, in which case the labels must be placed next to each other. In addition to labels for each of the DOT hazard classes, there are other labels with specific warning messages such as "Magnetized Materials," and "DANGER—do not load in passenger aircraft."

Placards

Placards are similar to the hazard warning labels discussed above, except that they are displayed on transport vehicles, such as truck-trailers and rail cars. They are also diamond-shaped (although 10 inches on a side), color-coded and bear a graphic symbol indicating the class of hazard.

The Trained Observer

If you should witness or come upon a transportation incident, your first concern should be for your *own* safety. If a highway accident has occurred, hazardous materials may or may not be present; people may or may not be injured and the authorities will certainly need to be notified. This is nothing new. Amateurs have always reported accidents to police, but you now know that hazardous materials are transported almost everywhere. What's different is the concern that you should show for your own safety and the safety of others based on your knowledge that hazardous materials may be present.

As a trained observer, you should always be cautious and prepared to take actions to protect yourself. If you see a placarded vehicle, a rail car in an accident or packages with colored warning labels, you should take action to protect yourself and others by moving away from the incident. A trained observer will also notice if a package, bottle or cylinder is in a place in which it does not belong and report this to authorities as well.

Other recommended actions include notifying local or state authorities immediately, trying to keep people away from the scene, not walking into or touching any spilled material and avoiding inhalation of fumes, smoke or vapors. In addition, it is recommended that you try to note markings and the color of placards, but don't overestimate your ability to handle the situation by yourself. A small event can become a much larger one. A delay in getting help may result in greater consequences.

Getting Their Attention

When reporting an incident in which you suspect a hazardous material may be involved, it is important to describe the situation using words which will trigger an appropriate and informed response by the emergency services. Your accurate reporting, at the least, will provide emergency responders with the warning they would not otherwise have had until their own arrival. In this case, forewarned should mean forearmed.

Amateur Radio Operators Can Assist at Hazardous Materials Incidents

Transportation incidents can—and do—occur away from towns, quickly tying up the emergency services' radio channels. Consequently, there is a need for a reliable communications bridge between the incident site and outside assistance.

As an Amateur Radio operator, you may also be able to provide communications links for emergency responders as part of the hazardous materials response system in the community. The value of Amateur Radio operators in emergency situations is well documented; the ARES and RACES programs are examples of this.

Amateur Radio groups often have land-line autopatch service. This feature could connect emergency responder personnel to one of the most valuable resources; the Chemical Transportation Emergency Center (CHEMTREC). CHEMTREC (1-800-424-9300) is operated by the Chemical Manufacturers Association and has access to numerous technical resources. They can provide information about the nature of the product and can also act as a telephone communications bridge between the caller and the shipper.
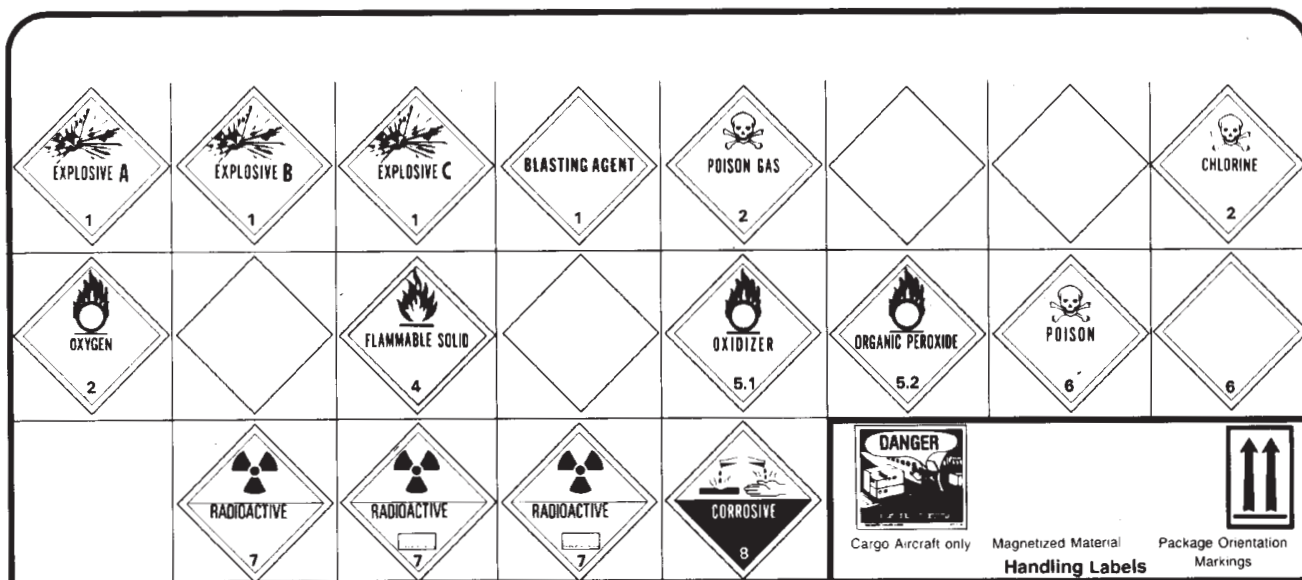
Conclusion

In this article, we have established that hazardous materials are widely transported, transportation accidents involving hazardous materials can result in serious consequences, and Amateur Radio operators can provide assistance to emergency response personnel. We suggest that

Amateur Radio groups cooperate with local emergency planners and responders in the tradition of public service which is always associated with the Amateur Radio Service.

For additional information and literature about hazardous materials transportation, call or write David L. Sargent, Office of Hazardous Materials Transportation, 400 Seventh St SW, DHM-50, Washington, DC 20590, tel 202-366-4900.
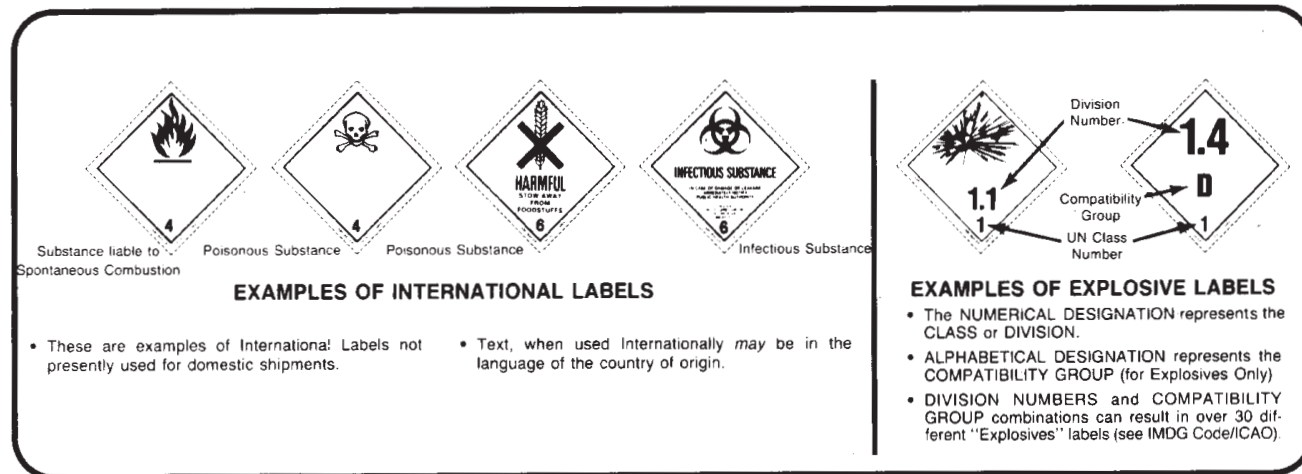

Diamond hazard labels (top three rows): EXPLOSIVE A (1), EXPLOSIVE B (1), EXPLOSIVE C (1), BLASTING AGENT (1), POISON GAS (2), CHLORINE (2); OXYGEN (2), FLAMMABLE SOLID (4), OXIDIZER (5.1), ORGANIC PEROXIDE (5.2), POISON (6), POISON (6); RADIOACTIVE (7), RADIOACTIVE (7), RADIOACTIVE (7), CORROSIVE (8), DANGER Cargo Aircraft only / Magnetized Material — Handling Labels — Package Orientation Markings.

General Guidelines on Use of Labels

- Labels illustrated above are normally for *domestic shipments*. However, some air carriers *may* require the use of International Civil Aviation Organization (ICAO) labels.

- Domestic Warning Labels *may* display UN Class Number, Division Number (and Compatibility Group for Explosives only) Sec. 172.407(g).

- Any person who offers a hazardous material for transportation MUST label the package, if required. [Sec. 172.400(a)].

- The Hazardous Materials Tables, Sec. 172.101 and 172.102, identify the proper label(s) for the hazardous materials listed.

- Label(s), when required, must be printed on or affixed to the surface of the package near the proper shipping name. [Sec. 172.406(a)].

- When two or more different labels are required, display them next to each other. [Sec. 172.406(c)].

- Labels may be affixed to packages (even when not required by regulations) provided each label represents a hazard of the material in the package. [Sec. 172-401].

UN Class Numbers

Class 1—Explosives

Class 2—Gases (compressed, liquified or dissolved under pressure)

Class 3—Flammable liquids

Class 4—Flammable solids or substances

Class 5—Oxidizing substances
Division 5.1-Oxidizing substances or agents.
Division 5.2-Organic peroxides.

Class 6—Poisonous and infectious substances

Class 7—Radioactive substances

Class 8—Corrosives

Class 9—Miscellaneous dangerous substances

Substance liable to Spontaneous Combustion (4); Poisonous Substance (4); Poisonous Substance HARMFUL STOW AWAY FROM FOODSTUFFS (6); INFECTIOUS SUBSTANCE (6) / Infectious Substance.

EXAMPLES OF INTERNATIONAL LABELS

- These are examples of International Labels not presently used for domestic shipments.

- Text, when used Internationally *may* be in the language of the country of origin.

Explosive label diagram: Division Number 1.1, UN Class Number 1; 1.4 D with Compatibility Group, UN Class Number.

EXAMPLES OF EXPLOSIVE LABELS

- The NUMERICAL DESIGNATION represents the CLASS or DIVISION.

- ALPHABETICAL DESIGNATION represents the COMPATIBILITY GROUP (for Explosives Only)

- DIVISION NUMBERS and COMPATIBILITY GROUP combinations can result in over 30 different "Explosives" labels (see IMDG Code/ICAO).

- Code of Federal Regulations. Title 49, Transportation. Parts 100-199. [All Modes]

- International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by air. [Air]

- International Maritime Organization (IMO) Dangerous Goods Code. [Water]

- "Transportation of Dangerous Goods Regulations" of Transport Canada. [All Modes]

U.S. Department of Transportation

Research and Special Programs Administration

Washington, D.C. 20590

CHART 8
REV. FEBRUARY 1986

STATEMENT OF UNDERSTANDING BETWEEN

THE

AMERICAN RADIO RELAY LEAGUE, INC.,

AND

THE AMERICAN NATIONAL RED CROSS

FOREWORD

The American Radio Relay League, Inc., and the American Red Cross have had cooperative statements of understanding since 1940. The original statement of understanding was updated in 1964 and 1974.

The American Radio Relay League, Inc., (ARRL) is a noncommercial association of radio amateurs, bonded for the promotion of interest in amateur radio communication and experimentation, for the relaying of messages by radio, for the advancement of the radio art, for the representation of the radio amateur in legislative matters, for the maintenance of fraternalism, and a high standard of "on the air" operating conduct. A primary responsibility of the Amateur Radio service, as established by Part 97 of the Federal Communications Commission's regulations, is the performance of public service communications for the general public, particularly in times of emergency when normal communications are not available. Using Amateur Radio operators on frequencies allocated to the Amateur Radio Service, the ARRL has been in the forefront of this service. direct to the general public and through government and relief agencies, and continues to be so. To that end, in 1935, the ARRL organized the Amateur Radio Emergency Corps, now called the Amateur Radio Emergency Service (ARES) and in 1949, the ARRL created the National Traffic System (NTS). Together, ARES and NTS comprise the ARRL's public service field organization of volunteer Radio Amateurs.

Red Cross chapters are responsible for establishing coordinating, and maintaining continuity of communications during disaster-relief operations whenever normal communications channels are disrupted or overloaded. This document revises, strengthens, and updates previous statements of understanding. It also renews an strengthens the status of close cooperation and coordination between the two organizations for the public benefit.

I. PURPOSE

The purpose of this document is to state the terms of understanding between the American Radio Relay League, Inc., and The American National Red Cross. This document will serve as a broad framework within which volunteer ARES and NTS personnel, of the ARRL, will coordinate Amateur Radio emergency communications networks, equipment, and personnel with the Red Cross for disaster relief communications. Included are any disaster, except those caused by enemy action or acts of war.

II. DEFINITION OF DISASTER

A disaster is an occurrence such as a hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, blizzard, fire, explosion, volcanic eruption, building collapse, commercial transportation accident, or other situations that cause human suffering or human needs that the victims cannot alleviate without assistance.

III. RECOGNITION

The American Red Cross recognizes that the extensive volunteer Field Organization of the ARRL, because of its technical training and emergency communications readiness, can render valuable aid in maintaining the continuity of communications, during disasters, when normal communications facilities are disrupted or overloaded.

The American Radio Relay League recognizes the American Red Cross as a primary, disaster-relief, service agency, chartered by Congress, through which the American people voluntarily extend assistance to individuals and families in need, after the occurrence of any disaster.

IV. AUTHORITY OF THE AMERICAN RED CROSS

By congressional charter, dated January 5, 1905, The American Red Cross is charged with the following responsibility:

To continue and carry on a system of national and international relief in time of peace and apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities, and to devise and carry on measures of preventing the same.

V. ORGANIZATION OF THE AMERICAN RED CROSS

The national headquarters of the American Red Cross is located in Washington, DC. This national headquarters is responsible for establishing and implementing policies and regulations that govern Red Cross activities, and for providing administrative and technical supervision and guidance to its chapters. The chapter is the local unit of the American Red Cross within its assigned territory, subject to the policies and regulations of the corporation. There are approximately 2,600 chapters across the United States. Each chapter is responsible for developing a special disaster preparedness and relief committee composed of the best-qualified volunteers available. This committee studies the disaster hazards of their territory, surveys local resources for personnel, equipment, and supplies, including transportation and emergency communication facilities, that are available for disaster relief. It also formulates cooperative plans and procedures with local governmental agencies and private organizations for carrying on relief operations should a disaster occur. Disaster Services at national headquarters coordinates the total resources of the organization for utilization wherever needed for large disasters.

IV. ORGANIZATION OF THE AMERICAN RADIO RELAY LEAGUE

The Americana Radio Relay League is governed by a Board of Directors composed of 15 persons who are elected by the membership. Its headquarters is located in Newington, Connecticut. Since 1914, the ARRL has been the standard-bearer in amateur radio affairs throughout the United States. The ARRL has a field organization that covers the United States and U.S. territory. The field organization is administered by elected Section Managers in the 69 ARRL sections, (A section is an ARRL created political boundary roughly equivalent to states or portion thereof.) Emergency communications are provided by the ARRL sponsored Amateur Radio Emergency Service (ARES). Organized under the Section Manager, and directed by a Section Emergency Coordinator, the ARES field organization consists of District Emergency Coordinators and local Coordinators, who provide leadership and training for the thousands of ARES members. Complementing the ARES is the National Traffic System (NTS). Organized under the Section Manager, and directed by a Section Traffic Manager, NTS nets cover widespread, as well as local areas. These nets function daily in the handling of formal message traffic. Working and training together, the ARES and NTS volunteers, provide emergency communications and message handling, that is designed to meet the needs of any emergency situation.

VII. METHOD OF COOPERATION

In order that the emergency communications facilities of the ARES and NTS may be coordinated and utilized to the fullest advantage during disasters, the American Red Cross and the American Radio Relay League have agreed to the following:

Through its national headquarters in Newington, Connecticut, the American Radio Relay League will establish regular liaison with American Red Cross national headquarters in Washington, DC. This liaison will provide the closest possible cooperation and direct operational assistance by the ARRL in emergency communications planning, and in the coordination of amateur radio communications facilities for disaster relief operations.

The American Red Cross welcomes the cooperation and assistance of the American Radio Relay League, through its Headquarters

in Newington, Connecticut, and its field organization, to extend Amateur Radio emergency communications planning into the jurisdictions of the local chapters. Red Cross chapters will further this cooperative effort by requesting that local ARRL ARES and NTS personnel serve as Red Cross disaster volunteers for emergency communications. ARRL ARES and NTS volunteers will be encouraged to take part in pre-disaster planning and work with the local chapter, to provide amateur radio communications equipment and volunteers, and to meet the needs of the disaster communications plan.

Whenever there is a disaster requiring the use of amateur radio communications facilities, the Red Cross, through its local chapter or through the national sector, will request the assistance of the ARRL ARES and NTS near the scene of the disaster. This assistance may include:

1. The alerting and mobilization of ARRL Amateur Radio volunteer emergency communications personnel in accordance with a prearranged plan.

2. The establishment and maintenance of fixed, mobile, and portable station emergency communication facilities for local radio coverage and point-to-point contact between Red Cross officials and locations, as required.

3 Maintenance of the continuity of communications for the duration of the emergency period or until normal communications channels are substantially restored.

ARRL agrees to supply Red Cross with lists of local coordinators on an annual basis. Red Cross agrees to supply ARRL with chapter addresses and points of contact on an annual basis.

The ARRL recognizes that the American Red Cross, working with Officials in the disaster area, may need to establish guidelines concerning the acceptance, transmission, and distribution of health-and-welfare (disaster welfare) traffic by Amateur Radio.

Accordingly, the ARRL Amateur Radio emergency communications personnel, will be encouraged to handle traffic in adherence to the guidelines provided by American Red Cross personnel in the disaster area.

The ARRL rocognizes that Red Cross chapters, not in the disaster area, may have the need for health-and- welfare (disaster welfare) traffic by Amateur Radio. The ARRL will encourage ARES and NTS volunteers, to work with Red Cross chapters, to provide this service along guidelines established during any particular disaster.

The American Red Cross and the American Radio Relay League will cooperate in the development of a specific set of operational guidelines for the management of the health-and-welfare (disaster welfare) inquiry function both at the national and local levels. Copies of t se guidelines will be distributed to local Red Cross chapters and ARRL Field Organization Officials.

Detailed operating plans for the utilization of the communications facilities of the Amateur Radio service will be developed by the local Red Cross chapter in cooperation with local ARRL ARES and NTS personnel.
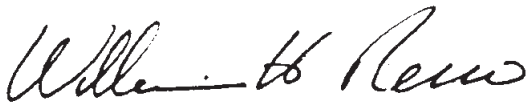
The American Red Cross will recommend to its chapters that membership on disaster preparedness and relief committees, include representation from the ARRL through its local ARES and NTS organizations.

The American Red Cross will furnish local chapters copies of this Statement of Understanding. Similarly, the American Radio Relay League will furnish copies to its Field Organization Officials.

This agreement is in force as of the date indicated below, and shall remain in effect unless terminated by written notification from either party to the other.

April 1, 1994
(Date Of Agreement)

William H. Reno
Senior Vice President
The American Red Cross

George Wilson III
President
The American Radio Relay League,
Inc.

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE ASSOCIATED PUBLIC SAFETY

COMMUNICATIONS OFFICERS, INC.

AND

THE AMERICAN RADIO RELAY LEAGUE, INC.

MEMORANDUM OF UNDERSTANDING BETWEEN THE ASSOCIATION OF
PUBLIC-SAFETY COMMUNICATIONS OFFICIALS - INTERNATIONAL, INC.,
AND THE AMERICAN RADIO RELAY LEAGUE, INC.

FOREWORD

The Association of Public-Safety Communications Officials - International, Inc., and the American Radio Relay League, Inc. (ARRL) share the common bond of communications in the public interest. APCO International is made up of Emergency Medical, Law Enforcement, Fire and other Public Safety Communications personnel whose primary responsibility is the management, design, maintenance and operation of communications facilities in the public domain.

The ARRL is a non-commercial association of radio amateurs bonded together for the promotion of interest in Amateur Radio communication and experimentation, for the relaying of messages by radio, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters and for the maintenance of fraternalism and a high standard of conduct.

While the members of APCO International are charged with responsibility of communications in the public interest as professional members of the public safety community, a primary responsibility of the Amateur Radio Service, as established by Part 97 of the Federal Communications Commission's regulations, is the rendering of public service communication for the general public, particularly in times of emergency, when normal communications are not available.

APCO International has, since its inception, taken the lead in establishing International standards for public safety communications. Through International Headquarters and Affiliates, APCO International strives for professionalism and continuity of communications through education, standardization and the exchange of information.

Organizing and coordinating Amateur Radio operators in the amateur frequency bands,
the ARRL has been serving the general public directly and government and relief
agencies for more than 75 years. To that end, in 1935 the League organized the Amateur
Radio Emergency Corps (now called the Amateur Radio Emergency Service -- ARES).
In 1949 the League created the National Traffic System (NTS). Together, ARES and
NTS comprise the League's public service Field Organization of volunteer radio
amateurs. As leaders and representatives of radio amateurs, the ARRL has responsibilities
in motivation, education, policy and leadership in promoting Amateur Radio functions in
the public service, especially in times of emergency when the resources of radio amateurs
may be the most survivable communications available.

I. Purpose

The purpose of this document is to state the terms of a mutual agreement between the
ARRL and APCO International that will serve as a broad framework within which
volunteer personnel of the ARRL may coordinate their facilities and equipment with
APCO International members and their agencies for disaster communications.

II. Definition of Disaster

A disaster is either a natural or man-made occurrence that causes human suffering or
human needs that the victims cannot alleviate without assistance and which rapidly
depletes the resources of the responding agencies involved.

It will be understood and agreed that members of the Amateur Radio Emergency Service
will neither seek nor accept any duties other than that of Amateur Radio communications.

III. Method of Cooperation

In order that the emergency communications facilities of the ARES and NTS may be coordinated and utilized to the fullest advantage during disasters, APCO International and ARRL agree to the following:

A. Through its national headquarters in Newington, Connecticut, the ARRL will establish regular liaison with the APCO International headquarters in South Daytona, Florida, through a standing committee of each organization. This liaison will provide the closest possible cooperation and direct operational assistance by the ARRL in emergency communications planning, and in the coordination of amateur radio communications facilities for disaster operations.

B. APCO International welcomes the cooperation and assistance of the American Radio Relay League, through its headquarters and its field organizations, to extend Amateur Radio emergency communications planning into the jurisdictions of APCO International chapters. APCO International chapters will be urged to further the cooperative effort by requesting that local ARRL ARES, and NTS personnel serve as disaster volunteers for emergency communications, with such personnel reporting to the ARES Emergency Coordinator of jurisdiction. ARRL ARES, and NTS volunteers, will be encouraged to take part in pre-disaster training and planning and to work with APCO International chapters to provide amateur radio communications equipment and volunteers, and to meet the needs of their disaster communications plans.

C. When a disaster occurs requiring the use of amateur radio communications facilities, APCO International, through an individual chapter and with the understanding of the agency (agencies) to be served, may recommend the assistance of the ARRL ARES, and NTS nearest the scene of the disaster. This assistance may include, but is not limited to the following:

1. The alerting and mobilization of ARRL Amateur Radio volunteer emergency communications personnel in accordance with a prearranged plan.

2. The establishment and maintenance of fixed, mobile, and portable station emergency communication facilities for local radio coverage and point-to-point contact between public safety officials and locations, as required.

3. Maintenance of the continuity of communications for the duration of the emergency period or until normal communications channels are substantially restored.

D. ARRL agrees to supply APCO International with lists of emergency coordinators on an annual basis. APCO International agrees to supply ARRL with pertinent information and points of contact from the various chapters on an annual basis.

E. Detailed operating plans for the utilization of the communications facilities of the Amateur Radio service should be developed with APCO International chapters in cooperation with local ARRL ARES, and NTS personnel.

F. APCO International will recommend to its chapters that membership on disaster preparedness and relief committees include representation from the ARRL through its local ARES and NTS organizations.

G. APCO International will recommend to its membership that standing committees be appointed within the chapters as a means of maintaining liaison with local ARRL officials. APCO International will recommend to its chapters that local ARRL officials be admitted to appropriate APCO International training classes.
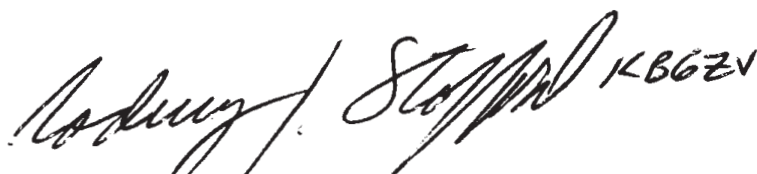
H. Each organization will distribute copies of this MOU through its field structure, and make copies available to other Organizations, both public and private, which may have an active interest in disaster operations.

This agreement is in force as of the date indicated below, and shall remain in effect unless terminated by written notification from either party to the other.

Signed unto this day, the twenty-fourth of October in the year 1996 by:

Marilyn Ward

President, APCO International

Rodney J. Stafford KB6ZV

President, ARRL

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE FEDERAL EMERGENCY MANAGEMENT AGENCY

AND

THE AMERICAN RADIO RELAY LEAGUE, INC.

I. PURPOSE

The purpose of this document is to state the terms of a mutual agreement (Memorandum of Understanding) between the Federal Emergency Management Agency (FEMA) and the American Radio Relay League (ARRL), that will serve as a framework within which volunteer personnel of the ARRL may coordinate their services, facilities, and equipment with FEMA in support of nationwide State and local emergency communications functions. It is intended, through joint coordination and exercise of the resources of ARRL, FEMA, and Federal, State and local governments, to enhance the nationwide posture of emergency communications readiness for any conceivable emergency.

II. RECOGNITION

The Federal Emergency Management Agency recognizes that the ARRL is the principal organization representing the interests of more than 400,000 U.S. radio amateurs, and because of its organized emergency communications capability can be of valuable assistance in providing critical and essential communications during emergencies and disasters when normal lines of communication are disrupted.

The American Radio Relay League recognizes FEMA as the Agency chartered as the central point of contact within the Federal Government for a wide range of emergency management activities in both peace and war time. FEMA is dedicated to working closely with all the members of the emergency management community to achieve a realistic state of preparedness and an increased capacity to respond to emergencies of all types.

III. ORGANIZATION OF THE AMERICAN RADIO RELAY LEAGUE

The American Radio Relay League is a noncommercial membership association of radio amateurs, organized for the promotion of interest in Amateur Radio communication and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct. A primary responsibility of the Amateur Radio Service, as established by the Federal Communications Commission's Rules and Regulations (47 C.F.R. Part 97), is the rendering of public service communications for the general public, particularly in times of emergency when normal communications are not available. Using Amateur Radio operators in the amateur frequency bands, the ARRL has been serving the general public, both directly and through government and relief agencies, for more than 50 years. To that end, the League organized the Amateur Radio Emergency Service (ARES), and created the National Traffic System (NTS).

The League's Field Organization covers the United States, including U.S. possessions and Puerto Rico, and Canada. The Field Organization is administered under an elected Section Manager in each of the 73 ARRL "sections" (a section is a League-created political boundary roughly equivalent to States and provinces, or portions thereof). The Section Manager appoints a Section Emergency Coordinator, who (along with appointed local and District Emergency Coordinators)

directs ARES/emergency communications preparedness activities in each section. The Section Manager also appoints a Section Traffic Manager to supervise NTS/ formal-message traffic operations in each section. Many ARRL members are also licensed RACES operators. The League advocates dual membership and cooperative efforts between ARES and RACES groups whenever and wherever possible.

IV. ORGANIZATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA's national headquarters is located in Washington, D.C. There are ten Regional Offices throughout the United States. These offices provide technical and financial assistance to State and local governments to upgrade their emergency communications and warning systems. This is one method in which FEMA supports State and local governments in the fulfillment of their emergency planning preparedness, mitigation, response, and recovery responsibilities. The Director of FEMA reports directly to the President and works closely in emergency management matters with the National Security Council, the Cabinet and the White House staff.

V. RADIO AMATEUR CIVIL EMERGENCY SERVICE

The Radio Amateur Civil Emergency Service (RACES) is a part of the Amateur Radio Service that provides radio communications to local or State civil preparedness agencies during periods of local, regional, or national civil emergencies. All of the authorized frequencies and emissions allocated to the Amateur Radio Service are also available to RACES on a shared basis. In the event that the President invokes his War Emergency Powers, RACES operators using specially authorized frequencies would be the only Amateur Radio operators permitted on the air.

VI. METHOD OF COOPERATION

In order that communications resources of the ARRL Field Organization may be coordinated and utilized to the fullest advantage during disasters and emergencies, and to the extent permitted or required by law and regulation, the Federal Emergency Management Agency and the American Radio Relay League have agreed to the following:

A. For national-level liaison between ARRL and FEMA, the points of contact are:

o ARRL Headquarters
Newington, CT   06111

o FEMA
Communications and Control Branch
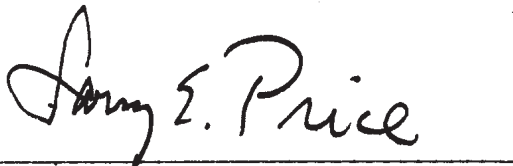State and Local Programs and Support
Washington, DC   20472

B.   FEMA, through its Regional Offices, will encourage
     State and local emergency management officials to
     interact with ARRL Section Managers and other
     appropriate ARRL Field Organization officials, in
     an effort to establish cooperative relationships
     with ARRL Field Organization volunteers.

C.   FEMA and ARRL will encourage the development of
     operating plans within the FEMA Regions and at
     the State and local government levels such that
     the communications services, equipment and
     facilities of the Amateur Radio Service may be
     suitably utilized.

D.   FEMA and ARRL will distribute copies of this
     agreement through channels to FEMA Regional
     Offices and ARRL Field Organization officials
     respectively.

VII.   IMPLEMENTATION

This Memorandum of Understanding shall take effect upon signature by
authorized officials of the ARRL and FEMA. This memorandum may be amended
by mutual agreement of both parties, and will remain in effect until terminated.
ARRL and FEMA will periodically review this agreement and coordinate such revisions
as may be necessary. Upon 90 days written notice, this memorandum may be
terminated by either party.

_____   3 aug 84
Louis O. Giuffrida   _____
Director   Date
Federal Emergency Management Agency

_____   3 AUG '84
Larry E. Price   _____
President   Date
The American Radio Relay League, Inc.

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE AMERICAN RADIO RELAY LEAGUE, INC.

AND

THE NATIONAL COMMUNICATIONS SYSTEM

<u>MEMORANDUM OF UNDERSTANDING</u>

Introduction

The National Communications System, a confederation of government agencies, and the American Radio Relay League, representing U.S. radio amateurs, have cooperated in a series of national level communications exercises. These have demonstrated the capability of radio amateurs to respond to simulated national emergencies when normal communications are disrupted. These tests confirm that volunteer Radio Amateurs are a valuable national resource whose capabilities should be utilized, further developed and exercised to improve our national security.

I. Purpose

This Agreement between the American Radio Relay League (ARRL) and the National Communications System (NCS) is to establish a broad framework of cooperation and a close working relationship with volunteer radio amateurs for national emergency communications functions. It is intended through joint coordination and exercise of the resources of both organizations, to enhance the nation-wide posture of telecommunications readiness for any conceivable national emergency.

II. Responsibilities

The ARRL is a non-commercial national association of radio amateurs, established for the promotion of interest in Amateur Radio communication and experimentation, for the relaying of messages by radio, for the

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advancement of the radio art and the public welfare, for the representation

of the radio amateur in legislative matters, for the maintenance of

fraternalism and a high standard of conduct and for voluntary service in

the public welfare. A primary responsibility of the Amateur Radio Service,

as established by the Federal Communications Commission's Rules and

Regulations (47 C.F.R. Part 97), is the rendition of public service

communications for the general public, particularly in times of emergency

when normal communications are not available. Using Amateur Radio

operators in the amateur frequency bands, the ARRL has been serving the

general public directly and government and relief agencies for more than 50

years. To that end, in 1935 the League organized the Amateur Radio

Emergency Corps (now called the Amateur Radio Emergency Service - ARES).

In 1949, the League created the National Traffic System (NTS). Together,

ARES and NTS comprise the League's public service field organization of

volunteer radio amateurs. As leaders and representatives of radio amateurs

the ARRL has responsibilities in motivation, education, policy and

leadership in promoting Amateur Radio functions in the public service,

especially in times of emergency when the resources of radio amateurs may

be the most survivable communications available to the nation.

The National Communications System (NCS) is a confederation of federal

agencies and departments established by a Presidential Memorandum of August

21, 1963. The mission of the NCS is to insure that the most critical

telecommunications needs of the Federal Government can be met in any

possible emergency, ranging from a normal situation to national emergencies

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and international crises including nuclear attack, while at the same time, achieving the most effective and economical fulfillment of the day-to-day telecommunications requirements. The Manager, NCS, develops plans, standards and procedures for the management of Federally owned and leased telecommunications assets during disasters and emergencies declared under the Disaster Relief Act of 1974 (Public Law 93-288). The NCS administers a joint restoration priority system with the FCC to assure that available telecommunications resources are used to meet the most critical requirements under all conditions. The NCS is also given primary responsibility for implementing Presidential Directive 53, National Security Telecommunications Policy, under the direction and guidance of the National Security Council.

III. Recognition

The NCS recognizes that the ARRL is the principal organization serving more than 400,000 U.S. radio amateurs, and because of its organized emergency communications, training and resources, can be of valuable assistance in providing critical communications and restoration of government circuits during emergencies and disasters when normal lines of communication are disrupted.

The ARRL recognizes that NCS is responsible for coordinating restoration of Federal government communications carried over the commercial carrier networks. The ARRL recognizes that because more than 95 percent of the Federal government's communications are provided by

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commercial carriers there is a national requirement to assist in the transmission of critical messages and in the restoration of government communications.

Principles of Cooperation

So that communications facilities of the Amateur Radio Service may be coordinated and utilized to the fullest advantage during disasters and emergencies, and to the extent permitted or required by law and regulation, the American Radio Relay League and the National Communications System have agreed that each organization will:
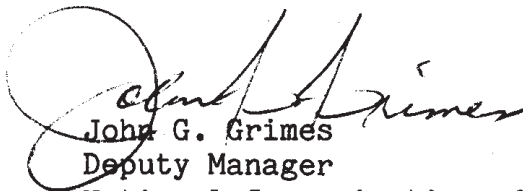
1. Encourage, through channels to its field units, on-going liaison with the other, urging both staff and volunteers to create and maintain adequate communication and effective relationships at all levels.

2. Participate in cooperative pre-emergency planning, exercise and training programs at the Federal Region and National level.

3. Cooperate in times of disaster or emergency, to meet the needs of the government and of the agencies and organizations attempting to restore communications.

4. Make its facilities, resources and capabilities accessible to the other in accordance with established plans and procedures.

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5. Work through its own lines of authority and respect the lines of authority of the other.

6. Distribute copies of this agreement through channels to its own field units, and to other organizations, both public and private, which may have an active interest in emergency restoration of government telecommunications.
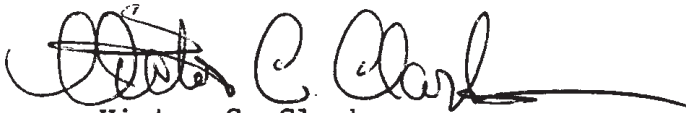
VII. <u>Implementation</u>

This memorandum shall take effect upon its signing by authorized representatives of the ARRL and the NCS. This memorandum may be amended by mutual agreement of both parties and will remain in effect until terminated. ARRL and NCS will periodically review this agreement and coordinate such revisions as may be necessary. Upon 90 days written notice, this memorandum may be terminated by either party.

June 2, 1983

John G. Grimes
Deputy Manager
National Communications System

June 2, 1983

Victor C. Clark
President
The American Radio Relay League, Inc.

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STATEMENT OF UNDERSTANDING

between

THE SALVATION ARMY
and
THE AMERICAN RADIO RELAY LEAGUE, INC.

with respect to

DISASTER SERVICES

Purpose

The purpose of this agreement between the American Radio Relay League, Incorporated and The Salvation Army in the United States of America is to establish a framework for cooperation between the two organizations for relief of disaster victims. It is intended that coordination of facilities, equipment and personnel of the two organizations may provide better service to victims of natural or man-made disasters.

Responsibilities

The American Radio Relay League, since its inception in 1914 up to the present, has observed a self-imposed responsibility for the welfare and conduct of the Amateur Radio Service as regulated by Part 97 of FCC's Rules and Regulations. Principal in that responsibility has been the rendition of public service and communication through the handling of third party communications for the general public, and communications in time of emergency when normal communications are not available. Using amateur radio operators in the amateur bands, the American Radio Relay League has been in the forefront of this activity in serving the general public directly and through government and welfare agencies, and continues to do so. To that end, in 1935, the Amateur Radio Emergency Corps was organized; and in 1949, the National Traffic System was established.

The Salvation Army has, for many years, provided emergency services to individuals and groups in time of disaster. This service has received public recognition. The Congress of the United States of America enacted the Disaster Relief Act of 1970, which, as amended by the Disaster Relief Act of 1974, Public Law 93-288, officially recognized the capabilities of The Salvation Army.

Since that time, The Salvation Army has entered into specific agreements with other agencies concerned with emergency and disaster relief services, both public and private.

Recognition

The Salvation Army recognizes that the American Radio Relay League, because of its organized emergency communications facilities, can be of invaluable assistance in providing communications during emergencies and disasters when normal lines of communication are disrupted.

The American Radio Relay League, Incorporated, recognizes The Salvation Army as an agency whose corporate charter merits sanction by the Federal government to provide community aid in times of disaster. It further recognizes The Salvation Army as a channel for voluntary service during such time.

Organizations of the American Radio Relay League and The Salvation Army

The American Radio Relay League (ARRL) is the principal organization representing the interests of U.S. Radio Amateurs. It is governed by a Board of fifteen directors elected by the membership. For more than 80 years, ARRL has been the standard-bearer in amateur radio affairs throughout the U.S.

For emergency communications, ARRL sponsors the Amateur Radio Emergency Service (ARES), a division of its over-all public service organization. The ARES is organized under local emergency coordinators, with local plans coordinated through section (usually state) emergency coordinators and a public service coordinator located at ARRL's Newington, Connecticut international headquarters. The National Traffic System (NTS) functions daily in handling medium and long haul message traffic, and is ready at all times to function in an emergency situation.

The Salvation Army in the United States of America has its national headquarters in Alexandria, Virginia, and is incorporated under the laws of New Jersey. For administrative purposes, the United States is divided into four

territories, each having its own headquarters and corporate structure. These territories and headquarters are:

Central Territory -- Des Plaines, IL
Eastern Territory -- West Nyack, NY
Southern Territory -- Atlanta, GA
Western Territory -- Rancho Palos Verdes (Los Angeles), CA

Reporting to each territorial office are from nine (9) to eleven (11) divisional administrative centers, strategically located in the territories. Salvation Army personnel in these centers direct activities in from one (1) to four (4) states. Reporting to divisional centers are local corps community centers (churches) and social service institutions of other types; also reporting to divisional centers are numerous local volunteer committees operating in smaller communities.

Principles of Cooperation

In order that dependable communications might be maintained and that relief operations might be quickly expedited, the American Radio Relay League, Incorporated and The Salvation Army agree that:

A. Each organization will, through channels to its local units, encourage ongoing liaison with the other, urging both staff and volunteers to create and maintain adequate communication and effective relationships at all levels.

B. Each organization will participate in cooperative pre-disaster planning and training programs at local, regional and national levels.

C. Each organization will, in times of disaster, cooperate to meet the needs of disaster victims, and of the agencies and organizations attempting to serve them. Each will make its facilities, resources, and capabilities accessible to the other, in accordance with established plans and procedures for cooperative service.
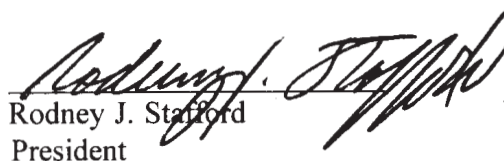
D. Each organization will work through its own lines of authority and respect the lines of authority of the other.

E. Each organization will distribute copies of this agreement through channels to its own field units, and to other organizations, both public and private, which may have an active interest in emergency and disaster relief.

SIGNATURES

Commissioner Robert A. Watson
National Commander

The Salvation Army
Alexandria, VA

Rodney J. Stafford
President

American Radio Relay League, Inc.
Newington, CT

Revised January 1996

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE NATIONAL WEATHER SERVICE

AND

THE AMERICAN RADIO RELAY LEAGUE, INC.

I. PURPOSE

The purpose of this document is to state the terms of a mutual agreement (Memorandum of Understanding) between the National Weather Service (NWS) and the American Radio Relay League, Inc. (ARRL), that will serve as a framework within which volunteers of the ARRL may coordinate their services, facilities and equipment with NWS in support of nationwide, state, and local early weather warning and emergency communications functions. It is intended, through joint coordination and exercise of the resources of ARRL, NWS and Federal, State and local governments, to enhance the nationwide posture of early weather warning and readiness for any conceivable weather emergency.

II. RECOGNITION

The National Weather Service recognizes that the ARRL is the principal organization representing the interests of more than 400,000 U.S. radio-amateurs and because of its Field Organization of trained and experienced communications experts, can be of valuable assistance in early severe weather warning and tornado spotting.

The American Radio Relay League recognizes the National Weather Service with its statutory responsibility for providing civil meteorological services for the people of the United States. These services consist of:

1. Issuing warnings and forecasts of weather and flood conditions affecting the nation's safety, welfare and economy; and,

2. Observing and reporting the weather of the U.S. and its possessions.

To perform these functions and many related, specialized weather services, NWS operates a vast network of stations of many types within the U.S.; it cooperates in the exchange of data in real time with other nations, including obtaining of weather reports from ships at sea.

III. ORGANIZATION OF THE AMERICAN RADIO RELAY LEAGUE

The American Radio Relay League is a noncommercial membership organization of radio amateurs, organized for the promotion of interest in Amateur Radio communication and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct. A primary responsibility of the Amateur Radio Service, as established by the Federal Communications Commission, is the rendering of public service communications for the general public, particularly in times of emergency. Using Amateur Radio operators in the amateur frequency bands, the ARRL has been serving the public, both directly and through government and relief agencies, for more than fifty years. To that end, the League created the Amateur Radio Emergency Service (ARES) and the National Traffic System (NTS). The League's Field Organization consists of sixty-seven administrative sections managed by elected Section Managers. A Section is a League-created political boundary roughly equivalent to states (or portions thereof). The Section Manager appoints expert assistants to administer the various emergency communications and public service programs in the section. Each section has a vast cadre of volunteer appointees to

perform the work of Amateur Radio at the local level, under the supervision of the Section Manager and his/her assistants.

IV. ORGANIZATION OF THE NATIONAL WEATHER SERVICE

The National Weather Service consists of a National Headquarters in Washington, D.C., and six regional offices in the United States: Eastern, Southern, Central, Western, Alaska, and Pacific. An NWS Public Information Office is located at Weather Service Headquarters. Fifty-two Weather Service Forecast Offices and 209 Weather Service Offices provide warnings and forecasts to the Nation.

SKYWARN is the spotter program sponsored by the NWS. Radio amateurs have assisted as communicators and spotters since its inception. In areas where tornadoes and other severe weather have been known to threaten, NWS recruits volunteers, trains them in proper weather spotting procedures and accepts the volunteers' reports during watches and episodes of severe weather. By utilizing the SKYWARN volunteers, the NWS has "eyes and ears" throughout the affected area in conjunction with NWS sophisticated weather monitoring equipment.

V. PRINCIPLES OF COOPERATION

A. The American Radio Relay League agrees to encourage its volunteer Field Organization appointees, especially the Amateur Radio Emergency Service, to contact and cooperate with Regional Weather Service Headquarters for the purpose of establishing organized SKYWARN networks with radio amateurs serving as communicators and spotters.

B. ARRL further agrees to encourage its Section management teams to provide specialized communications and observation support on an as-needed basis for NWS offices in other weather emergencies such as hurricanes, snow and heavy rain storms, and other severe weather situations.

C. The National Weather Service agrees to work with ARRL Section Amateur Radio Emergency Service volunteers to establish SKYWARN networks, and/or other specialized weather emergency alert and relief systems. The principle point of contact between the ARRL Section and local NWS offices is the Meteorological Services Division of the appropriate NWS Regional Office. The addresses of the Regional offices are listed below. The national contact for ARRL is the Public Service Branch, ARRL Headquarters, Newington, CT 06111.

National Weather Service Eastern Region
NOAA
585 Stewart Avenue
Garden City, New York 11530
Tel: 516-228-5400

National Weather Service Southern Region
NOAA
819 Taylor St., Rm. 10A26
Fort Worth, Texas 76102
Tel: 817-334-2668

National Weather Service Central Region
NOAA
601 E. 12th St., Rm. 1836
Kansas City, Missouri 64106
Tel: 816-374-5463

National Weather Service Western Region
NOAA
Box 11188, Federal Bldg.
125 S. State St.
Salt Lake City, Utah 84147
Tel: 801-524-5122

National Weather Service Alaska Region
NOAA
Box 23, 701 C St.
Anchorage, Alaska 99513
Tel: 907-271-5136

National Weather Service Pacific Region
NOAA
P.O. Box 50027
Honolulu, Hawaii 96850
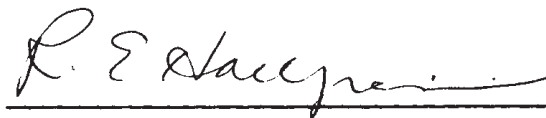Tel: 808-546-5680

Silver Spring, Maryland
January 19, 1988

For The American Radio Relay League,

ARRL Secretary Perry F. Williams, W1UED

Perry F. Williams
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For The National Weather Service,

Assistant Administrator for Weather Services
Dr. Richard E. Hallgren

R. E. Hallgren
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