Maine Emergency Communications Course (Level I)

Introduction

The Maine Emergency Communications Course is copied and adapted from the Colorado Emergency Communications Course and used with permission from Colorado ARES.

The Maine Emergency Communications Course is the next step in the evolution of the material collected on behalf of the ARRL for its ongoing education course in Emergency Communication. This material deviates from the ARRL course in that the intent here is to provide the student with the practical information that each person active in emergency communication needs without the "fluff" associated in other presentations within Emergency Communication.

The first segment is orientation, to supply the student with appropriate background information in such items as: terminology, service, attitude, the ARES organization, ARES/RACES, Maine ARES Communications Plan, Served Agencies, and personal preparation. The second segment includes: safety, basics of communication, nets, traffic handling, personal equipment, modes of operation, call-out process and debriefing. With the third segment being an overview of the Incident Command System (ICS).

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Terms and Definitions

- **ARES -** Amateur Radio Emergency Service
  Group of Hams that have volunteered to train in communication for use by local Public Service agencies during times of emergency.
- **RACES -** Radio Amateur Civil Emergency Service
  Group of Hams that have volunteered to train in communication for use by local Civil Defense (now called Office of Emergency Management [OEM]) during times of emergency.
- **Communications Emergency** (a.k.a. **Incident**)
  Any planned or unplanned occurrence, regardless of cause, which requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.
- **Event**
  Any planned activity that is non emergency in nature where ARES communicators are used to assist a charitable organization with communications, or ARES training exercises.
- **Emergency communications - Emergency Communication**
  Supplemental Communication provided to our served agencies by ARES/RACES when served agency communications are overloaded.

Service, it's what we do

Emergency Communications is an opportunity to provide the public service community with trained Amateur Radio operators who will have a consistent level of expertise in Emergency Communication. It is evident that there are areas in the U.S. that have few opportunities to train operators in disaster communication, while other areas have far more than any would wish. This program will provide consistency in technical training wherever the person lives.

The goal of this document is to provide consistently knowledgeable communication people who have a very positive, service oriented attitude. Unfortunately, there are persons in the amateur radio community that believe we are there because we have a "right" to participate. The opposite is actually true. We are welcomed by the public service community *only* to serve their communication needs. We are there only at their pleasure and to provide a service. In fact, our very existence is only to provide for their needs.

We provide the public service community <u>supplemental communication</u> when their systems are overloaded.

We:
- Do **not** run the event or incident!
- Keep good records.
- Practice by helping charitable organizations.

Record Keeping

Before we go further into the Emergency communications material it is helpful to understand record keeping. While most people find record keeping distasteful it <u>does</u> serve a necessary purpose during ARES/RACES events. If a served agency person comes over and asks when thus-and-such was handled, how will you answer? If you keep accurate logs of everything your location does the answer is easy. <u>Look in your log </u>and give them the information they requested. **But**, you say, what if it is not in <u>my</u> log? Easy, call the location that has the correct log and get the required information.

The following set of forms are suggestions for a starting point with information collection. If your group has their own forms, use them! These are for areas that have not developed their own and are a starting point only. Each served agency has unique requirements. Build your own forms to handle your served agency(ies) needs.
- <u>Mobilization / Demobilization</u>
- <u>Location Assignments</u>
- <u>Event Log</u>

If your group uses, or is thinking of using ICS forms you can go to Google, on the internet, and search for "ICS Forms" (with the quotes) to get links to a large number of sources for the ICS forms you may need.

Attitude

A person having just completed basic training as a fire fighter is not going to be expected by the public, his peers, or his superiors to be as well suited to all aspects of the job as one who has undergone additional training above the basic level. Field experience added to on-going training are what make a good firefighter. Why then is it that many of the Amateur Radio fraternity feel that having an operator's license automatically makes them an asset to public safety communications? Unfortunately this attitude is held by many amateurs and is an example of something in need of change. A driving license grants one the privilege of driving upon the public streets and highways. It does not entitle the person to drive a heavy truck for hire. It is the requirement of on-going training and experience that produces a qualified operator.

From Technician to Extra Class Amateur License, nothing in that course of study makes anyone an emergency communications expert, or even an asset to the public safety. Unless a person is willing to undertake on-going training and thus gain experience, and to subject them self to accepted standards of conduct and discipline, the license serves only as minimum requirement for operation. In matters of emergency communications, this means you are expected to know far more than just how to hook up and use a radio transmitter and antenna. You must also know how to communicate using the minimum number of words, operate in a directed net - without slowing the net yet without being in a hurry, something of how to conduct yourself concerning sensitive communications, dealing with the press, your limitations as well as your assets. If you expect to be dumped into the middle of a forest fire to provide emergency communications to professional and volunteer fire crews, then you had best also know at least the basics of fire fighting, and how it relates to your own safety, that of the public at large, and the other members of the team. In short, you may think you are the best communicator in the world, but if you expect to be placed in the thick of it, you might want to know which way the wind is blowing!

Before you begin the technical material involved in learning about Emergency Communication it is imperative that you understand your knowledge in emergency communications is not actually as important as your attitude, during

emergencies. Yes, technical ability will enable you to do a far better job of communicating. But your attitude will determine the success of the overall Amateur Radio effort. The person who brings a "know it all" or "Cowboy" attitude will only hamper relations with served agencies.

The people you will be **serving** - *remember that word* - are professionals that have seen far too many people more interested in impressing someone than in getting the job done. You will actually impress them far more by being as quiet as you can and doing your job well. Results, without interference of served agency people, will cement relations with your served agency. Our served agencies also respond well when we take a positive attitude and relate what we can do rather than what we can't do.

Please keep in mind that Amateur Radio is a hobby. However Emergency communications is a commitment! Simply stated, emergency communications requires an explicit mental commitment to help others. Please read that again. A commitment to help others. To be effective in emergency communications you will be required to expend significant effort and time in training and practice. Many say "I did that before, so I don't need to practice". This is not true. It will take time. A lot of time, if you are to be successful. If you are willing to spend that time, *WELCOME!*

Hams are patriotic, independent people and they are volunteers. The attitude among a few hams is that 'Volunteers don't have to take orders.' That's absolutely correct. We don't *have* to take orders. But if you are not ready to follow instructions, *you may want to do something outside of ARES/RACES.*

Do not adjust, play with or fiddle with any piece of equipment in use for an event, during that event, unless it is malfunctioning. Remember, an incident scene is not about radios and being a Ham, it's about the incident and YOU will either be part of the problem or part of the solution.

ARES Organization

There are four levels of ARES organization--national, section, district and local. National emergency coordination at ARRL Headquarters is under the supervision of the ARRL Field and Educational Services Manager.

At the section level, the Section Emergency Coordinator (currently K1GAX) is appointed by the Section Manager [currently N1KAT] (who is elected by the ARRL members in his or her section) and works under his/her supervision. In most sections, the SM delegates to the SEC the administration of the section emergency plan (called the Maine ARES Emergency Communications Plan) and the authority to appoint District and local ECs.

In Maine the (ARES)"Districts" are District 1 (York, Cumberland, Oxford and Sagadahoc Counties), District 2 (Lincoln, Androscoggin, Kennebec and Franklin Counties) District 3 (Knox, Waldo, Hancock and Washington Counties) and District 4 (Somerset, Piscatiquis, Penobscot and Aroostock Counties)

It is at the local level where most of the real emergency organizing gets accomplished, because this is the level at which most emergencies occur and the level at which ARES leaders make direct contact with the ARES member-volunteers and with officials of the agencies to be served. The county EC is therefore the key contact in the ARES. The EC is appointed by the SEC, usually on the recommendation of the outgoing EC or local membership.

Within the local group the EC may appoint people as Assistant Emergency Coordinators (AECs) to handle specific portions of the local operation. Some common AEC positions are:
- Operations - In some areas this is the person normally considered "next-in-line" to the EC
- Logistics
- Administration
- Liaison
- Training - Many areas have found that splitting out the training function from the Administration AEC provides benefit to the group

ARES / RACES

- **Dual Membership and it's advantages**
  It is not a question of ARES or RACES, rather it is enroll and participate in both. Each organization has a distinct origin and yet both provide the coverage of amateur radio emergency communications services for their community.
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RACES originated as a Federal Government program designed to use amateur radio operators and equipment scattered throughout the community as a ready resource in the event of War. RACES is comprised of two parts:

1. specially designated FCC-licensed RACES stations and
2. amateur radio operators registered with civil defense organizations as a pool of community volunteers authorized to operate in the RACES service upon a declaration of an emergency by civil defense.

Amateur radio operators are encouraged to register with their EMA organization to be available to operate under FCC Part 97.407 in the event the President invoked an emergency under the War Emergency Powers of 1934. However, RACES operators may also respond to emergencies declared by EMA authorities.

During RACES operations in wartime, only RACES stations may communicate with other RACES stations. RACES stations or amateur radio operators enrolled in EMA organizations cannot begin RACES operations until specifically authorized by the EMA organization for the area served. As such, RACES amateur radio operators cannot begin conducting nets before an activation, nor can they continue relief operations after official EMA authorization/operations has concluded.

ARES can respond to situations that may not draw the attention of EMA organizations. For example, if a local hospital's PBX phone system fails, ARES can respond and provide essential radio communications within the hospital complex. Even using employees with cellular and wireless telephones, wireless phone service would be overwhelmed with the volume of required calls. Amateurs stationed at key locations within the hospital could assist staff in dispatching and routing of personnel. A hospital's phone system problem would not warrant intervention by EMA authorities nor the activation of RACES as it does not directly involve government services or affect overall community welfare.

During these times, amateur radio operators organized under ARES can operate and serve as trained individuals to effect emergency communications. ARES operators can initiate nets and operations ahead of formal RACES activations and can continue to operate providing relief, health and welfare communications after the formal RACES operations concludes. As an operating arm of ARRL, ARES operations can request and incorporate ARES operators from neighboring counties and other states into the communications response for the affected area.

In summary, RACES may not be activated to respond to every emergency situation. Similarly, ARES operators will not be allowed to operate as RACES operators in the event of a war unless authorized by the local Office of Emergency Management. In many instances, identification issued by EMA authorities may be needed to access areas affected by the emergency. It is therefore prudent to enroll and serve with both programs to retain flexibility to respond to the situation as needed.

- **Working Together**

There are a number of peer amateur radio organizations involved with providing emergency communications for national organizations. Among them are: ARES (ARRL), RACES (civil defense and local governments), SATERN (Salvation Army), SKYWARN (National Weather Service) and other emergency management organizations may also be served by amateur radio groups: CERT (Citizens Emergency Response Team), VOAD (Volunteers Organizations Active in Disasters), MARS (Military Affiliate Radio Service), hospitals and health care agencies, utilities, public service agencies. Some of these operate under the ARES/RACES umbrella as a local agreement.

Amateurs are encouraged to register with more than one organization. For example, a person can sign up in ARES, RACES and SKYWARN without much difficulty or overlap. A person should declare his/her primary served agency -- the one which he/she will develop and respond to in the event of an emergency. However, during times of non-emergency, they would be able to assist a peer organization in the development of their program, education and training efforts and special events. If during a given emergency, the primary served agency is not activated, the individual is free to report to any agency needing assistance.

- **Who is in charge (not an issue if they work together)**

This must done via MOUs and understanding amongst the leadership *before* an emergency develops. SOP calls for each organization to maintain a roster, noting which persons are signed up on a primary basis to work

with that group. The choice of the primary served agency is up to the individual operator, as he/she is in the best position to determine his/her availability given his/her work, home and family situation.

Procedure calls for each agency to determine which frequency(ies) they will monitor for calls, and notify other agencies and nets which frequencies are being monitored for this incident. Frequencies for net operations should be coordinated on an area basis amongst the leadership and worked out ahead of time. The leadership must keep in mind that no situation is perfect during an emergency and variations in the arrangements are expected as adjustments are made due to the situation, the condition of equipment, propagation, operators and agencies involved.

REMEMBER an emergency is about providing SERVICE, not about which organization is in charge or who will get credit!.

Overall objectives, priorities and decisions to be made by the ICS command team. The IC should be clearly identified and changes in lead commanders should be noted and communicated as the situation evolves. The focus must be to align communications to anticipate and keep pace with the changes in overall emergency operations as required by the command team. Quality leadership in the communications groups recognize this and will coordinate their efforts amongst the groups to assure coverage and continuity.

- **Minimizing "us vs them" thinking**

Quality leadership recognizes that the overall goal is to move the messages to the final destination in a timely and usable manner. Quality leadership recognizes that this is done via teamwork and at times require give-and-take to accomplish multiple goals. The culture of quality and professional leadership is established not during the event, but before the event. The membership should participate in leadership development, and communicate these values to non-members and non-amateurs alike.

The Maine ARES Emergency Communications Plan

In simplest terms, the Maine ARES Emergency Communications Plan details how all of the Maine ARES counties and districts "play" together. Details include:

- **General Provisions of the plan**
  Authority
  Purpose
  Membership
  Local, County and District Plans
  Plan activation
  Alerting procedures
  Operation
- **ARES Mobilization Procedures**
  Purpose
  Applicability
  Activation
- **Maine ARES Districts**
- **Operations frequencies**
- **Maine repeater list**
- **Maine repeater map**
- **Maine ARES contacts**

The document is available on the Maine ARES web site (http://www.maineares.org). Please take some time to read that document.

Served Agencies

Keeping our served agencies happy may seem a daunting task but if we keep a few items in mind it will be far easier than most imagine. First is to be concise in our communication (see Communication Guidelines in segment two for

details). That is to say, use as few words as possible to completely describe anything we need to communicate about, and no more.

Other considerations are:

We are NOT a rapid response team.

If you arrive at the scene of an emergency just as the sirens are quieting, keep your mouth shut and get out of the way! We do not provide first aid, transport victims, provide traffic control or any other function normally provided by public service agencies. We **do** provide communication when public service systems are overloaded. Even the SKYWARN group does not activate until the National Weather Service has requested our help.

As a group we will, in many cases, do more than "just" communicate. You, as an ARES/RACES operator, are free to do any work for the served agency that they request of you. So long as you are comfortable doing that work **and** it does not hinder your ability to communicate.

Emergency communications involves both amateurs and non-amateurs alike. Emergency communicators must have the equipment, skill and knowledge to improvise additional communications capacity in very short order. In all of this, leadership, teamwork and initiative are key factors to success!

We do NOT run the event

When you are working any event please understand that you are there to help the served agency with a communications shortfall. This, in and of itself, is embarrassing to some agencies. If you keep that fact in mind, you can eliminate confusion and problems by acknowledging that the served agency runs the event. Not just by your words, but by your actions.

One of the greatest problems that Amateur Radio has is operators that go into an event and try to take over. Cowboy and "wanna-be" behavior **will** discourage the served agency from ever using Amateur Radio services again. In some cases it has resulted in the Amateur Radio operator involved being arrested and removed from the scene.

During an event do your best to maintain a courteous, professional image. You may be working with several agencies including police, fire, first aid squads, National Guard, etc. Extend every possible courtesy to members of these groups. Make sure they know who you are, and what your communications capabilities are. But remember our primary mission is to communicate, not to provide other public safety support.

Most if not all Public Service agencies use some form of the Incident Command System (ICS) as the model for operations during an emergency. You will help your served agency and your ARES/RACES group if you understand how the Incident Command System works.

Who talks to the Media (press)?

Dealing with the media/public: During an emergency do **not** make any statement(s) to the media/public about the emergency! The Public Information Officer (PIO) for the agency being served will make **all** statements. You can discuss nondetailed information about Amateur Radio if you have time and they ask. Do **not** include mode, frequency or traffic-volume information, and above all, **never relate injury, fatality or damage** information to the media without explicit instructions from the primary served agency!

Should you encounter some very persistent media people, the following statement may help. Please check with your served agency before you use this statement:

"ARES is Amateur Radio Emergency Services. These are volunteer Amateur Radio communicators who are aiding local law enforcement, fire, EMS and other agencies with auxiliary or supplemental communications due to the current overload or difficulties due to high volume of traffic or other unusual conditions. We currently have (XX #) operators in places like the EOC, communications centers, red cross shelters and other places where additional communications are required."

Served Agency Communication Systems

Each served agency will have its own - unique - communication system. It is in the best interests of both served agency(ies) and ARES/RACES group to discuss and understand what your local served agency uses. While you discuss the communications they use, ask what - if any - requirements they may have for Amateur Radio operators to operate the served agency system and what unique knowledge these operators will need.

<u>Basic Training and Simulations</u>

Education and training is what supplies the knowledge to help you build confidence in your ability to execute the required steps in the shortest amount of time and with the minimum amount of wasted motion. Hesitancy and indecisiveness will quickly tire you, as you are expending more mental energy than required, and that would soon dull your senses. Thus you educate yourself and train before the skills are needed. Education and training helps you function as part of a team.

Emergency communicators are part of an adaptive team that can rely on and support one another. All members must function as a cohesive unit. Individuals may possess great operating skills but will perform inadequately if they cannot work as part of a team.

What you need to do

Find an organization active in developing emergency communicators. Find an ARES, RACES or similar program in your community. You may ask at your local amateur radio club meeting if you do not know of any organization in your area.

Contact your local ARES/RACES group and volunteer. You can be of help to these organizations by training in the disciplines needed for appropriate communication. Training in Emergency Communications *before* you are needed will help you develop the skills necessary to be an effective ARES/RACES communicator.

- **Undergo an educational/training program.**

  You may have to *unlearn* some things you thought you knew There are many false concepts on emergency communications due to impressions that are not based on actual field experience. Some of the most important emergency communications operating principles differ significantly from traditional daily amateur radio practices.

  These because emergency communications requires a network of message relay stations to be built from scratch and operating within minutes or very few hours of an activation. Building a communications network is not done routinely by amateur operators in the normal course of enjoying the pastime. It is important to seek out educational material that is based on sound practices refined with actual field experience. Be open to learning new material, and the rationale why it works.

  Unlike individual amateur radio operators operating from a single station at home or in the mobile, emergency communications involves radio operators forming teams and relaying messages using both similar and dissimilar techniques simultaneously. Knowledgeable emergency communicators know very well that it's not a case of choosing which method is the "single one-size-fits-all method" for getting the job done but rather that it's a mix of techniques, whichever is appropriate for that particular message. These radio operators must work well and integrate with their host emergency management agency. While the lower levels of the operations may resemble and borrow from our personal experience as amateur radio technicians and operators, it requires personal growth to operate in a challenging an environment such as the one that materializes during an emergency.

- **Emergency Management**
  - Learn about the Incident Command System.
  - Learn about emergency management agencies in your area.
  - Learn about how disaster declarations are escalated from the county mayor or local official(s), to the state governor, to the nation's president -- paving the way for outside relief and aid.
  - Learn about how requests for mutual aid are handled within your community during a disaster.
  - Find out about the notification/activation tree for emergency communicators and sign-up as a team member.

- It's highly recommended to take a first aid course. It's knowledge you can use anytime, anywhere.
- **Equip yourself**
  - Get a NOAA Weather Radio with digital SAME alert. Program it with the FIPS code for your area.
  - Put together a quick deployment bag (A.K.A. Ready Kit) with your spare radio equipment, antennas, coax, clipboard, pens, IDs, etc. Place your checklist of last minute items (fresh batteries, water, etc) into the bag as well.
  - Put together a 72 hour pack, useful for both field deployment and emergency evacuation.
- **Learn about Emergency Communications Procedures**
  - Practice checking into and out of nets. Practice operating in a net.
  - Practice being a Net Control Station.
  - Practice sending and receiving ARRL Radiogram messages.
  - Practice participating in a tactical network, such as a parade or marathon.
- **Learn about Emergency Communications Equipment**
  - Learn and practice HF techniques.
  - Learn and practice <u>NVIS antenna setup and function.</u>
  - Learn and practice VHF/UHF simplex techniques.
  - Learn and practice Packet Radio.
- **Existing programs at the local level.**
  - Check with your local ARES official (SEC, DEC, EC, AEC, etc).
  - Check with your local amateur radio clubs.
  - Check with your local agency - EMA, American Red Cross, National Weather Service, Salvation Army, etc.
  - Check with your local church, county or state-wide denomination.

Practical Experience

One key to the success of emergency communications is the amount of education, training and preparedness prior to the event. By learning, practicing and evaluating prior to the emergency, the overall level of proficiency is raised.

During activation and operation, the time to develop one's skills and knowledge is limited or non-existent, yet this is the time when having that knowledge and experience makes the most difference. Practicing emergency communications is best approached as a team effort scheduled on evenings or weekends and not while the actual emergency is happening. There are a number of ways to develop knowledge and practice. The best way is to learn from the experiences of other emergency communicators, taking the best practices and avoiding pitfalls that can occur in any setting.

When you go out on a real emergency there are several things you need to understand.

1. **Expect confusion.** When we respond to a field assignment, our served agencies are getting their response organized and are often being pulled in a number of directions. Expect that some people won't know why you're there, what it is that you are supposed to do, and whom you're doing it for.
2. **Be flexible.** Because of the confusion, we must always remain flexible and convey to those we are serving that we are here to help. Our AECs attempt to have location directions and contact names for each field assignment before our ARES member goes mobile, but this isn't always possible. Sometimes our function is clearly defined and understood, other times it isn't. Remaining flexible reduces your stress level and proves to our served agencies that you are a team player.
3. **Know your audience.** We contrast arriving to a field assignment as either Rambo or an attorney. Neither is good, don't over dress, try to look the part that's required. Outfit yourself as is appropriate for the situation. For example, don't arrive to assist the base camp of a wildfire in short pants and a tank top, you might be asked to leave because your clothing choices could put you in danger. Stop for a moment, consider your assignment and who you will be assisting, and make appropriate clothing and appearance choices. Don't arrive like you just crawled out from beneath a rock, always look clean and well kept.
4. **Be aware of your first impressions.** Some of us are shy, some are outgoing. Some are demure, others are outspoken. Know how others perceive you and adjust your character as needed for the situation. If you are a shy and quite individual, know that you might have to be bold to find the official or area you have been assigned to assist. If you are typically loud and outspoken, look around you, you might need to tone it down a little. If you are assigned to a Police/Fire dispatch center, loud talking and bold action are not going to be appreciated by the dispatchers who are assisting citizens with emergency needs.

Simulations and how they help

Skill is needed for handling simultaneous multiple activities that can arise during emergencies. The very nature of responding to an emergency affords very little in the way of on-the-spot education and training. Hence it is vital that the education, training and practice occur ahead of time. Coping with equipment problems, people requesting attention and a response, listening for a station with a weak and distorted signal, all the while trying to absorb the situation and direct a team effort on and off the air are real-life situations that can occur. Fortunately, there are ways to learn and practice in a broader setting that are enjoyable. Simulations, exercises and practice nets are proven ways to bring together these elements in a non-threatening and fun environment, developing the composure and skills, provide analysis and feedback and gain new confidence to rise above any situation.

Amateur radio operators are always in search of new knowledge, equipment and operating opportunities. The learning and training sessions leading up to the simulations and exercises are excellent ways for specialists to introduce the rest of the team to new modes or techniques. There are a number of things you can arrange to try out and practice before the exercise, then test the team's proficiency during the event. Try alternate frequency and communications modes, such as simplex (non-repeater) operations, SSB where FM modes are prevalent, Near-Vertical Incident Skywave (NVIS) for local HF coverage, satellite for reliable long-haul coverage, packet and digital modes for passing message text. See the section on Communications Technology for more information.

Simulations offer a safe environment for being an NCS or liaison/relay station. Other operators are trying out their skill and just as in practicing for team sports, an occasional procedural error or two offers an avenue for review, learning and improvement. Practice removes the fear, uncertainty and anxiety of doing something you have not done before. Just that calming effect you feel afterwards with that sense of accomplishment is worth the experience. You have attempted an operating skill that few amateurs venture.

The National Traffic System is an excellent vehicle for practicing relaying large volumes of messages in a timely and coordinated fashion. NTS stations practice originating, relaying and delivering messages (collectively called traffic) quickly and efficiently. The skills honed with NTS experience removes the hesitation and mishandling that can happen when faced with having to pass traffic.

- **Public Service Events**
  Public service events are another setting where emergency communicators can practice teamwork and build their confidence. Many public service events involve operators supporting and coordinating outdoor events such as parades or community fun runs communicating between each other using handie talkies. These outdoor operators are typically supported by Net Control Stations and/or relay stations using portable/mobile stations. Public service events are excellent settings for practicing and refining skills on passing informal traffic, juggling amongst multiple operating frequencies, outfitting oneself with radio and personal equipment to comfortably operate in the field for a sustained period -- all while enjoying and participating in a community event.
  In summary, training activities and community service participation allow you to try new methods for all communication activities in a non threatening environment with the added advantage of having fun while you work at them.
- **Lessons Learned on Past Events**
  Debriefing sessions should be held after each operation to exchange lessons learned to be used for future operations. Since each event typically features a new set of operators, the lessons learned are frequently the same material being conveyed to a new audience. It is a wise use of time to learn from the experience of others and work towards mitigating potential gaps and obstacles rather than repeat their past mistakes.
- **Teamwork and Attitude**
  As the first segment in this course said, the attitude you bring with you will do more to determine the success of your effort than anything else. You must, therefore, bring an attitude of helpful cooperation to every event you participate in. If that is a problem for you, then I suggest you try something outside of ARES/RACES.
- **Move the Message Forward**
  The mission for emergency communicators is to use any available communication technique available to forward the message to it's final destination. Whether it's via regular telephone, fax, amateur radio, commercial and government radio, Citizens Band, Family Radio Service, bicycles; the method is immaterial. What counts is that the message got delivered in usable form to the recipient in a timely and accurate fashion that the recipient could take action.
  When you are handling traffic, be sure you do not become myopic with your effort. The classic example is during a practice session in Packet, NCS should have one station pass a simulated emergency message to one of the other packet stations (something like the time on your watch at that instant). You will be amazed

at how many people will spend the time to format the message in packet to send it rather than using the microphone to send a voice message that would be followed up with a packet message.

- **Creating an Operating Environment**
You will learn to create a new environment where none previously existed -- and chances are that it won't happen seamlessly on its own. Recognize and accept this reality. Do not rely upon someone else to do your own preparation and the time prepare personally for emergency and disaster situations is **now** while there is time to think it through, purchase what you need with no lines at the store, and assemble things into kits and checklists. Your single most important item in the field is <u>fresh water (not beverages such as coffee or soda that will dehydrate you)</u>. There is much written about the topic of personal emergency preparedness, so further discussion will be deferred.
Don't worry and be distracted by the condition of someone else's equipment and operational readiness. Since you're already at your site (or heading to your assignment or evacuation shelter), focus on your situation first, then deal with other situations as conditions permit. The better you prepare and the faster you arrive at your destination (without speeding), the faster you'll handle your immediate situation.
While we would like to see everything go smoothly in an emergency, Murphy tells us that nothing will. Do not wait for someone else to do *__your__* preparation. *__You__* make it happen. *__You__* provide for your education and results. *__You__* make it go right.

Hints to help during an emergency

- **Remember**
    - **You are emergency communicators, not emergency rescue personnel**
    - Keep your EMA ARES/RACES ID with you at all times.
    - **Do not impede the work of professional responders such as fire fighters, police and emergency medical personnel.**
    - Stay out of the "hot zone" unless instructed. You don't want to endanger yourself and add yourself to the casualty list. Follow the directions of your lead operator or the chain of command.
    - You may be required to perform duties beyond just emergency communications. Remain flexible to respond to the needs of the situation. But also keep in mind that we are primarily there to communicate.
    - Test your techniques before an exercise or an event.
    - **If you want to experiment with a new technique or method, test it <u>before</u> you have a major exercise or event.** You don't need more frustration or embarrassment, so why compound that chance when the stakes are higher?
- **Staging of Resources**
Please see the section on Incident Command for a full overview of ICS.
    - A staging area is exactly what it sounds like. It is a location where resources are staged and managed prior to being sent into the field. Separate staging areas might be needed for many reasons:
        - Lack of space at the base camp (because it is set up at the trail head parking lot, and is short on space for heliports, parking, etc.).
        - The mission might be geographically spread out over such a great distance that it makes more sense to marshal some people at a separate staging area.
        - The mission might use unique transportation systems that require their own specialized staging area (marine support from a dock or harbor, air support from a landing strip, snow-mobile support from an access trail not close to the base camp, etc.).
    - Characteristics of Staging Areas include:
        - Staging areas are managed by the Logistics Section.
        - Assets that are mobilized into the field from the Staging Area are controlled by the Operations Section.
        - The staging area can be co-located with the ICS staff at Base Camp.
        - If a staging area is not co-located with the ICS staff at Base Camp, a separate communication system (cell phone, runner, two-way radio) must be set up between the ICS staff and the staging area.
- **Shift rotation and Overwork**
Radio operators are of value only when they show up at the operations site. As a result, it's very easy to overwork the operators that respond if there are fewer than needed. Team leaders and amateur operators as a whole must recognize this and anticipate bringing in fresh operators to relieve those on shift. While most of us are accustomed to working in an office or similar environment for eight hour days, radio operators

should be allowed to take a break every hour. Practically speaking, their shift should be no more than ten hours in a 24 hour period, allowing them time to handle personal, work or family matters. Often during emergencies, the demand for emergency communications far exceeds that of available operators. A typical, well staffed operation for a given site requires a minimum of three operators per shift for adequate coverage and rest.

- **Lack of available food/water and "facilities"**
  One needs to keep in mind that during emergencies, operations will take place at locations that normally do not accommodate groups of people. As a result, you'll probably find that there are no accommodations for food, water, restroom, personal hygiene and first aid. You will need to prepare and bring for your needs, and realistically, for at least two more people (since you're working in a team environment and there'll be other responders). Packaged foods such as MREs, bottled water, prepackaged baby wipes, and rolls of toilet paper are signs of a well-prepared emergency communicator.

- **Lack of replacement Equipment**
  Sometimes, as shift communicators leave, they will take back their personal equipment brought to the operations. This is understandable, and should be anticipated. As people respond to an extended operation, take a moment, find out how long they will remain and ask them if they're willing to let others use their equipment. If they indicate that they can only loan the equipment for a limited period of time, begin putting out a request for replacement equipment early.

- **Every one is "Stressed Out"**
  Emergency communications is a very challenging assignment with pressure to perform unique tasks being placed on everyone. The following are a few hints that will help things go more smoothly:
  - Meet with the appropriate person in charge to establish the working relationship, the boundaries of responsibilities and the relative means of handing off working and communications.
  - Set up an operating location with work table, lighting and similar considerations in the safest and most comfortable environment possible.
  - Insure you install equipment, antennas in a **safe** and durable fashion.
  - For those responding at an evacuation shelter, inform anyone appropriate that we are communicators and not shelter managers. Refer shelter management issues to the appropriate person. Do not attempt to handle any Red Cross issue unless there is a prior written agreement.
  - Other people will have many different priorities. Try to work within these differences.

  As these demands wear down the individual's capacity for tolerance, flexibility and creativity, the person shows signs of stress. People show it as varying levels of irritability and emotional outbursts, which affects the effectiveness of the unit. The easiest method to mitigate these potential problems include:
  - Remind the emergency communicators to not take problems personally.
  - Remind people that we're all in this together, and what our common objectives are, based on the needs of this incident.
  - Try to establish teamwork and cooperation, and remind everyone that working together will achieve the best results. We have to make do with what we have.
  - Insure everyone knows the command structure.

- **Being cooperative and not bruising someone else's ego**
  The best time to teach this is before the event. Build this in as part of the culture of the emergency communications team. Remind the team when they're activated and before they begin their operations. Remind the team that they will be shining examples of what amateur radio is about to the rest of the community, whether they are professionals, the general public or other amateurs. Therefore, their conduct should be that of "professionals" -- to be courteous, considerate, effective and to rise above the situation. **The only thing that's amateur is in our name and that's because we do it out of love, not for compensation.** Remind them that even if things are not going well at the moment, that it's not a failure. It's delayed success. The key is to focus at the task at hand and make it a success.

ARES - Mutual Aid

During severe emergencies, ARES personnel can be called in from other parts of the state and country. The situation is elevated from EC to the DEC, SEC and ARRL HQ. Often, the emergency will be carried on national news, and other available amateurs in the region and across the country would ready themselves for deployment and identify themselves to ARRL HQ. In this exchange of information, the request for more emergency communicators is also

handled. The emergency communicators are dispatched, and informed who to contact when they arrive in the affected area.

Personal Preparation

In preparing ourselves to assist our served agencies in times of emergency, many people take a somewhat myopic view of that preparation. We look toward the equipment and some training. There is one other consideration we must make. Are we physically ready? For a lot of us, the equipment is a major contributor in the fun of Amateur Radio. To those that are not as technical as we would like to be, it is still a lot of fun to get new equipment (a.k.a. toys) and learn to use it properly. Equipment is but one third of the equation. Training ourselves, not just to be able to operate the equipment, but to handle messages expeditiously and with minimal impact to our surroundings is also a challenge. Emergency communications material helps a bit there.

The item that many overlook is the physical conditioning that we really need to be able to handle the stress of emergency operations. Does that imply that each of us must be ready to run a marathon? Hardly. there are a few simple guidelines we need to follow to be better prepared to physically support ARES operation.

1. **Eat properly** - this means eat the foods that will help keep us healthy.
   - Minimum "junk" food. The "Mickey D" three basic food groups of sugar, salt and grease do not help our health.
   - Appropriate amounts of protein, vegetables and complex carbohydrates (this varies with the individual).
   - Drink a *lot* of water. Most of us forget that the recommended <u>minimum</u> amount of water is 4oz. every hour (not coffee, not soda pop, etc). Very few people consume that much.
   - Moderate amount of alcohol (or none, if you prefer).
2. **Get enough rest, Regularly!** - Some people think that four hours of sleep will suffice. Most of us do better with six minimum and the really intelligent understand that seven and one half to eight is better yet. The other half of that equation is *regularly*. That means virtually every night. The occasional night with minimum sleep is not a problem, as long as it is occasional.
3. **Exercise** - Get regular exercise, appropriate in duration and type. Appropriate for someone twenty-five is probably not correct for some one sixty. A good source of reasonable exercise for all of us is to walk for at least thirty minutes each day.

Many will whine that there is "not enough time". If you are planning on being dead in six months, I agree. Go for it. For the rest of us, take the time. Plan on a slow, steady, evolutionary change in how you make yourself ready to support the life style you have chosen. If you are physically active, properly rested and have eaten properly, you are better prepared for the stress of emergency operation.

Public Service Communication

Safety!

The following are <u>your</u> priorities - in this order - when it comes to safety.

1. **You**
   I think each of us has heard the saying something to the effect - watch out for number one, or no one else will. Be it a training exercise or an actual emergency your safety is up to you. It is your primary concern. If at any time you are asked to handle an assignment that, for any reason, you are uncomfortable with, decline it. If your concern is with safety, please let your group leader know why you declined.
2. **Your Team**
   Your second priority is the safety of your team. There can easily be assignments, such as ATV, where the person with the camera will be very engrossed with insuring the picture is the best possible and may not notice unsafe conditions. You as the second person there will then need to be very careful about the safety of your team.
3. **Your Mission**
   Your mission becomes important only after your safety and the safety of your team. During that mission if the safety of anyone becomes an issue, speak up and if necessary leave.

The standing rule in fires is to always have two exits and should one of them become unavailable, use the one you have - IMMEDIATELY. If necessary, leave your equipment. Equipment can be replaced, people can't.

Workmen's Compensation Insurance

During the briefing for the event you are about to go out on there should be mention about workmen's compensation insurance. If it is not mentioned, ask! Not every served agency will be able provide you with workmen's compensation insurance. If yours does not, feel free to decline the assignment if the lack of insurance bothers you. If you are willing to participate without workmen's compensation insurance that's fine but you must know in advance of going out, so you can make an informed decision.

Safety - Summary

Remember, an incident scene is not about radios and being a Ham, it's about the incident and YOU will either be part of the problem or part of the solution. Keep your eyes open and do your best to anticipate unsafe conditions before they happen.

Communication Guidelines

Let's face it, there are hundreds of people that can talk the ears off of a brass monkey and when they finally finish you ask yourself "what did they actually say?". Many operators think of ARES/RACES as a simple extension of the "talk time" in the hobby. This is not true. ARES and RACES are organizations that continually need more trained operators that are willing to learn to communicate rather than just talk. Trained operators have learned to communicate accurately, in a timely fashion, regardless of the obstacles in the event. Unlike general amateur radio activities, emergency operations happen in real-time. Things can not be delayed. Emergency communicators are looking for specific stations to contact *now* to pass traffic. Teamwork, not competition between stations or groups, is imperative.

Within Emergency Communication you will have *two* different levels of communication. The first is in passing traffic on behalf of a served agency. This is known as formal traffic. Under those conditions you pass traffic *exactly* as written. You change nothing. In some instances you will not understand what the message means. That is fine. Your job is to get the message to the destination as quickly as possible, not to understand it.

When you receive a message from a served agency, read it. If there is any part you cannot read, ask for clarification before accepting the message. You can't accurately transcribe what you cannot read. When you transcribe a message from a served agency, *make no changes!* It does not matter if you do not understand the technical meaning. It *does* matter that you pass traffic exactly as written.

The second type of communication is where *you* originate the message, it is not written and where a written response is not required. This is commonly known as informal traffic. In that situation you control what the text of the message will be. Therefore phrasing is up to you. Plan your communications at least as well as you plan what you say when you know you will be quoted. When ever reasonable, write down what you will say before you say it.
In Emergency communication it is important to say as little as possible, yet convey all of the meaning. How can we do this?
1. **Brevity and Clarity**
   Each message should consist only of the information necessary to convey the meaning clearly and accurately. The standing "rule of thumb" is - if you can leave a word out without changing the meaning, leave it out. If a description of an item will not add to the understanding of the subject of the message, leave it out. Another item to remember, *do not* use contractions within your messages. Words like "don't" and "isn't" are far too easy to confuse. Add to that the stress and confusion during an emergency and they *will* create problems.
2. **Slow Down!**
   Hams, in general, tend to handle communications as quickly as they can. This does *not* produce the maximum throughput during a net. While this may seem counterintuitive, it has been proven again and again that a three or four second break between transmissions will actually result in information being passed more quickly. If this seems strange to you, take the time to listen to Police, Sheriff's Office or Fire dispatch. They are able to convey large amounts of information very quickly because they maintain a slow,

measured pace. In addition, the three or four second break between transmissions insures priority and emergency traffic can gain access to the net without requiring the largest signal on that frequency.

3. **Do not editorialize**

Literally hours can be lost by people inserting their opinion on unrelated subjects. What someone thinks about a ball game or the weather is irrelevant unless weather or the ball game is the subject being discussed.

4. **Listen**

The first requirement for communication is the ability to listen. But, you say, I can tell someone what is required without listening. Not really. Communication is the - two way - exchange of thoughts, ideas or information. Two way. That requires listening. An old timer once told me "A ham has two ears and one mouth, therefore he should listen twice as much as he talks", and remember, communication will be acknowledged.

5. **Plain Language**

Refrain from using technical slang (jargon) in your messages. Not everyone understands those terms and it could easily cause misunderstanding. Remember, "Q" signals are for CW and "10 Codes" are for 11 meters.

6. **Standard ITU Phonetics**

While it may take less effort to speak into a microphone and listen than to operate CW, it does take some care to quickly and accurately convey exact information. Speak distinctly at all times. If information is to be written, pace your speech accordingly. For critical information, or under noisy conditions, spell words with standard ITU phonetics. ITU phonetics were chosen so that each word sounds completely different from all others. A list of ITU phonetics is available in the ARRL handbook and the ARRL logbooks. A compressed copy follows.

```
A - alfa (AL-fa)          B - bravo (BRAH-voh)
C - charlie (CHAR-lee)    D - delta (DELL-tah)
E - echo (ECK-oh)         F - foxtrot (FOKS-trot)
G - golf (GOLF)           H - hotel (HOH-tell)
I - india (IN-dee-ah)     J - juliet (JU-lee-ett)
K - kilo (KEY-loh)        L - lima (LEE-mah)
M - mike (MIKE)           N - november (no-VEM-ber)
O - oscar (OSS-cahr)      P - papa (PAH-PAH)
Q - quebec (kay-BECK)     R - romeo (ROW-me-oh)
S - sierra (SEE-air-rah)  T - tango (TANG-go)
U - uniform (YOU-ni-form) V - victor (VIK-tor)
W - whiskey (WISS-key)    X - x-ray (ECKS-ray)
Y - yankee (YANG-key)     Z - zulu (ZOO-loo)
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7. **Numbers**

are pronounced as individuals. The number 60 is pronounced six zero, not sixty. The number 509 is pronounced five zero nine, not five hundred nine and NOT five oh nine.

8. **Formal written traffic**

Insure you have asked all questions necessary to have obtained the following:
  1. Who is requesting what and from whom?
     A. What is the requesters full name/title/agency & location?
     B. What is the recipients full name/title/agency & location?
  2. What are they requesting and how many do they want/need?
     A. Is it a list or single item?
        1. If it's a list, do all items come from the same place?
           a. If multiple sources then multiple messages.
     B. Is the subject the transportation of an item, or the acquisition of that item, or both?
  3. Where will it come from (not always the same as the location of the person receiving the request)?
  4. Where will it go to (not always the same as the location of the person requesting the item(s))?
  5. When is it needed?
     A. Time/date as applicable

Nets

- **Definitions:**
  - **NET:**
    Short for Communications Network - established to handle information for an event or incident.

- **CONTROLLED NET:**
  A means of insuring orderly use of limited frequency resources to conduct communications for a scheduled event or during an emergency. All traffic is authorized by the Net Control Station and non-event conversations are discouraged.
- **NET CONTROL STATION (NCS):**
  The person charged with control of information flow on the frequency used by a controlled net. Please take a moment to study the NCS definition. During an emergency the NCS does *not* control the event! NCS is there simply to control **information flow.** The Incident Command System (ICS) provides a coordinated system of command, communications, organization and accountability to manage emergencies.

- **Net Types**
  - **Open (Informal) Nets**
    During an open net most any type of traffic or communication is permitted. Conversations (rag-chews) are permitted provided they break every so often to allow event related traffic to flow.
  - **Directed Nets**
    A Directed Net is created when there are a large number of stations needing to use the frequency or the volume of traffic cannot be dealt with on a first-come first-served basis. The NCS will determine who uses the frequency and what traffic will be passed first.
  - **Tactical**
    Tactical nets are the primary coordination nets for the event. They will be a directed net, using tactical calls, normally restricted to traffic for the event *only*. NCS has absolute control over this net. Other names for the Tactical net are: Operations (ICS name) or Event Net when the staffing and operations are on one frequency.
  - **Resource**
    The resource net is to acquire volunteers for the event and make work assignments for the event. They will be a directed net using FCC issued calls, normally restricted to traffic pertaining to the event. All traffic goes through the NCS. These nets may be operated on the same frequency as the Tactical net but will usually switch to another frequency once the operation is up and running. The ICS name for the resource net is Logistics and it can also be referred to as the Staffing net.
  - **Traffic**
    Traffic nets are for the passing of formal, normally written, traffic. They are directed nets, using FCC issued calls. Traffic may be passed on the net frequency or sent off to another frequency at the option of the NCS. Casual conversations may be allowed at NCS discretion.
  - **ICS Nets**
    During an emergency a large percentage of our served agencies use the Incident Command System as a model for their operations. When this system is used by your served agency you will need to understand what term in ICS corresponds to what term in ARES/RACES.
    An ARES/RACES - Tactical - net is an ICS - OPERATIONS - net, and
    an ARES/RACES - Resource - net is an ICS - LOGISTICS - net.

Please understand that the name you use for any given net *is* a local option. The same holds true for tactical identifiers. Use the name for your nets and locations that convey the most information to the largest number of people at your event.

Net Participant Guide

- **Net Protocols.**

- **Legal**
  Legal requirements within nets are those of identification and operation on frequencies within the Amateur Radio Bands. The FCC tell us that you **_must_** identify at ten minute intervals during a conversation and in your last transmission. During periods of heavy activity in event nets it is easy to forget when you last identified. *The easiest way to insure you comply with FCC identification requirements during an event net is to identify with your FCC issued call as you complete an exchange.* This serves two functions: 1) Tells NCS you consider the exchange to be complete without having to use extra words (saves time) 2) Fulfills all FCC identification requirements.
- **Customary**
  Customary protocols will normally be used in long standing, non emergency nets. They may include such practices as identifying with the FCC call of both stations on each transmission, giving the FCC call of the next person to talk or many other variations. Please listen to the net before joining. Customary protocols will easily stand out.

- **Tactical Calls**
  Tactical calls are used to identify a location during an event regardless of who is operating. This is an important concept. The tactical call allows you to contact a location without knowing the FCC call of the operator there. It also virtually eliminates confusion at shift changes and when a person takes a break from operating. Think about that. Do you answer a call from the sound of a persons voice or from the identified location. Obviously from the identified location.
  Tactical calls should be used for all Emergency nets once there are more than three participants and most public service nets if there is more than minimal traffic. Net control will assign the tactical call as each location is opened. It will normally be some unique identifier that indicates which location or function this is.
  - **Some Tactical Call Examples**
    NET - for net control
    FIRE-BASE-1 - for the first fire base established or the fire base in a particular region
    CHECK-POINT-1 - for the first check point in a public service event
    CP - for the event command post
    AID-3 - for the third aid station on a route
  - **Proper use of tactical calls**
    - **Initiating a call** (Tactical in)
      If you were at aid station three during a directed net and wanted to contact Net Control you would say "NET, AID3" or, in crisper nets, simply "AID3". If you had emergency traffic you would say "AID3, emergency traffic" or for priority traffic "AID3, priority traffic". Notice how you have conveyed all information necessary without using any unnecessary words or taking any unnecessary time.
      If you had traffic for another location, such as check point five, you would say "AID3, traffic for CHECK POINT 5". This tells NCS everything needed to handle the traffic. NCS will then call check point 5 with "CHECK POINT 5, call AID3 for traffic", if there is no other traffic holding. Notice that there have been no FCC issued calls used. At this point none are necessary.
    - **Traffic during a call**
      Tactical calls will normally not be used in the contact unless a separate location is mentioned in the message.
    - **Completing a call** (Callsign out)
      To complete the call from AID3, after the message/traffic is complete you would say "(your call), AID3". This fulfills your identification requirements and tells NCS that you believe the call to be complete. If the Net Control Station believes the exchange to be complete, and the member station has not identified, then the NCS should say, (completing this example) "AID3, do you have further traffic?" At that point AID3 should either finish with the traffic or identify and clear.
      The above is the same for all participants under virtually all traffic examples.
- **Participating in a net**
  - **Enjoy yourself** - Amateur Radio public service is fun!
  - **Prepare your self.** Are your batteries charged? Are you on your best antenna for the frequency/repeater you will be on? Do you have pencil paper and other items you think you will need?
  - **Listen.** If you are there at the start of a net or join one in progress, *listen* for several minutes before you check in. NCS will announce/ask-for what they want.
  - ***Check into the net in the mode being used by the net.*** This should go without saying but we still see people who cannot follow directions.
  - **Follow NCS Instructions.** NCS will ask for specific people/categories-of-people as they are needed. Follow instructions!
  - **Slow Down!** Hams, in general, tend to handle communications as quickly as they can. This does *not* produce the maximum throughput during a net. While this may seem counterintuitive, it has been proven again and again that a three or four second break between transmissions will actually result in information being passed more quickly.
  - **Do not editorialize.** "This is Fred in the North East portion of the county at 9300 feet where it is snowing, but it was sunny five minutes ago when I came in from feeding the birds, geese and hamsters, but its cold right now and it looks like it could rain in the next day or so - just checking in" is unnecessary *and* unwanted. This ties up the net and does nothing to add usable information. Check in with your *call*. Add name and other information as requested by NCS.

- **Plan your transmission.** If you have more information than just your Name/Call then jot it down. You can, if necessary, just read your note. **** This promotes clear concise communication.
- Check in *only* if you are going to be part of the net. *Do not* check in as "in & out", "just listening" or "for the count". **You are joining the net or you should only listen.**
- Checking in with "This is" then a pause or unkey followed by the call may work on a few nets, but causes delays and potential problems on most. (Local net option)
- Do *not* check your friends or family in to a net, unless they are *in the room* and able to answer were they called by NCS.
- Unless your transmission is longer than ten minutes, you need only identify at the end of the transmission/exchange of information.
- Let NCS know when you leave or if you need to leave early. **Do not go into details of why you need to leave.**
- During an event, if the authorities ask you to move; *do so immediately and without comment*, then notify the NCS of your change in status as soon as you can.
- If an on-scene authority requests that you shut your radio off, or that you not transmit*, do what they ask immediately and without question*. This is **one** circumstance where you do not notify the NCS of a change in your status. *This deserves a little explaination.* This would normally occur only if there is a presence of explosives or explosive chemicals or vapors, and there is the possibility that a spark producing electronic device is present which might be triggered by an RF Signal.
- If you are concerned with what you can and can not say during a net, please review the "Who talks to the media" portion of this document.
- Be patient with the NCS. An NCS operator is under high stress. His questions and requests should be clear and crisp; but as he/she begins to tire, there may be a tendency to become rather terse. Typically, there is a whole lot going on at an NCS that the field operators never know about.

Hams are patriotic, independent people and they are volunteers. The attitude among a few hams is that 'Volunteers don't have to take orders.' That's absolutely correct. We don't *have* to take orders. But **if you are not ready to follow instructions, you may want to do something outside of ARES/RACES**

- **Leaving a net**
  You will leave a net for one of three reasons:
  1. The location is closing
     If NCS has given you directions to close the location, simply identify with your FCC issued call, the location tactical call and the word "**CLOSED**". The NCS will tell you if anything else is needed. If you are closing the location on orders of the served agency, you will identify with your FCC issued call, location tactical call and the phrase "location **CLOSED** per (name of person - served agency identification)".
  2. You need a break and there is no relief operator
     Tell NCS that "I will be away from the radio for (number of minutes)" and end with "Tactical id, (your call)".
  3. You have turned the location over to another operator
     You will normally not need to tell NCS that you are leaving if this is a regular shift change. However if there are specific instructions from NCS then follow those instructions.

- **Don't over identify**
  There is normally nothing that will expend more time, needlessly, than over identification. Someone that uses their FCC issued call in every transmission is usually a person that is unsure of themselves or, worse yet, someone that is more interested in having their call known to everyone at the event. In the latter situation, help them find work elsewhere. The FCC tells us that you need only identify at ten minute intervals during a conversation (*not* during a net unless you talk for more than ten minutes) and during your last transmission.
  End each exchange with your call, that tells everyone that you are of the opinion the exchange is complete and you fulfill all FCC requirements.

- **Write it down**
  The easiest way to minimize what you say during a net is to write down everything before you key the microphone. Since very few of us like to write lengthy notes, this will promote brevity. An excellent place to keep this information is in your location log. This serves two purposes: 1) You have a complete log of everything that came from your location 2) It will become very brief.

Roles in a net

- **NCS**

- The NCS is in charge of the net while the net is in session. He/She is responsible for controlling who uses the frequency and when they pass traffic. This needs to be balanced with the fact you will be dealing with volunteers.
- Slow Down! The pace of the net is controlled by the NCS. If you leave three or four seconds between transmissions, you will actually pass more traffic in less time.
- Net Control shall have a commanding signal, i.e. clear, crisp signal with good audio characteristics.
- NCS must keep track of which resources are on the net and who has cleared the channel. NCS is also responsible for knowing what traffic each person is capable of dealing with (sending HF traffic to a Tech. will not work).
- In medium and large operations you need to have a backup NCS and a person to log.
- Keep a written record of the incident and all traffic passed. This does not mean a copy of all formal traffic. Simply an overview of the message.
- Make *all* instructions clear and concise, **using as few words as possible.**
- Use tactical call signs. If participants do not follow your lead, only recognize those using tactical calls (obviously all bets are off if it is emergency traffic).
- Different nets handle different traffic. Should someone try to pass traffic that should be on another net, refer them to the correct net.

- **NCS backup**
  There are two types of NCS backups. The first is located in the same room/area as the NCS and acts as relief for the NCS at regular intervals. The second type is a person that maintains a duplicate log of everything happening at the event and is available should there be a failure at the primary NCS location. Whenever there are enough people working an event, an offsite backup NCS should be maintained. This person must be operating with the knowledge and consent of the NCS station and should be known to the entire net.

- **Loggers**
  People to handle the keeping of an operational log for the event are a very important to the smooth operation of the event. These people free the NCS from having to split their time/effort down to a level that is neither efficient nor productive. Every net will be enhanced by a good logger.

- **Site communicators**
  Site communicators have the responsibility of listening to everything that happens on the net and maintaining contact with the served agency people at the site. They need to produce formal traffic as applicable, maintain a log of activity at their location and be responsive to the needs of their served agency people. *In an emergency, it will be far easier to handle all of the tasks at a location if there are at least two people there.*

- **General communicators - Remember, different net modes require different skills and knowledge**
  - Report to the NCS promptly as they become available.
  - Ask clearance from NCS before using the frequency.
  - Answer *promptly* when called by NCS.
  - Use tactical call signs.
  - Follow established net protocol.

- **Listeners - LISTEN!**
  The most helpful listener, during an emergency, is one that listens and stays quiet! NCS does not care that you are there listening unless he asks for assistance from listeners. Normally there will be enough people working the net to handle anything NCS needs. This is even more important if you are not a regular member of the group handling communications.

- **Liaison Stations**
  - Liaison stations provide the communication link between two nets. They will generally be limited to two nets so they can maintain good communications between the nets.
  - Liaison stations will need to have at least two radios, each with their own antenna. These antennas must be separated sufficiently to *not* interfere with the other radio when the operator transmits on either frequency.
  - Liaison stations will be appointed by NCS or the staffing officer, usually from trained operators.

ICS Duties for ARES and RACES Operators

To repeat some *very* important instructions that apply to all ARES/RACES operators: Everyone *must* insure that all assignments, delegation and hand-overs are done with **explicit** statement of intent and **explicit** statement of

<u>acceptance.</u> The most likely problems will occur when duties are assigned/accepted implicitly. If *all* assignment, delegation, handovers, acceptance etc. are explicit, the potential misunderstandings are minimized or eliminated. **A good technique to insure understanding is to repeat back what you understand the order or instruction to be. This will expose errors before they can become a problem.**

Event Check List

The following are <u>*your*</u> responsibilities for every emergency and many exercise events. Remember that during an emergency you will either be part of the solution, or you will become part of the problem.

1. **Before you leave your house**, you should:
    1. Review your assignment to insure you understand what is expected of you for this specific assignment.
        - Incident type, name and designation
        - Incident check in location
        - Reporting time
        - Anticipated length of stay
        - Travel instructions
    2. Update your "ready kit" with needed items not normally stored there
    3. Prepare clothing and food, sufficient to handle the anticipated length of stay at your assignment.
    4. Review communication procedures as necessary
    5. Ensure that your family knows how to contact you while you are at the assignment.
    6. Review transportation requirements - to and from the assignment
2. **On departure from your house**, check in with the <u>staffing</u> net to let them know you are in route to your assignment.
3. **On arrival**:
    1. Check in at the staging area so the served agency records reflect your help.
    2. Notify the <u>staffing</u> net that you are going to the operations frequency.
    3. Check in with operations NCS to let them know you are available.
    4. Determine where/when the event briefing will be (**ASK**!)
4. Perform the duties assigned in a manner consistent with good safety procedures and good Ham techniques. This will include:
    - Monitor work progress.
    - Provide your supervisor with appropriate status updates and notification of any problems that may arise.
    - Keep a good log of your station activities.
5. Once your assignment is complete *and* **prior to departing** you need to:
    1. Complete your work assignment
    2. Brief your subordinates on demobilization
    3. Complete event paper work
    4. Brief your replacement as applicable
    5. Follow incident check out procedures. This means:
        - Check out where you checked in (if at all possible)
        - Notify Operations NCS of your departure
        - Notify the Staffing Net you are checking out from your assignment and going home.
6. **Upon arrival at your house**, check out with the <u>staffing</u> net.

This insures the event staff have full accounting of your safety and location while you work any event.

Message Handling

1. **Don't speculate**
   Do not speculate on anything relating to an emergency! There may be hundreds of people listening to what you say (Amateur Operators, Media *and* Public - via scanners) and any incorrect information could cause a panic. If your served agency *insists* on an estimate, you may provide that information, so long at you make it - very - clear that it is an estimate. For example - "Estimated number of spare shovels at fire base three is twelve" - would be acceptable. **First choice is *no* speculation.**
2. **Pass messages exactly as written**
   Your job as a communicator is to pass traffic as quickly and accurately as possible. Therefore you will *not* change any message as you handle it. If you note an inaccurate word count in NTS traffic, you will maintain the original count and note the corrected count received at your station. This holds true for voice traffic as well. Pass traffic as received, without alteration or interpretation.

3. **Not all tactical messages will be in NTS format.**
   It is important that you understand that much of the tactical information being passed during an event may not be in NTS format. It <u>will</u> have much of the same information, such as:
   Name, Agency and title of the originator
   Name, Agency and title of the recipient
   Date, Time and Priority of the message
   Body of the message
   but may not be in NTS format.
4. **Signature and why it's important**
   During an emergency the messages you handle can easily contain requests for very expensive supplies that have a very limited "shelf life" (such as blood for an aid station) or for services that will only respond to authorized requests (flight for life helicopters). As such it is imperative that you insure the signature/authority is included in every message.
5. **Modified message form for disasters**
   While NTS format messages can handle many different types of information flow, there will often be requirements for formats that are unique to an individual emergency. Use the most effective message format for the event you are working.
   Work with your EC and served agency(ies) - before - the emergency to see what format will best fulfill their information needs.

Getting the message through

To improve communications you need to improve the difference between the signal and the noise levels (signal to noise ratio) to achieve reliable communications. For our purposes here, noise is defined as any impediment to transmission or reception of information (messages). What form can this "noise" take? Some of the more common ones are:

- Static and background noise on the air
- Equipment or voice sounds around you
- Inappropriate amount of light
- "Loose cannon" tempers
- Improper transmission speed
- Improperly formatted messages

What can you do to maximize message throughput? Here are some of the more common ways to handle impediments.

- **Slow Down!**
  Hams, in general, tend to handle communications as quickly as they can. This does ___not___ produce the maximum throughput during a net. While this may seem counterintuitive, it has been proven again and again that a three or four second break between transmissions will actually result in information being passed more quickly.
- Static and background noise on the air
    1. Insure you have the proper antenna for the job.
       An <u>NVIS</u> will work very well for 40 and 75 meter SSB when your communications range is up to about three hundred miles where a vertical will not. Conversely, a vertical will work quite well for VHF/UHF.
    2. Choose the best band for the job
       VHF/UHF are very good for short distances (less than 50 miles) but are useless for distances over one hundred miles. The antennas are quite small.
       HF propagation differs by band and antennas are quite large. What distance do you wish to cover?
    3. Make sure your equipment is grounded.
- Equipment or voice sounds around you
    1. Use a headset to minimize noise you will hear from the area you are in.
    2. Use a noise canceling microphone to minimize transmitted noise.
    3. When ever possible, locate your station away from the source of noise.
- Inappropriate amount of light
  Many people do not think of light as a potential problem. Think what happens when you have too much light when you try to read a computer screen or too little light when you try to read printed information.
    1. Stay out of direct sunlight if at all possible.
    2. Try not to be in shade while having to look directly into the sunshine.
    3. Insure there will be sufficient light for you to work at night.

- "Loose cannon" tempers
  These are very hard to deal with. You best bet is to ask assistance from your supervisor. A team working calmly toward a common goal will frequently defuse the situation.
- Improper transmission speed
  1. Practice sending at the appropriate rate where the other party can copy. That means you shouldn't ramble off the message text at high speed, but pace yourself to the same speed that the other party is copying (about 15 WPM). That translates to about one word every four seconds. As you speak, imagine that you're writing the word in your mind. After a while, you'll get the hang of talking 15 WPM. If you do this right, you'll never get a request to repeat a section.
  2. When asking for part or all of the message to be repeated, get into the habit of saying "Say Again" instead of "Repeat". Repeat is used in the military to fire another salvo of artillery.
- Improperly formatted messages
  Please see the section on Message Handling for formatting information.

Personal Equipment

Each ARES member is expected to be prepared to respond as effectively as possible to a callout. **No one is expected to ignore personal responsibilities to family or employer, nor unnecessarily risk their welfare!** *However, personal inconvenience or lack of preparation is insufficient reason for not supporting a callout!*

How do I prepare? Put together a "ready kit" of the items suggested in the equipment list shown below. Please understand that you are not expected to stuff your entire ham shack, closet and pantry into a time capsule in preparation for an alternative life style in support of ARES. Rather that you think about the items you do not have and acquire them while there is time and no urgency. The list includes virtually everything you will need to be helpful in an ARES event. We suggest you maintain one "ready kit" with the items that you would need only during a deployment and possibly a second (or it could be just a list) of the items that, when added to the first, will provide you with the personal supplies and radio equipment to make you much more effective and comfortable during an event.

To summarize, don't wait until you are called, to assemble your "ready kit". Do it in advance at your leisure.
The items shown in UPPER CASE are the ones most likely to be needed.

Equipment:

- ARES/RACES/SERVED-AGENCY IDENTIFICATION CARD
- COPY OF AMATEUR RADIO LICENSE
- HANDHELD RADIO (dual band if possible)
- SPARE BATTERY PACKs (CHARGED nicad and AA)
- HEADSET, SPEAKER-MIC.
  The most usable headset in high noise areas will have noise cancellation in the -20db to -30db to be effective.
  DO NOT USE THE VOX OPTION on any headset.
- 19IN. MAG. MOUNT/GROUND PLANE ANTENNA (will function on 70cm)
- COAX JUMPERS AND CONNECTORS
- CONNECTOR ADAPTERS (bnc/pl259, bnc/so239, some radios require SMA)
- DUCT TAPE
- SHORTHAND NOTEBOOK, PEN & CLIP BOARD
- WATCH
- MAPS OF THE AREA (Topo and street)!!!
- COPIES OF MESSAGE FORMS
- Compass and/or GPS
- Copy of District Operations Manual
- List of served agency phone numbers in your area (not just your district)
- Boundary-Marking Tape
- Insect Repellent (summer)

Survival Items:

- 3 DAY SUPPLY OF PERSONAL MEDICATION!

- WARM CLOTHING & BOOTS (bright colors for shirts and jackets)
- HAT - (this is IMPORTANT for everyone)
- GLOVES
- SPARE GLASSES (spare contact solutions if you wear them)
- FIRST AID KIT
- SUPPLY OF WATER (the warmer your region, the more you need but EVERYONE needs water with them)
- TOILET PAPER/KLEENEX
- Moist Towelette Packets
- SUN SCREEN (winter or summer)
- RAIN SUIT
- ORANGE VEST (for use if your clothing is drab colored)
- Space Blanket
- Plastic ground cover tarp
- Spare shoe laces and some twine
- Wool blanket
- Fanny-pack/Back-Pack
- Sports/Bicycle water bottle
- High energy snacks
- Large trash bags
- Flashlight W/extra batteries
- Whistle

Tools:

- SWISS ARMY - type - KNIFE
- SCREW DRIVER (phillips and flat)
- PLIERS
- SIDE CUTTER
- CRESENT WRENCH
- ELECTRICAL TAPE
- VOM
- Fence Pliers (includes hammer)
- Crimp Tool (includes wire stripper)
- Assortment of crimp connectors, nails, brads, tacks
- 4 or more each of the 4", 8" and 12" plastic cable ties

For public service events:

- COOLER with FOOD & DRINK
- Lawn chair
- Umbrella (sun or rain)

Optional items:

- 3 Wire AC Extension Cord w/2-3 pin adaptor
- AC to 12V power supply
- Soldering Iron w/solder
- 2M Beam Antenna w/Tripod, mast & guy rope
- Nut Driver set
- Folding set of Allen/Torx wrenches
- Zip Cord
- Cash (for pay phones & if power is out)
- Transistor radio
- Binoculars

HF Unique:

- HF rig (12V dc preferred) with:
    - Mic
    - Key
    - Head phones, external speaker
    - Tuner - for the oddball antenna
    - 50 ft + RG58 or better
- NVIS antenna: (NOT a mobile vertical!)
    - 75m dipole w/ ladder line or 130 ft of wire
    - Insulators
    - 3 Masts, 8ft or more, preferably non-conductive
    - Guy rope
    - Tent pegs for guys
    - Lead weight & 50 ft light line for tossing over branches
    - "Loud" marking tape to warn passers-by of guys, lines.
- Power source (one or more):
    - 12V gel cell 75 A/H w/ charger
    - Vehicle w/ 12V battery & gas
- Portable shack:
    - Shelter tent
    - Table & chair

Marking your Equipment

There are very few people that would knowingly relieve you of your equipment but during an emergency there is a lot of confusion. If you have each piece of your equipment marked with your name and call it will be much easier to insure your equipment is returned to you at the completion of the event.

Connectors and Your Equipment

- **Standardized Connectors**
  During public service events or emergencies you could easily need to connect your radio to someone else's power supply or someone else may need to connect their radio to your power supply. To facilitate this inter connectivity a standard for power connectors is necessary.
- **Anderson Powerpole**
    - The recommended connector is the Anderson Powerpole 30A (APP-30A).
    - The ARRL approved the change to the APP-30A in June of 2000.
    - This connector is gender non specific but when assembled per recommendation cannot have the positive and negative polarity reversed. This connector is rated at 30 amps and is recommended for higher power applications but will work very nicely for lower power situations as well.
    - In a size comparison between the previous recommended RS/Molex and APP-30A there is about .020" difference between the two connectors with the APP-30A being the smaller. Or more simply, they are virtually the same size but due to the difference in appearance, the APP-30A looks smaller than .020" would indicate.
    - The Anderson Powerpole 30A connector is not as readily available as the Molex connector. Thus your group may want to consider purchasing bulk quantities for its members. This will also reduce the cost per connector. One supplier charges $1.00 per connector, plus shipping, in quantities of ten but also charges seventy five cents per connector, delivered in quantities of 200.
    - The manufacturer (with a list of - distributors -) is at
      http://www.andersonpower.com/distributors/US/
      (I have had good luck with www.powerwerx.com)
- **Adaptors**
  It is recommended that you equip your radios, power supplies and batteries with APP-30A connectors. Since not everyone will use these connectors it would be very helpful for you make adapter cords (patch cords) made with these connectors and other types. Connections you may want to have available are:

- large auto-type battery clips
- cigarette lighter plugs
- any other connectors that your group has in abundance.
- When all else fails - bare wire and wire nuts (last choice).

Knowing your Equipment

Nothing is more embarrassing during an event than to have to ask someone else to show you how to operate your own equipment. To avoid that situation you should:
- Make sure *you* can set up the radio on any frequency/mode the radio will operate on.
- Insure you know how to set, turn on and turn off the sub audible tone encoder for VHF/UHF.
- For VHF/UHF radios - make sure you can operate "reverse pair" if the radio is not "rock bound", in case the repeater *is* down and someone else is "rock bound" or doesn't know how to fully operate their radio.
- Does your radio have the ability to lock on or out a frequency? Insure you know how to activate or deactivate that function.
- Try all configurations of power source, transceiver, antenna, fuses, and patch cords you have.
- Make a card with tune-up procedures and operating precautions.
- Photocopy key pages from the operating manual and place in an envelope attached to each radio. Include enough information so another ham can use your radios without further instructions.
- Label pre-programmed memory channels by name and frequency. Preferably on the radio or in a plastic pouch attached to the radio.

Equipment Maintenance

When you maintain equipment in standby or "on the shelf" waiting for a callout the equipment may not be used for months. It's easy to overlook routine maintenance you should perform regularly. You should keep in mind:
- NiCd batteries self discharge at approximately one percent (1%) of their capacity per day. If you leave them on the shelf for over three months they can go to zero charge or be in such a poor state that individual cells in the battery pack may reverse polarity, thereby ruining the pack. The best way to avoid problems is to use *every* battery pack you have every month. One complete discharge/charge cycle per month *will* keep the battery pack healthy well beyond the normal life span of about three years.
- "Button" cells used for memory backup in programmable radios can go dead in three to five years. Replace them when it's convenient for you, not when it's too late.
- Connectors, switches, and potentiometers can develop corrosion from disuse, especially if dissimilar metals are present. Operate, unplug/replug, and clean them regularly.
- Pre-installed antennas at served agency locations and vehicles can be damaged and detuned. Check them monthly for changes and physical damage.
- Printer ribbons and ink cartridges dry out from disuse. Develop a stock rotation plan so spares don't get too old.
- Dry cell batteries, flares, first aid supplies, fuels, food and water all have shelf lives. Develop a stock rotation plan for the ones you have.

Portable Antennas

Of all possible portable antennas, the type that will be easiest to transport, store and put up is the wire antenna. These antennas can be made in various configurations based on the frequency range to be covered. For VHF/UHF the "J-pole" antenna, made from 300 ohm TV type twin lead, will produce gain over a quarter wave yet store in a very small space. For HF the mono band or multi-band dipole will be very effective.
- **H.F. Considerations:**
  - One of the most effective "local coverage" H.F. Antennas is the NVIS or Near Vertical Incident SkyWave. This is a half wave dipole mounted less than 1/8 wave (at the highest operating frequency) above the ground. Excellent results are obtained with the antenna at ten to fifteen feet above the ground. This antenna is most effective on 40 and 75 Meters.
  - When you put up H.F. antennas, you must consider the potential impact of the antenna on people and equipment in the area. Or more simply you must have sufficient poles, rope, anchor weights,

boundary marking tape and such to put the antenna far enough up to not be a hazard to people or equipment in the area.
- An effective NVIS antenna for 40 and 75 meters can be made from a 1:1 balun and two lengths of wire (62' for 75 and 34' for 40) per side. Add to that a four inch separator at the ends of the 40 meter elements an end insulator at the ends of the 75 meter elements and you are complete.
- Another configuration that shows promise is to take two mono-band mobile antennas and mount them base to base with one being the driven element and the other being the ground side. Care must be exercised in tuning this configuration that the elements remain the same length. In testing this configuration we found that this antenna delivered a signal from one to two "S" units less than the full sized dipole. The ones I used are available at HRO. Antennas are Ironhorse IHF75's and IHF40's (two each) and the Ironhorse IH-DAK-AD adapter. Total cost (tax and all) for four antennas and the mounting bracket is $117.96.
- **VHF/UHF Considerations:**
  - Many times you will be in situations where the 1/4 wave antenna will not be as effective as necessary. During those times a three to five element Yagi antenna will be very helpful.
  - Keep the antenna at least one full wave (at the operating frequency) away from conducting surfaces if at all possible.
  - Keep coax runs as short as possible.
  - Use the lowest loss coax you can.

Generators

There are several safety considerations to keep in mind when using portable generators. Some of the primary are:
- Insure you have the best possible ground line hooked up to the generator ground post *before* you start the generator.
- Check the engine oil level before you start the generator and each time you need to refuel.
- Refuel the generator when it is cool if at all possible.
- Store the extra fuel away from the generator.
- Remember, even the smallest generator has enough voltage-current to kill you. Take extreme caution with this equipment.
- Use only three wire extension cords to bring power to the operating area.
- Insure the extension cord has the required capacity for the projected load. **Do NOT** put multiple cords together to get the length you need (the wire gage used in virtually all extension cords is the minimum allowable for that length/load - thus if you connect two fifty foot cords to get 100 feet, they will have less capacity than a 100 foot cord).

CW Nets

Not all nets need to use voice to pass traffic. CW nets can be used to move traffic in an efficient manner over conditions that are not favorable for voice networks. Examples are:
- Limited power at the transmitting location, requiring conservation of energy.
- Limited antenna capability, especially during a windstorm such as a hurricane or tornado, where it is not possible to deploy a full, directional antenna.
- Extreme interference due to foreign broadcast, commercial paging or similar high-output conditions.
- Does not require computer equipment or conditioned power to pass traffic.
- Poor propagation and high static, especially on 40m and 80m, diminishing the use of voice for efficient two-way communications.
During such times, CW can be an effective means of passing traffic.

On-the-air speed is not an appropriate measure of effectiveness. The timely and accurate passing of messages is. Since accuracy is very important, it may be prudent to slow down the sending speed to make up for adverse conditions. The key is to send at a speed that the receiving station can pick up comfortably, and with heavy interference and poor signals, 10 WPM may be appropriate.
Please see the full Emergency communications material for details of CW techniques, filters and pro-signs.

Digital Nets

HF digital is NOT plug & play. Considerations are:
- Receiver stability, bandwidth, dynamic range and operator skill
- Interfacing requires special care - RF/audio lines.
- Each mode requires operator understanding of TNC commands and how to monitor/operate point to point or with a BBS and accepted conventions on how to turn over the link.
- HF net frequency specifications are unique

Like CW, skill in HF digital operation comes with practice.
Controlling a digital net is more daunting than a voice net.
- Typing skills
- Know essential commands
- Use ARRL QN signals
- Higher data thruput
- Less prone to scanner-listeners
- Many new operators

SSB Nets

SSB Nets are found mostly on the HF bands and are designed to meet the needs of particular groups of amateur operators. Nets can be found for most everyone's operating habits, including emergency communications. Because of the nature of HF, these nets can be international, national or regional in coverage. Band selection and propagation will usually dictate the net coverage, and many nets are placed to take advantage of particular band conditions. In addition to the HF SSB nets, there are many regional and local SSB nets on VHF that exist throughout the country that can be put to emergency use if the need arises. A good reference to the many nets in current operation, including regular emergency nets, exists in the ARRL's Net Directory.

- **Standard Frequency**
  As part of your local emergency plan, there should be some reference to your local and section nets and their operating frequencies and times. A standard operating frequency is important, as this where everyone will congregate on when an emergency occurs. Alternates to this frequency are also important if the frequency should become unusable for some reason. Make sure you keep a current list of nets, their frequencies and times, and any emergency frequencies that may be called into service if the need arises.

- **Net Control Stations and rotation**
  Emergency nets need net control stations, usually abbreviated NCS. Most major emergency nets keep a rotation list of net control operators. It is the responsibility of these net control operators to make sure that the nets run smoothly and efficiently. They *control* the net. You should follow the net control's lead in understanding how a particular net is operated by *listening* first. It is important for a net control station to designate an alternate NCS during the operation of any nets, because of the potential of the loss of a NCS station due to equipment failure or other problem.

- **Traffic for the net**
  The goal of all nets is to transfer information (which we call traffic). Important things to remember here are that each net has its own priority for differing kinds of traffic. The normal priority is Emergency, Priority, Routine and Health and Welfare traffic, in that order. Some nets will not take Health and Welfare traffic, preferring to send amateurs with such traffic to other nets specifically set up for that traffic. *All* nets should take priority and emergency traffic if there is not a better net available to handle such traffic. If you have any traffic, when you check in, make sure you state this information to the NCS.

- **Regular participation**
  Regular participation in emergency nets is the best way of staying current and understanding the operations of a particular network. In addition, it makes sure your equipment is operating properly and helps you to understand your station's propagation coverage in a particular net.

- **Checkins/checkouts**
  All nets have particular procedures for checking into the net. *Listen* to the net preamble to learn about the proper way to check in to that net. Otherwise, you can announce your call during a pause in communications (not during traffic or if instructed to stand by) and, if acknowledged by NCS, go ahead and check in.

- **Relays**
  SSB nets and FM Simplex nets will require relays if there are weak stations trying to check in with traffic. Many nets have established policies in dealing with relays, sometimes alternating NCS to widen the net's reception due to propagation. (Note: Nets on FM Repeaters will require relays if someone is trying to get into

the repeater and cannot maintain a full quieting signal. A station closer to that unreadable station can sometimes relay the request by listening to the unreadable station's transmission directly on the repeater input frequency and relaying the request to the net on the repeater.)

FM Simplex Nets

- **Regularly scheduled nets**
  Nets held on FM Simplex frequencies are usually called into effect as backups when normal FM repeater communications are disrupted or to handle local traffic. These nets hold special challenges for all concerned, and are closer to SSB nets in function than they are to FM Repeater nets. For that reason, experience in operating on HF SSB nets will hold the operator in good stead during a simplex net.
- **Location location location**
  The first fundamental of efficient simplex operation is Location. If you are mobile, move your antenna until you can receive a good signal and use enough power to be able to communicate with the NCS. Some stations will relocate to a high point to conduct a simplex net to improve their coverage.
- **Net Control challenges**
  As part of the challenges facing Simplex operations, the NCS must learn to use relay stations properly to pass traffic. Since not all stations can hear each other on most simplex nets, there is a need to establish those stations with the best reception coverage as relay points. If you try to check in to such a net and NCS does not acknowledge you, ask for a relay.
- **Practice regularly to develop skills**
  A regularly scheduled Simplex net can get everyone up to speed on the problems facing simplex operations and can stimulate those involved to steadily improve their stations and operating skills to the point that simplex becomes a well established alternative to emergency communications should the local repeater system fail.
- **Have a plan**
  It is important that there should be a local emergency plan and that all of the local amateurs know what that plan is. Knowing what frequency to turn to in the event of an emergency is the best way to insure that there are enough operators available to assist in an emergency situation. Having backups to these established frequencies is also an important need that should be in the plan. These backups should include both FM repeater and simplex frequencies. Reference to local section HF nets should also be mentioned for those with HF capabilities. Find out what the local plan has in it. If there's not one, get with your local EC (or your local club if there is no EC in your area) and help make one.
- **Simplex repeaters**
  There has started to be increasing use of simplex repeaters for use in emergencies. These are simply radios that listen to a particular simplex frequency and record what is being sent, and when the carrier drops, they will repeat that same information on the same frequency, but usually from a location with wide coverage and higher power than the sending station. These provide a special challenge and different operating skills for those who use such repeaters. While coverage is definitely increased for a simplex net using a simplex repeater stationed at a high point, the drawback is that there is a time delay while the messages are being 'repeated' literally, doubling the communications time for any message. If time is of the essence and a communications path is available, it would be better to conduct emergency traffic directly if possible. A move to a different frequency would probably be the best route to conduct such traffic if a simplex repeater is in place. Simplex repeaters definitely have their place, especially in areas where there are coverage problems.

Repeaters

- Repeater Etiquette
  - **Leave <u>at least</u> 3-4 second breaks between transmissions.** This allows other stations to break into a conversation should there be an emergency.
  - Some repeaters have courtesy beeps. These signify that the time out timer is about to reset.
  - Autopatch: Most are closed - that is the autopatch is for club members only. For all autopatches you need to think of the following
    1. Keep calls short and to the point.
    2. Inform the person on the phone line that this call can be heard by others.
    3. Remind the person on the phone line that there is to be no profanity.

4. Don't say anything to the person on the phone line that you would not say loudly at the local shopping mall.
- Various repeaters have functions other-than or in-addition-to rag chewing. Learn about the repeater you are about to use *before* you begin a long rag chew.
- Linked repeaters: In general, linked systems are not a good place to hold long rag chews. You will not just tie up a single frequency pair. You may - in some systems - have repeater pairs in as many as ten cities tied up. Be careful.
- "Q" signals are for CW
- Leave the 10 codes on "other" radio services.

Operator Skills

- Once you've learned the basics, gain as much on-the-air experience possible. Practice before the event. Publicize and hold practice sessions. Plan for them.
- One cannot anticipate all the possible problems that can come up in the field, or on-the-air during such a spontaneous event. By engaging in on-the-air activities, you practice solving problems spontaneously while continuing to communicate.
- Don't be overly concerned with the problem solving during the exercise. What's important is that you experience and learn to cope with fielding multiple, unexpected situations which will help you in future activities. Problem solving will be developed simply by attempting to handle the message traffic and situations.
- There is a very good reason for training in advance. You do not want to deploy into the field with any form of uncertainty or hesitation. You want to work out your "butterflies in your stomach" ahead of time in a comfortable and safe environment, such as an afternoon or evening net or on simplex with a couple of your buddies.
- Practice being efficient with your time and the use of other people's time (like cutting out excessive chatter and getting immediately to the point) -- because during an emergency, time on the radio channel is of the essence.
- Make your transmissions sound crisp and professional like the police and fire radio dispatchers and the air traffic controllers. Do not use any more transmission time on the radio than absolutely necessary.
- Someone *is* waiting to use the channel. (That's why frequencies are busy and congested during an emergency.) You don't like it when someone is hogging the channel when *you* need it, so you should be considerate and reciprocate similarly and keep your time on

Emergency Call Outs

- **What is a callout?**
  A callout is the process by which ARES members are contacted to support served agencies in an emergency. Callout procedures may be used as part of ARES exercises.
  Callouts occur at the District or County level and will *only* be initiated **by the DEC, EC or AECs for the district or County**. In a real emergency, these officials act in response to actual or anticipated requests for communications support by served agencies.
  Each ARES member is expected to be prepared to respond as effectively as possible to a callout. No one is expected to ignore personal responsibilities to family or employer, nor unnecessarily risk their welfare. However, personal inconvenience or lack of preparation in insufficient reason for not supporting a callout.
- **How do I prepare?**
  Put together a "ready kit" of the items suggested in the "Personal Equipment Checklist" outline. **DON'T** wait until you are called to assemble your "ready kit". Do it in advance, at your leisure, before it is needed.
- **How will I know?**
  As an amateur radio emergency communicator, you should register with the amateurs associated with RACES, EMA and ARES and make arrangements to be available for alert and activation. Typically, two or more amateurs serving as liaisons with EMA RACES are on pager notification by the EMA. The pagers and/or telephone voice message are typically activated by a computerized group-call paging/notification system activated by the EMA communications officer using a touch tone telephone control code. Other similar automated or manual notification system may be in use in your county.

Once these amateurs are notified, a number of alert mechanisms can be used. A common one is to disseminate the alert/notification via a pager and/or telephone tree. The pager code may indicate the six digit frequency of a local repeater, followed by a three digit action code (ie, 911 for an emergency, 000 for test). Some groups use a two tone paging signal on a local repeater with wide coverage, activating commercial voice pagers that have been modified to monitor the amateur radio repeater.

Once the activation notice has been sent to check into the local command repeater, an NCS establishes a check-in net while the ICS communications command team establishes themselves. The operation teams are expected to activate and respond according to their normal response plan. The command team will issue bulletin statements for the net as needed, directing and fine tuning the activation. They will cancel the alert as needed should the situation warrant it.

As the net is started it is the responsibility of the NCS to start the mobilization / demobilization sheet. The information that must be kept is:

- Name and FCC issued call
- Date/time they called in at
- Date/time they reported to the staging area
  If the person called in as they arrived at the staging area then the last two items will be the same.
- Tactical assigned to this person or the tactical call used by the location this person was sent to and the time this person was assigned.
- Time/date the person left for home.

This information is critical to insure everyone that participated is accounted for at shut down. A byproduct of this information is the ability to determine how much time we spent on the event.

If the situation is weather related, amateurs can also monitor NOAA NWR for information direct from the National Weather Service.

- **Individual Responsibilities**
  Each and every person working an emergency (and most training events) has specific responsibilities. These include, but are not limited to the items shown in the ARES Check List. This list is oriented toward the Incident Command System (ICS) but should be utilized in virtually every ARES/RACES event.

- **Initial Operation**
  If you are responding to another location, as you get on site, ask for the person in charge and introduce yourself as the emergency communicator assigned to serve that location. The person-in-charge will be busy, so spend only a moment explaining that you would like to set up a communications station for that location, and to ask where he/she would like the located. Be prepared to suggest an appropriate location -- one that can serve as an operating table and message desk; has feedline access to the window, outdoor or roof; access to power and telephone, and *is away from the command center to avoid commotion from disturbing either the command or communications center.*

  Move your equipment, battery and power cords into position. Hopefully, you've arrived as a team of two or more, so that a person can start setting up while the other person is moving some of the equipment in. The first priority would be to set up a 2M mobile station to establish essential contact with the net. Use the lowest power setting that produces reliable contact. Since you're operating in an unfamiliar environment, resist the temptation to run high power, which could possibly cause local interference in nearby equipment. Proceed to set up the scanner, then HF, packet and other stations. As more of your communications setup becomes operational you can check into other nets and begin compiling a list of stations that are reachable directly or via a relay station.

- **Paperwork required at the site**
  Some of the things you should have with you when you operate in the field:
  - Message forms or sheets to compose messages.
    Often, you'll copy the message onto scratch paper, then transcribe it cleanly onto the incoming message form.
  - Log sheets to log incoming and outgoing messages.
  - Notepad for writing notes.
  - 3M Post-its for annotating items.

- **Long term operation**
  If you expect to operate from the location for a period of time, establish a message filing system so that you can retrieve the messages as needed. Some of the "portable office" type that can hold several hanging folders and has a tray on top for pencils, a mini-stapler, scissors and scotch tape would be very useful to organize and file the messages. You should also look for and establish a break area, rest room facilities and a sleeping area.

- **Notification of shutdown**
  The notification for shutting down operations may be given over the air by the NCS or bulletin station. The shutdown is usually preceded by notices given a heads up stating that shutdown of operations is coming.

Notifications can be supplemented via alpha pager and telephone tree networks.
Be sure you confirm the shutdown order.

- **Shutdown and cleanup**
  Upon receiving notice of a shutdown, the station should begin securing the messages, the message desk, equipment and other materials. Make sure you leave the area you operated at in as good or better condition than you found it. Your served agencies appreciate that.

- **Debriefing Input**
  As part of the preparation for after action debriefing, the following information should be noted:
  - Your log should contain what time critical events occurred. It is useful in the port-mortem analysis to determine timeframes for activation, setup, transit, etc.
  - Complete information on what happened.
  - Note who was around. In case there are questions, you will know who to contact for further information.
  - Note the hours of operation.
  - Note what was accomplished. Often, the list of accomplishments need to be related to those who weren't there at the scene/operating location.
  - Note what's pending. If there were unfinished items, note them so that someone else can follow-up.
  - Note what was good. Jot down the things that went well. Often, in the heat of the moment, we forget that there were things that worked in our favor.
  - Note what needed improvement. This is fairly easy to note, as we remember easily the items we struggled with the most.
  - Thank those who turned out and were involved. Even a simple verbal thank you goes a long way, compared to hearing not a single word. Make sure you make it a point to thank those around you and your family for letting you get the job done.

Operator Stress

Emergency communications is a very challenging assignment. There's a lot of need being placed on people in a short amount of time. For this reason, stress can build upon the operators. As these demands wear down the individual's capacity for tolerance, flexibility and creativity, the person shows signs of stress. People show it as varying levels of irritability and emotional outbursts, which affects the ability to work well with others.
The best time to deal with stress is before it presents itself. Learn coping mechanisms _**before**_ responding to an event. Some of those mechanisms are:
1. Focus on teamwork, strategy and results, rather than on worry and concern.
2. Learn tolerance and patience during times of heightened demand and activity.
3. Understand that we are human and there are limits to our performance, both individually and corporately.
4. Learning the impact that diet, beverages and exercise can have on relieving stress and increase the capacity for dealing with it.
5. Learn to get rest and take breaks as necessary for *you*. What works for someone else may not work for you.

You may be exposed to experiences that are unique and unpleasant. A healthy person is able to withstand the emotional experience of high stress well enough until the impact of the immediate need passes, then begin processing the experience to accept the situation rather than reacting to it. Members of the team should learn to work with the stress rather than reacting to it.

ARES/RACES Debriefing

Within the Amateur Radio Emergency Service there are many "opportunities" to experience situations that we would not normally encounter. Some of these experiences, especially during training and public service events, can be very enjoyable and rewarding. Some, such as during floods, major fires, tornadoes and events like September 11, 2001 in New York City are far less than enjoyable, but can still be very rewarding.

In both environments we need to debrief ourselves to accomplish several objectives. During all events we need to assess our effectiveness and determine how we can improve. This serves to help focus our training in areas that need the most work and insures we compliment ourselves on the areas done well. During/after stressful events it is *very* important that we continually monitor our own stress levels and those of the people we are working with. In

doing this we maximize the effectiveness of our unit and identify jobs that need people rotated out of before stress levels become critical.

To adequately handle this discussion the subject has been divided into three portions:

- Tactical Debriefing - needed in all events
- Emotional Debriefing - needed in stressful events
- Family Briefing - needs to be covered before major events

Tactical Debriefings

Most of us view tactical debriefing as something done as an after thought or something we do to get it out of the way. If you instead look at debriefing as a learning tool that *will* improve your effectiveness and that of your unit, it will serve you well. One approach to debriefing is to answer the following questions in as much detail as is reasonable:

1. What was our mission/goal - exactly what were we there to accomplish?
2. For the communication, did we have a clear definition of who we were to communicate with and what the likely traffic would be?
3. Did we accomplish our mission/goal?
4. What did we do correctly (list everything)?
5. What did we do that was beyond expectations?
    - If nothing was beyond expectations, why not?
        - Were the expectations unreasonably high?
        - Did we not have enthusiastic participants?
        - Were we lazy?
6. What items did *not* meet expectations?
    - How can we improve on those items?
7. What specific training items do we now have a need for?
8. Other than the training items, what else needs improvement?
9. Were there any "surprises" and why did they surprise us?

It is very important that every ARES operator in the event have input to the debriefing. The reasons are simple. First, many times one persons comment sparks yet another thought from someone else. Second, no one can observe everything that happens, you need everyone's observations to be complete.

Emotional Debriefing

The American Red Cross has some thoughts on stress induced during disasters that are included here for your information. Police psychologists talk a lot about "critical incidents," but what exactly is one?

A critical incident is an occurrence that is one or more of the following: [a] Sudden and unexpected [b] perceived as life-threatening [c] overwhelming [d] disrupted sense of control [e] disrupted basic assumptions and beliefs [f] resulted in physical and/ or emotional loss

Physical reactions to critical incidents can include: [a] headaches [b] exhaustion [c] sleep disturbances [d] appetite disruptions [e] "nervous stomach"

Behavioral reactions to critical incidents can include: [a] hyperactivity [b] being easily startled [c] withdrawing or isolating oneself [d] periodic underactivity

Psychological reactions to critical incidents can include: [a] anger [b] self-blame [c] fear [d] anxiety [e] depression [f] over sensitivity [g] emotional numbness [h] having a heightened sense of danger [i] flashbacks [j] preoccupation with the incident [k] feeling that these emotions are "wimpy"

To minimize the effects of event related stress we need to provide emotional debriefings. These debriefings must be an organized, open discussion that takes place after a serious and emotionally taxing event. Its purpose is to provide a forum in which emergency workers can release their stress. This is not an investigation or an interrogation, nor is it a tactical debriefing. Rather, it is an open, constructive means by which emergency workers can openly express their emotions. When appropriate, trained professionals may take part. They can offer concrete suggestions for ways of overcoming the stress related to the incident.

The concept behind these debriefings is to encourage free expression of thoughts, fears, and concerns in a supportive group environment without losing status among one's peers. In fact, debriefings are much more successful and the feedback more positive when peer support personnel are more active. The debriefing process allows individuals to gain insight and reframe the event in a different perspective. As short-term initial intervention, it often aids in preventing some of the long-term cumulative effects caused by traumatic incidents.

All debriefings must be confidential and provide an opportunity for educating emergency service workers on stress responses, as well as letting those involved know that they are not alone in their thoughts and feelings.

What can I do?

Stress reduction begins with an evaluation of one's life. Taking a close look at your life and the things that **you <u>can</u> control** will help with your evaluation. Here are some ways you can reduce stress in your life:

1. **Don't make any life altering changes.**
2. Get plenty of rest.
3. Rather than jumping out of bed and rushing to start your day, plan to get up 15 minutes earlier each morning and take time to meditate. Beginning this way provides a foundation for the rest of the day.
4. Structure your time - keep busy.
5. Do make as many daily decisions as possible which will give you a feeling of control over your life, i.e., if someone asks you what you want to eat - answer them even if you're not sure.
6. At regular intervals live in the present moment. Anxiety increases when we brood about a past event or fret about a future obligation.
7. Do things that feel good to you.
8. Approach a stressful event with a positive attitude and it will boost your energy.
9. You're normal and having normal reactions - don't label yourself crazy.
10. Talk to people - talk is the most healing medicine.
11. Help your co-workers as much as possible by sharing feelings and checking out how they are doing.
12. Give yourself permission to feel rotten and share your feelings with others.
13. Keep a journal; write your way through those sleepless hours.
14. Realize those around you are also under stress.
15. Be aware of numbing the pain with overuse of drugs or alcohol; you don't need to complicate this with a substance abuse problem.
16. Reach out - people do care.
17. Maintain as normal a schedule as possible.
18. Spend time with others.
19. Remember, you get to make mistakes in life. Strive for excellence but don't be too hard on yourself if you do not attain it every time.
20. Give yourself some credit. Each day take a moment to give yourself a pat on the back for all the things that you do.
21. Take the time each day to create peaceful images in your mind. During your workday, occasionally pause to imagine yourself in a tranquil setting.
22. Eat well-balanced and regular meals (even if you don't feel like it).
23. Change your eating environment. Get out of the office and enjoy your meal in the park. Occasionally eat by yourself in silence. Eat slowly, and enjoy yourself.
24. Observe your breathing. When we are relaxed, our breathing is slow and even. However, when we are anxious or upset, we tend to breathe irregularly.
25. Take a brisk walk. **Exercise burns off the excess adrenaline that fuels feelings of anxiety and stress.**
26. Practice hospitality. Greet people with a smile; this will make others feel good and in turn, it will give you a deep sense of ease, calm, and peace.
27. Just say no. You don't have to accept every project, every invitation to become involved, and every opportunity to attend a meeting.
28. Walk in someone else's shoes. Try to see a conflict or difference of opinion from another person's point of view.
29. Don't bring work problems home or home problems to work. When you pull into the driveway, take a minute to orient yourself to being with your family and entering your home.

Most of us aren't able to get rid of all the stress in our busy lives. However, by finding ways to cope with and reduce stress and keeping your life simple, you can begin to start sorting out what really matters in your life.

Family Briefing

One item that few of us remember is that our family *will* be affected by our experiences during emergencies. The easiest way to minimize adverse effects on our families is to insure they understand *before* the event that we will need their help and understanding after major traumatic events we may be called upon to work.

A good source for information they can easily understand is the American Red Cross. They have extensive amounts of helpful information you can get. The most important information for your family is included here.
Specific things the family can do to help are:

- Listen carefully.
- Spend time with the traumatized person.
- Offer your assistance and a listening ear if they have not asked for help.
- Reassure them that they are safe.
- Help them with everyday tasks like cleaning, cooking, caring for the family, minding children.
- Give them some private time.
- Don't take their anger or other feelings personally.
- Don't tell them that they are "lucky it wasn't worse" - traumatized people are not consoled by those statements. Instead, tell them that you are sorry such an event has occurred and you want to understand and assist them.

Incident Command System

Incident Command System (ICS)

Latest update to ICS information: 4/15/05

Disclaimer

The following description of the Incident Command System (ICS) is a summary for use by Amateur Radio operators working on ARES and RACES activities. This summary is *-only-* to provide Hams with basic a understanding of terminology and concepts associated with ICS and *not* to replace formal ICS training within your district. Understand that the structure defined in this document is for large events. In smaller events, a subset of the full structure will likely be used.

NIMS

As of August 2004 there has been Presidential decree that *all* public service entities implement the National Incident Management System (NIMS) by 2005. In simplest terms NIMS is ICS carried to the Area Command level.
The best way to learn about NIMS is to take the self study course at http://www.training.fema.gov/EMIWeb/IS/IS700.
This is strongly recommended for everyone.

MACS

Multi-Agency Coordination System (MACS) operates between the ICS and NIMS, normally at the county level. The specific terminology you will need to understand are the Mode Numbers. Modes are numbered from one to four and have the following meanings.

1. Mode One: Jurisdiction(s) having authority responds and handles the incident without requesting outside resources.
2. Mode Two: Jurisdiction(s) having authority requests outside resources including mutual aid but retains incident command authority.
3. Mode Three: Jurisdiction(s) having authority requests transfer of incident command management authority to the County EOC or to a unified command structure.
4. Mode Four: County agency, or unified command requests that the incident management authority be transferred to the state or federal level.

ICS Overview

Incident Command System is a management tool designed to assist anyone who has the responsibility for the successful outcome of an incident. We will define an incident as any planned or unplanned occurrence or event, regardless of the cause, which requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.

Emergency services professionals agree that too often there is considerable confusion in the operational performance at major incidents. On large structure fires, floods, forest fires, hazardous materials spills and tornadoes, the ability to manage the situation effectively seems to decrease in direct proportion to the number of agencies involved. Problems arise because of different operating procedures, terminology, and/or incompatible equipment. The problem is compounded when different types of agencies such as fire service, law enforcement, rescue groups, health departments, and forest services all become involved at one incident. When several levels of government add to the mix, the potential for confusion is critical.

It is not uncommon for each agency to have a very limited understanding of the procedures and terminology of the other agencies involved, yet the jurisdictions and authority at the scene may overlap extensively. Too often, the person in charge is unable to communicate a strategy or plan of action. As they arrive, the various agencies have difficulty determining their duties and where they fit into the management structure.

What does ICS do?

The Incident Command System (ICS) is a standardized method of managing emergency incidents. It is based on a common organizational structure, common terminology, and common operating procedures.

ICS will manage small, routine, daily incidents as well as the large, complex multi-jurisdictional disasters everyone dreads. ICS reduces confusion and uncertainty in the early phases of an incident, thereby increasing the efficiency and effectiveness of mutual aid while increasing safety. Within ICS, the transition from a routine incident to a major emergency is orderly and requires a minimum of adjustment for any agency. In its largest application, it may include several thousand people without compromising effective supervision.

ICS does <u>not</u> infringe on the daily routine, responsibilities or authority given each agency by statute. But, if a transfer of authority is necessary as conditions change, ICS smoothes the transition since organizational structure and lines of authority are clearly defined. On-scene operations often need coordination from the affected governments. This support includes delegation (and definition) of authority to the Incident Commander, and planning/logistical support from all agencies involved. ICS compliments interagency planning and logistics through the Multi-Agency Coordinating System (MACS).

ICS Structure

The Incident Command System has two halves. These halves are interrelated and both are critical to the successful outcome of the incident.
- A. **Management by Objectives**
  Four essential steps used in every incident, regardless of the size or complexity are:
    1. Understand policy, procedures and statutes
    2. Establish incident objectives
    3. Select appropriate strategy
    4. Apply tactics most likely to accomplish objectives (assign correct resources and monitor results)
  The complexity of the incident will determine how formally the management by objectives portion will be handled. In a small, simple incident, the process can be handled by verbal communication between appropriate people. As the incident becomes more complex many of the differences in individual objectives will be resolved by documentation of the incident objectives. The ICS 201 document describes the process that allows this to happen in a systematic way.
- B. **Organizational Structure**
  The ICS structure begins with the Incident Commander (IC). The person designated IC is responsible for the management of the incident and starts the process by setting incident objectives. This person may do all functions without aid but will usually delegate responsibilities to others in the organization. The IC still has overall responsibility for the incident, regardless of duties delegated.
- C.
  It is common to have an incident cross-jurisdictional boundaries. <u>Unified Command</u> is the ICS process that allows the multiple jurisdictions to develop unified objectives and strategies for the incident. This is accomplished without any loss of authority, responsibility or accountability.
  Under Unified Command:
    1. There is one IC for any event. There is not an "IC for .... and an IC for ....".
       There is **ONE** Incident Commander.
    2. The incident will be handled under a single coordinated Incident Action Plan (IAP).

3. One operations Section Chief will have responsibility for implementing the Incident Action Plan (IAP).
4. One Incident Command Post (ICP) will be established.
   As the IC fills positions in the organizational structure the positions will fall into five areas of management function:
5. **Command** - The IC is responsible for all incident or event activity. The incident size/complexity will determine which other management functions will be filled. The command staff assists the IC and reports directly to the IC.
6. **Operations** - Operations is responsible for directing the tactical actions to meet incident objectives. There is only one Operations Chief (if activated by the IC) per operational period but that position may have deputies as needed. The Operations Section commonly uses Branches, Divisions, Groups, Task Forces and Strike Teams to maintain unity, chain of command and span of control.
7. **Planning** - Responsible for collection, evaluation and display of incident information. It also maintains status of resources, preparing the IAP and incident related documentation.
8. **Logistics** - Is responsible for providing adequate services and support to meet all incident or event needs.
9. **Finance/Administration** - Responsible for tracking incident related costs, personnel and equipment records and administering procurement contracts associated with the incident or event.

Each of these functional areas can expand as needed into additional organizational units with further delegation of authority. As positions are filled, the radio designations are replaced with ICS position titles. The ICS organization at any time should reflect only what is required to meet planned tactical objectives. The size of the current organization and that of the next operational period is determined through the incident action planning process. A number of organizational elements may be activated in the various sections without activating sectional chiefs. Each activated element must have a person in charge of it. A single supervisor may initially be in charge of more than one unit. Elements that have been activated and are no longer needed should be deactivated to decrease organizational size.

The greatest challenge for the IC is to maintain control of the resources and to keep open communication both up and down the organizational structure. The principles of Unity of Command, Chain of Command and Span of Control allow this to take place. These three principles are also critical for maintaining the safety of incident personnel.

10. **UNITY OF COMMAND** means that every individual has one designated supervisor, knows who that person is and how to contact them.
11. **CHAIN OF COMMAND** means that there is an orderly line of authority within the ranks of the organization with lower levels subordinate to and connected to higher levels. In most incidents, chain of command will consist of:
    - Command
    - Resource

    As incidents expand, the chain of command expands through an organizational structure that can consist of several layers. For example:
    - Command
    - Sections
    - Branches
    - Division/Group
    - Units
    - Resource
12. **SPAN OF CONTROL** relates to the number of individuals one supervisor can effectively manage. In ICS the span of control for any supervisor falls in the range of three to seven, with five being considered optimal. Span of control is accomplished through timely use of delegations and good resource management.

Incident Documentation

INCIDENT ACTION PLAN (IAP) is to provide all incident supervisory personnel with direction for future actions. It may be written or verbal but written plans are preferred. It is important to use written IAPs when:
1. Two or more jurisdictions are involved
2. The incident will overlap major changes in personnel or go into a new operational period

3. There is extensive or full activation of the ICS organization
COMMUNICATIONS PLAN can be very simple and given verbally or may be quite complex and form a portion of the written Incident Action Plan. Among other items it lists the frequencies to be used for the incident.

ICS Command Structure Outline

INCIDENT COMMANDER (IC)

Reporting to the IC are:
1. **Command Staff**
    A. Safety Officer
    B. Liaison Officer
    C. Public Information Officer
2. **Logistics Chief**
    A. **Service Branch**
        1. **Communications**
            *** This is where Amateur Radio fits in ICS when there is need for the full ICS structure.***
            Understand then that each incident will be structured as needs dictate. As an ARES or RACES member, your job is to supplement Served Agency communications. Therefore we will be assigned where the Incident Commander (IC) needs us.
            The following is the breakdown for Communications. Please note: Not all of these positions will be filled in every incident.
            - Communications Unit Leader (ComL)
                - Communications Technician (ComTech)
                    - Incident Communications Center Manager (INCM)
                        - Radio Operator (Rado)
        2. Medical Unit
        3. Food Unit
    B. Support Branch
        1. Supply Unit
        2. Facilities Unit
3. **Operations Chief**
    A. Staging Area Manager
        1. Fire
        2. Law Enforcement
        3. Emergency Medical Service
        4. Public Works
    B. Emergency Medical Service Branch
        1. Triage Group
        2. Treatment Group
        3. Transportation Group
    C. Fire Service Branch
        1. Suppression Group
        2. Rescue Group
        3. Rehabilitation Group
    D. Law Enforcement Branch
        1. Investigations Group
            a. Interviews
            b. Crime Scene
        2. Perimeter Group
            a. North
            b. East
            c. West
            d. South
        3. Search Division
            a. Team 1
            b. Team 2
            c. Team 3
            d. Tactical Response
    E. Public Works Branch
        1. Dikeing
        2. Debris Clearance / Street repairs

3. Utilities, Electrical
4. Utilities, Gas
5. Utilities, Water
6. Telephone
4. **Planning Chief**
   A. Resources Unit
   B. Situation Unit
   C. Documentation Unit
   D. Demobilization Unit
   E. Technical Specialists
5. **Finance Chief**
   A. Time Unit
   B. Procurement Unit
   C. Compensation Unit
   D. Cost Unit

Position Objectives

Each person within the ICS structure is charged with accomplishing specific tasks in support of the overall effort. These tasks, for incident managers are:

INCIDENT COMMANDER - (IC)
1. Assess the situation
2. Establish incident objectives and overall plan
   a. For the first hour
   b. For hours two - eight
   c. For extended operations
3. Fill necessary ICS functions
4. Brief staff
5. Monitor staff and revise plans as necessary
6. Handle requests for additional resources and release resources
   I. **OPERATIONS CHIEF**
   1. Obtain briefing from IC
   2. Establish operational objectives per incident plan
      a. For the first hour
      b. For hours two - eight
      c. For extended operations
   3. Develop tactics to accomplish objectives
   4. Divide incident by geographic reference and/or function
   5. Appoint and brief Branch/Division/Group leaders
   6. Supervise operations
   7. Determine and acquire resources from Branch/Division/Group leader input
      A. STAGING AREA MANAGER
      1. Determine location of staging area
      2. Establish staging area layout
      3. Determine support/service needs for staging area
      4. Report status of equipment and personnel in staging area to the Operations Chief
      5. Dispatch personnel and equipment from staging area to the incident as necessary
      B. BRANCH/DIVISION/GROUP LEADERS
      1. Assess the situation
      2. Establish incident objectives for Branch/Division/Group
         a. For the first hour
         b. For hours two - eight
         c. For extended operations
      3. Develop tactical plan to accomplish objectives
      4. Determine time and resource requirements
      5. Determine logistical requirements
      6. Requests needs from Operations Chief
   II. **PLANS CHIEF**
   1. Obtain briefing from IC
   2. Establish necessary positions within function

3. Supervise preparation of Incident Action Plan (IAP)
4. Develop alternative strategies
5. Provide periodic predictions on incident potential
6. Supervise planning section units
   G. SITUATION INFORMATION CENTER
   1. Compile incident situation information
   2. Display incident status on maps, boards, etc.
   H. RESOURCE STATUS UNIT
   1. Compile incident resource information
   2. Display resource utilization/availability
   3. Check in resources as they arrive
   I. DOCUMENTATION UNIT
   1. Document complete incident
III. **LOGISTICS CHIEF**
1. Obtain briefing from IC
2. Establish logistics section positions as necessary and do briefings as necessary
3. Identify service and support needs for the duration of the incident
4. Coordinate and process requests for resources
5. Advise IC and staff of current service and support capability
6. Prepare "Service and Support" portions of the IAP

Etc. etc. etc. - The remainder of the objectives will not normally be of interest to ARES/RACES and so have been omitted from this document.

Incident Command System and Amateur Radio

The Incident Command System (ICS) was developed as a result of wildland fires in California in the 70's. Many agencies at the local, state and federal level were tasked with responding and providing some level of assistance to this type of incident, and it became painfully evident that differences in terminology and the lack of a unified command structure created confusion, and prevented a coordinated approach to managing the incident. A Federal/State/Local task force was created to develop a system for the management of these wildfires, and it expanded to include any incident. A few years later, ICS was formalized. Over the past two decades, it has been implemented throughout the US and Canada and today is the standard emergency response framework for managing incidents of any size.
The primary components of ICS are:

- Common Terminology
- Multi-Jurisdictional **Unified Command**
- Modular Organization
- Integrated Communications
- Manageable Span of Control

As Amateur Radio groups continue to work more closely with the different Public Service Agencies, they may be asked to function within the ICS structure. It is incumbent upon Amateur Radio leadership, and, to a lesser degree, all Amateur Radio operators to understand how Amateur Radio fits into ICS.

ICS does not seek to alter the way any unit (including Amateur Radio) performs its internal function. ICS does not dictate how the police does its policing, how firefighters fight fires, nor how Amateur Radio units accomplish their tasks. Existing Amateur Radio methods and procedures remain unchanged. *ICS does provide an organization and reporting structure, with a clearly defined chain of command and span of control.*

While the ICS structure might look a bit daunting at first, it should be noted that this structure allows for the management of any incident, regardless of size. *All tasks may not be needed at every incident.* ICS allows for the expansion of the organization as needs dictate, to maintain a **span of control between 3 and 7 (optimal of 5) subordinates per supervisor.**

Where we fit in ICS

We fit nowhere in the organization until asked. There is no position within the ICS for "walk-on" operators! If you wish to help in any event, contact your local ARES Emergency Coordinator or RACES officer and volunteer with that person. Do not just show up to work.

The primary area of interest to Amateur Radio participants is the Logistics Section, Services Branch, Communication Unit. Typically, the primary contact at the served agency will notify the primary Amateur Radio leadership individual to advise the nature of the incident, and where to report. This may be a staging area, or to the Command Post area, usually to either the Logistics Section Chief, the Services Branch Director, or the Communications Unit Leader. One individual may be serving in all three capacities, so Amateur Radio operators serving at a command post need to understand the specific nature of the incident. The command post may be identified by a green light or a green flag. An Amateur Radio operator may be assigned to the Communications officer or they may be assigned as a Technical Specialist in another area.

Amateur Radio operators may be requested to perform non-ham radio activities and could conceivably be assigned anywhere. If an operator is assigned to a non-ham unit, operators need to comply with the directions of the unit supervisor, understand the mission and report actions back to that unit supervisor.

Amateur radio groups deployed as units should be structured into groups of 3 to 5 hams under one Amateur Radio unit supervisor. For example: If a unit has 20 members, the leadership needs to break the unit down into 4 or 5 units. This could be based upon geography (where the units will be deployed), time of day (shifts), specific function (HQ unit, field unit 1, field unit 2, etc), or any other reasonable, manageable division of labor. Then, instead of one Amateur Radio leader needing to get status or provide direction to 20 members, the 1 leader interacts with 4, and those four with 3 to 5 each. This allows for a much quicker and more manageable method of communications and control. Smaller units are also able to be re-assigned and moved more quickly than large units, so the smaller units also allow Incident Command more flexibility in the utilization of overall resources.

Everyone *must* insure that all assignments, delegation and hand-overs are done with **explicit** statement of intent and **explicit** statement of acceptance. The most likely problems will occur when duties are assigned/accepted implicitly. If *all* assignment, delegation, handovers, acceptance etc. are explicit, the potential misunderstandings are minimized or eliminated. **A good technique to insure understanding is to repeat back what you understand the order or instruction to be. This will expose errors before they can become a problem.**

Amateur Radio leadership with the likelihood of serving in supervisory roles for an incident should familiarize themselves with the ICS structure, forms, methods and procedures. The 'higher up' the pyramid an individual Amateur Radio operator serves, the more important ICS training becomes. It would be mandatory for an Amateur Radio operator assigned to a served agency command post as the Amateur Radio liaison to be fully trained in the Incident Command System. Each Amateur Radio Emergency Services group within Maine should have a cadre of individuals "fully trained" in ICS.

ICS training is provided by served agencies throughout the United States; check with your local EMA, Sheriff's Office, or Fire agency for local information.

In addition, ICS courses are available from the Federal Emergency Management Agency (FEMA) on the web at: http://www.fema.gov

As previously mentioned, the methods and procedures used by Amateur Radio operators: use of nets, methods such as packet or ATV, and other training such as Damage Assessment, Fire or Fire Weather training-- are items that remain in place, in use, and unaffected by ICS-- except for the nature of how information is reported up the chain and how commands are given down the chain. Amateur Radio operators should continue to receive training in these areas-- and add ICS to the already valuable skills used to serve the public via Amateur Radio.