Communications Operation Guide

SouthBears

(Southern Baptist Emergency Amateur Radio Service)

FOREWARD

This guide is a product of input from various individuals involved with existing Southern Baptist Disaster Relief Communications Ministries from several states. It was, and still is the intent of this group to provide this guide as a reference in establishing a unified and consistent disaster relief communications network between participating Southern Baptist States.

The development of the Southern Baptist Emergency Amateur Radio Service (SouthBears) is a result of a collaborative effort from this group of individuals. SouthBears has brought several states communicators together, and has become a weekly regional HF net. This net meets each Sunday afternoon at 2:30 Central and 3:30 Eastern time on 7260 Khz and at 3:30 Central and 4:30 Eastern time on 14.265 Mhz for the purpose of training for disaster relief purposes and Christian fellowship. Our MOU with The Salvation Army (TSA) has opened another doorway in expanding our communications capabilities by allowing us access to additional net resources with the Salvation Army Team Emergency Radio Network (SATERN). SATERN has established regional and national HF nets, which meet on a daily basis. TSA and SATERN are encouraging us, as SouthBears members, to check into their nets whenever possible and when doing so, to identify ourselves as SouthBears members. This provides us with yet another resource, with which to accomplish our mission and goals, by utilizing these existing nets managed by fellow believers.

SOUTHBEARS WEB SITE http://www.southbears.org

SOUTHBEARS E-MAIL LIST http://groups.yahoo.com/search?query=southbears

SOUTHBEARS
SOUTHERN BAPTIST EMERGENCY AMATEUR RADIO SERVICE
DISASTER COMMUNICATIONS OPERATIONS GUIDE

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PURPOSE

The purpose of this manual is to guide state communications units and radio operators while serving in support of a disaster, whether local, state, regional or national. The contents will also assist you in developing a communications unit and the equipment recommended for it.

The primary function of SOUTHBEARS communications is to provide logistical and tactical communications support, as directed, to whatever unit or task to which they have been assigned. (This could be a clean up and recovery unit, a large feeding unit, a command unit or managing a local, regional or national net.)

MISSION STATEMENT

The purpose of the Southern Baptist Emergency Amateur Radio Service (SouthBears) is to provide a network of support communication services to Southern Baptist volunteer groups or affiliated agencies during commercial communication disruptions, and to provide health and welfare message handling in disaster areas as a direct ministry to victims affected by the disaster whenever priorities allow. This is accomplished through a ministry employing the resources and talents of Christian amateur radio operators for the glory of God. We also need to make ourselves available to meet the needs of every disaster victim through the medium of communication. We do these things for the glory of Christ's Kingdom.

Our primary goal is to provide logistical communications for our state disaster relief activities and the disaster relief activities of the North American Mission Board (NAMB). Our secondary goal is to provide communications for others as the situation dictates. We shall exhibit an attitude, Christ-like as humanly possible to every contact, be it peer or disaster victim. We will consistently strive to labor for Jesus under the Bible verse, "…whatsoever you did for the least of these brothers of mine, you did it for me." Matt 25:40 NIV

CODE OF CONDUCT

Communicators will be subject to unique challenges. This will require that you be flexible, patient, and available. In this situation you are a servant, first to the LORD, then the On-Site Director or Blue Hat, and your fellow workers.

A gentle, supportive, and loving demeanor will be needed throughout the term of operations. At no time is rude or selfish conduct appropriate, especially toward the disaster victims. You are an ambassador for Jesus Christ, so show it!

OPERATING PROCEDURES

Communications Operator (COMMUNICATOR)
Authority – State volunteer operators shall receive direction and authority from the state Director of Communications.

- **Qualifications** – All station operators shall have a General Class or higher radio amateur license, or Technician Class if teamed with an operator of higher operating privileges and be appropriately trained by their state conventions.

- **Job Description** – It should be the responsibility of operators to provide en route navigation to the disaster area, attain the necessary training for station operation (including administration, modes of operation, training in equipment operation, and operating protocol). The operator should provide mapping and other administrative services to feeding, clean-up/recovery and other components of disaster relief ministries. The operator should report en route progress to NAMB.

- **General Discussion** – One person designated by the State Communications Coordinator will be in charge and responsible for the operation of the Primary Communication Resource of the state. That individual will wear a blue cap to signify his leadership role. Whenever he is called away from the area he will pass responsibility and leadership to another of his choosing. Conventional blue cap training is not required for this position. No one should be left in charge of communications who has not shown themselves through training and experience to be knowledgeable in all aspects of communications and station operation; nor should that person not hold a current radio amateur license of General or higher class privilege.

  Quick response communicators who accompany damage assessment team should have a GPS receiver and laptop computer for the purpose of marking the location of property in need of cleanup and for the purpose of navigating to and in the disaster area. Ministry teams that include a communicator benefit from navigation that GPS affords. Appendix ___ provides equipment recommendations. The Garmin Etrek recommended in the appendix can be connected directly to the Kenwood TM-D700A to provide an APRS beacon while in route; an APRS beacon provides automatic route progress reporting to NAMB.

  ARRL message forms should be used during deployment. The following is not a message: “I need meals!” Help the requester with message content that will be clear to the recipient. Here are sample questions to ask: “May I have your name and phone number, please? How many meals do you need? Will these be breakfast lunch or dinner meals? Will you need drinks too?” Please give me the physical address for delivery and time you want us to deliver. Who will be there to receive the meals?”

Since this was a specific message and the message center knows the delivery scheduler will receive it, there is no need to ask who is to receive it. The emphasis of this sample message is on having enough information to write a clear message. Put yourself in the position of the one who will be receiving it and ask the questions that he might ask. Make a copy of the message and keep the original in a message log. Record the date and time of delivery, the person who delivered it and to whom it was delivered.

State Communications Coordinator

- **Authority** – The Coordinator shall receive direction and authority directly from the State Disaster Relief Director.

- **Qualifications** – The Coordinator shall have a General Class or higher radio amateur license.

- **Job Description** – The Coordinator should be totally responsible for maintaining and providing security for all state radio communication assets. Additionally, he should be responsible for recruiting operators, training, maintaining equipment, maintaining a current volunteer roster, calling out volunteers, providing rotation teams, activating volunteers, operator safety and keeping all communication volunteers informed of deployment plans before and during emergencies.

General Discussion - Experience would recommend two communicators and one runner as a minimum communications center crew for disasters on the 2004 Florida hurricane scale. During the 1st ten days of operation at an area producing 5000 meals or so per day and with clean up crews of five, 250 messages were handled. This particular site was fortunate enough to have an operational cell phone accessible to a tower outside the disaster area by means of a high gain cell phone antenna. Additionally, a local repeater with repeater-to-repeater linking allowed communications along 200 miles of devastation. As a result of these communications resources, considerable traffic was passed and the need for a runner to deliver messages rapidly became obvious. Message activity will begin slowly, perhaps two, three or four per day for the first couple of days and peak at 15 or 20 per day. After numbers fall to two or three per day it is time to consider closing the communications center, unless of course there is plenty of administration activity on going. Communications should be among the first to deploy and arrive on a disaster site. Our experience has shown that the greatest need will be during the first five to ten days, after which time local communications infrastructure will have been restored.

Team rotation is important. After five days in the field, plan on rotating the crew. Not only is this best for the crew, it allows others to participate in the ministry; and, that is critical in maintaining morale and interest. Fortunately, disasters generally are few and far between, and that is good because it allows plenty of time for preparation and training. It is not good to be personally prepared and trained and not be used during the emergency. One plan would be to designate the first-out team as the rotation team for the next disaster and alternate teams in this manner.

COMMUNICATIONS UNIT DIRECTOR (UD)

- **Authority** – The UD shall receive direction and authority directly from the State Communications Coordinator.

- **Qualifications** – The UD shall have a General Class or higher radio amateur license and have received State Unit Director/Blue Hat training.

- **Job Description** – The UD should be totally responsible for maintaining and providing security for field deployed radio communication assets. Additionally, he should be responsible for recruiting operators, training, maintaining equipment, maintaining a current volunteer roster, calling out volunteers, providing rotation teams, activating volunteers, operator safety and for keeping all communication volunteers informed of state plans before and during emergencies.

OPERATOR RESPONSIBILITY

To ensure efficient and effective communications the field operator has the following responsibilities:

- Brief the UD "Blue Hat" on the field environment and special considerations.
- Recommend changes in standard operating frequencies and practices if necessary to accommodate a special situation.
- Communicate availability and hours of operation if possible.
- Maintain an operating log to include all communications operations, phone numbers, traffic handled and operating considerations.
- Provide a minimum of two hours of dual operating time with any incoming operator.
- Respect the position of the Unit Director by following his operating directives.
- Direct all news media queries to the Public Information Officer. At no time should an operator make statements to the public media.
- Remain *flexible* at all times.

SAFETY CONSIDERATIONS

Safety is an important issue for disaster relief, because of the increased hazards disaster areas pose. As a result, the risk of temporary or permanent injury is increased. Therefore, it is important to always be aware of danger while traveling to and working in the disaster area.

The following areas of safety must be considered:

1. Presence of Radio Frequency Radiation near antennas, including extended cell phone ops.
2. The safety value of gloves
3. The dangers of preoccupation while driving, i.e., cell phone, rig ops, maps, etc.
4. Climbing hazards
5. Tripping on "GUY" wires or power cords
6. Electrocution from overhead power lines or other dangerous exposure
7. Eye injury from end view perspective of antenna radial, etc.
8. Lifting
9. Improper use of tools, wrenches slipping, etc.
10. Lightning hazards associated with work in open spaces and around antenna and coax.
11. Exposure to hazards of fuel handling including generators.
12. Slipping on wet surfaces.
13. Carbon monoxide poisoning.
14. Unsafe driving practices, not correctly analyzing road conditions, and sleep deprivation.
15. Drinking polluted water.
16. Non-removal of rings and watches when working around batteries.
17. Not being checked out on equipment.
18. Work in pairs.
19. Stress (*last, but not least*)

NET OPERATIONS

In the event of a major disaster, the Disaster Relief Director (State or NAMB whichever the case may be) will authorize the Communications Coordinator or someone of his choosing who possesses the necessary qualifications to begin radio net operations from the headquarters building in your Baptist Convention Center or NAMB. This individual will assess the communications options available and recruit operators from the roster as needed.

Communications options may include phone patching, phone relay, cellular phone calls, radio or internet email, direct VHF and HF communications, Echo-link, PSK31, cw, or any combination thereof. This person will become Net Control for all communications regardless of the mode in use.

The tactical call sign used by Net Control should be in the form of location and operator call sign, i.e. "Baptist Command Center, W4SOS (Your Baptist Convention City)." For non-amateur operations the call sign should take the form of Disaster Relief Center/Location/City. Example, "Disaster Relief, Baptist Building, Nashville." More information on net operation is shown in the Appendices.

OPERATING FREQUENCIES

HF Radio Operations

- Daytime, 7.260 MHz or 14.265 MHz depending on propagation (Unless otherwise directed by Net Control)
- Nighttime- (Check on local nets in your area and ask for their assistance.)

Note: Out of state operations may require use of other SSB nets as needed or any other frequencies as directed by the Director of Communications. For example:

- NC SSB Net - 3.923 MHz
- VA SSB Net - 3.910
- AL SSB Net – 3.965
- GA SSB Net - 3.975
- SC SSB Net – 3.915
- S. Central US Traffic Net-7.290
- Midwest Traffic Net-7.295
- SATERN 7.265 MHz and 14.265 MHz
- SouthBears Net 7.260 MHz
- Hurricane net 14.325 MHz and 3.950 MHz

(Refer to your ARRL Net Directory for schedules.)

To establish a Baptist net at the time of an emergency may be unnecessary. There are established nets for health and welfare in most states. These meet daily and have established their presence as such. Use these established nets to make your contact, move off 10-20 khz, and handle your traffic. This is NOT the time to reinvent the wheel; it is a time to move traffic.

Use your ARRL Net Directory to determine where the nets are and their schedules. Do not overlook the SATERN nets! Additional SATERN net information may be found in the appendices.

VHF Radio Operations

- Within range of Baptist Command Center (typically 100 miles) – Find a local repeater that is operational, if possible, and let those coming into your area know its frequency. As stated, if you have adequate range, this move can be very helpful in directing manpower to the work area. As a courtesy, please secure permission from the repeater owner, if possible.
- It is advantageous to develop a map of your state with repeater coverage shown.
- 147.555 shall be the SouthBears VHF simplex call frequency while in transit for all National Disaster Relief responses. In the event that we have to use tone squelch, 100 Hz tone will be the preferred tone.

VHF Non-Amateur Operations

- 151.625 Business Band as directed by Net Control.
- For small disasters away from municipalities, business frequencies may work. In large cities the proliferation of use makes them almost useless.
- In the event that we have to use tone squelch, 100 Hz tone will be the preferred tone.

Red Cross Communications

- Frequency: 47.42 MHz Primary
- 47.50 Alternate
- National Net Frequency: 7.5505 USB
- Other frequencies available to Red Cross:
- 2.8024
- 3.1714
- 5.1364
- 5.1414
- 6.8595
- 7.6985

Interact with the Red Cross as directed by Net Control.

SATERN Net Frequencies

- SATERN Regional Territorial Net Saturday 10:30 AM (1630 Z) CDT 7.265 MHz

SATERN International/National Net Monday thru Friday 9:00 AM (1500Z) CDT 14.265 MHz Saturday 9:30 AM (1530Z) CDT 14.265 MHz.

MOBILE OPERATIONS

Prior to beginning travel to or with the On-site Unit, the Net Control and radio operator(s) should agree on the frequencies and a schedule to be followed. Beyond VHF range, the frequencies listed previously would typically be used. It is recommended that operators in transit use 7.260 MHz. It is suggested that they check in with net headquarters in the state every two hours. However, Net Control has the liberty to be flexible as needed to accommodate the available equipment and extenuating circumstances. Net control may choose other frequencies suited to the area.

Contact with Net Control should occur throughout the travel period. However, the mobile station is to monitor Net Control in case conditions dictate a change in destination or the route to be followed.

The mobile operator(s) are to advise Net Control upon their arrival at the designated site, advise Net Control when they anticipate fixed radio operations can begin, and determine a contact frequency and/or mode.

Tactical call signs used during mobile operations should take the form of location/ operator call-sign/mobile. Example "N. Texas Feeding Unit K5ALS mobile en route to Florida"

RAPID RESPONSE TEAM (RRT)

Introduction

Rapid Response Teams (RRTs) on a State or National response can provide the initial amateur radio response to any emergency. The RRT shall be deployed by the State or National Disaster Relief Director, depending on the situation.

A limited initial response to affected field locations may be accomplished by using "jump teams." Those individuals selected, as RRT members shall possess the following minimum requirements:

- A minimum General Class amateur license
- A dual band mobile
- A dual band HT
- HF Mobile Radio
- GPS Unit
- Tools and equipment of the amateur hobby as required to make any of this equipment work in the field

It is suggested that each participant have previously completed the ARRL Level I Emergency Communication Course (EC-001).

COMMUNICATIONS UNITS

Communications units can be very basic or they can be quite comprehensive. That choice is usually left up to individual state needs, desires and funding resources. Some states have mobile communications units and others have towed communications units (trailers). Both of these types of units have both advantages and disadvantages. You will find listed here communications units which fit three categories (Basic, Ideal and Rapid Response).

BASIC UNIT
Attempting to be practical and respectful of budget constraints, we offer the following as a basic, minimum station for a beginning in your state. This can meet the needs of onsite and offsite stations.

Weather scanner
Two FRS units
Dual band radio—144/440
HF radio covering all HF frequencies in the above list.
(Some new radios cover all of the above.)
Headphones
30 foot mast and guys
G5RV antenna or B&W Folded Dipole
C.W. hand key
D.C. power supply, 30 amps
115 vac generator, 4000 watts
PSK 31, a simple laptop computer is needed, 100 MHz. Minimum with soundcard and PSK 31 interface.

THE IDEAL COMMUNICATIONS UNIT
Some may have already technically reached this level. Others may wish to know what technology is there for the offering. Here is a list of the current equipment.

HF Radio (Kenwood TS-2000)
Dual Band Radio (Kenwood TM D700A Dual Band)
Phone (unit wired to accept landline phone connection)
Cell Phone
Fax
Satellite systems for phone
Scanner for weather reports
APRS
Headphones
C.B.
Portable repeaters (VHF & UHF) duplexers loosely tuned
Printers and Laptop computer
FRS radios

Remote two meter stations
G5RV or B & W Folded Dipole
Antennas to support all FM units.
Linear amplifier.
Spare batteries and chargers
Antenna analyzer
Watt meter
Two AC Power Generators (one for unit and the other for a remote location)
Trailer/furniture and chairs
Aluminum tower
Tri-band antenna (20-15-10) with rotor
Antenna switch
Dummy load
C.W. keys
Tools for maintenance
Phone patch
Club Callsign
PSK 31, a simple laptop computer is needed, 100 MHz. Minimum with soundcard and PSK 31 interface.
Necessary supplies and hardware to support the above equipment

RAPID RESPONSE UNIT

This unit is the most basic of all and is perhaps the most valuable for early deployment and to get a signal on the air in the shortest period of time.
HF Mobile unit
Dual Band Mobile Unit
Appropriate antennas to operate both mobile and from a remote site with fixed antennas
GPS unit
Cell Phone (desired with Wilson RV/Trucker, mobile rooftop antenna)
Power Supplies
Various DC power cables and connectors
Tools to make field repairs to the above equipment

SITE OPERATIONS

It is the responsibility of the on-site radio operator(s) to assess the general environment at the site and consult with the on-site leader or blue hat regarding any special considerations with respect to antenna and equipment placement.

Antennas for HF and VHF should be placed in such a way as to not present a hazard to site workers, disaster victims or vehicle traffic. Special caution should be exercised with respect to local power lines and antenna attachment points.

Once the operating station is established, it is the responsibility of the site operator(s) to contact Net Control and also advise the On-site Unit Director that communications have been established.

First and foremost, the purpose of the site radio station is to support the communications needs of the On-site Unit Director. All National Traffic System (NTS) health and welfare traffic is secondary to the needs of the On-site Unit and should be handled ONLY in the case of extreme emergencies. Net Control should be advised if this becomes necessary. However, it is recognized that it may be necessary for radio operators to assist the On-site Unit Director in other activities as needed. This is acceptable, provided the radio operator, On-site Unit Director and Net Control agree on the interval of ongoing communications to maintain continuity and order.

During site operations, the operator(s) must maintain a log of all traffic including times, frequencies, station calls, type of traffic, and pertinent names and phone numbers if applicable. This log will become a working reference for incoming radio operators as time passes. (See Appendix for Log Format.)

For site operations, tactical callings should take the form of location and operator call sign, i.e. “N. LA Feeding Unit, KA4UHF.” If operating on the business band radio, the tactical call sign will take the form of “N. LA Feeding Unit.”

TERMINATION OF OPERATIONS

Radio operations should cease when the On-site Unit Director, in consultation with the Coordinator and/or the State Disaster Relief Director, advises the site operator and Net Control that their services are no longer needed. At that time it is the responsibility of the site radio operator(s) to dismantle all antennas and account for all equipment listed on the inventory sheet. In addition, it is the terminating radio operator’s responsibility to insure that all radio equipment is returned to the proper source or owners.

APPENDIX A

SATERN

A Guide To
Emergency Net Operations

By
Brad Pioveson W9FX
National Training Coordinator

INTRODUCTION

We hams have a very rich history of providing public service communications. In fact, our collective public service efforts provide the FCC with a reason to provide us with the continued opportunity to use the valuable frequencies upon which we operate. Without amateur radio operators' public service efforts, ham radio would, quite simply, cease to exist.

Emergency situations occur every day in every community, in every county, in every state, and in every nation. As used in this Coordinatorument, the term emergency refers to an unplanned event, series of events, or other circumstance, which results in danger of or actual injury to people or property. At some point in our amateur careers, it's safe to say we have all either directly participated in or monitored others who were actively involved in emergency communications.

SATERN's 1998 Hurricane Mitch experience which featured 19 consecutive days of 20-meter network operations is a prime example of amateur radio emergency communications (ECOM). The Hurricane Mitch operation was noteworthy for a number of reasons, not the least of which was the successful petition of the FCC to declare a segment of the 20 meter band to be for emergency communications only - a SATERN first. SATERN received a lot of exposure and publicity from those 19 days of operations. After the ECOM net was secured, those stations who had acted as net control stations during that period were polled by Harry, W9IB, to obtain comments and suggestions for improvement of our operations. Shortly thereafter, the position of SATERN National Training Coordinator was created. This Coordinatorument was developed in an effort to address some concerns that were voiced in the after action survey and to improve SATERN's members' ability to provide ECOM.

THE BASICS OF COMMUNICATIONS

Communications, by definition, is a two way process. Successful communications involves a sender of information and one or more receivers of that information. If either of these parties do not do their part in the communications process, their efforts will have been futile. Moreover, before the attempt to pass information takes place, ...we must determine exactly what it is we wish to transmit, and how to deliver it to the intended receiver. While that sounds pretty simple, the most effective way to communicate information will involve clear, concise words and phraseology. Condensing your thoughts into those few, clear and concise words, often takes more than a bit of thought. Then, the method of transmission must be selected. On SATERN's voice nets, that choice would appear to be pretty straightforward. There are times and situations, however, that dictate that the information be sent in written form. Digital modes (including CW), then, may be called upon to provide those types of communications. Once the mode of transmission has been selected and the information sent, the onus now bears on the recipient. Did he or she not only receive the information correctly, but, was the message clearly understood? Was the message interpreted correctly? And, finally, there should be some sort of feedback system in place to ensure that the communication was in fact successful.

If any of these elements are missing from the two way communications process, we have not successfully conveyed information. How we perform these tasks and our collective attention to detail, then, define our success as communicators.

NET OPERATIONS OVERVIEW

The purpose of an amateur radio network is to provide the net's members with the opportunity to exchange information, messages, and, in some cases, to provide practice for emergency communications (ECOM) situations. SATERN's 20-meter network operation meets all of these needs. In it's most basic form, an amateur net consists of a net control station (NCS or NECOS) and net members. All SATERN HF nets are DIRECTED NETS. This term refers to a type of amateur radio network operation where the conduct and operations of the net and all transmissions during the net are strictly controlled by the NCS. DIRECTED NETS can be of two types: OPEN and CLOSED nets. In most cases, SATERN's net operations will be OPEN nets, i.e., allowing non-members to check in. There may be times and circumstances, however, when a SATERN net may be operated in CLOSED fashion and only SATERN members or only stations with emergency and/or priority traffic allowed to participate. The decision as to whether SATERN's nets will be OPEN or CLOSED will be made by SATERN's senior managers, dictated by the circumstances of the emergency requiring the net's attention, and communicated to the NCS in advance of the net operation.

BEGINNING AT THE BEGINNING

Each amateur radio station has been assigned by the appropriate licensing agency of his or her government a unique call sign. To avoid confusion and enhance effective communications, during network operations, all station call signs should be communicated phonetically. Only the International Phonetic Alphabet should be used:

ALPHA	
	NOVEMBER
BRAVO	
	OSCAR
CHARLIE	
	PAPA
DELTA	
	QUEBEC
ECHO	
	ROMEO
FOXTROT	
	SIERRA
GOLF	
	TANGO
HOTEL	
	UNIFORM
INDIA	
	VICTOR
JULIET	
	WHISKEY
KILO	
	X-RAY
LIMA	
	YANKEE
MIKE	
	ZULU

The International Phonetic Alphabet is used around the world and, in some cases, represents the only knowledge of the English language that some foreign operators possess.

Remember: To maximize communications efficiency, your station's call sign should always be communicated phonetically. For example, THIS IS WHISKY FIVE BRAVO VICTOR BRAVO will, most likely, be copied correctly on the first try. Try saying that call sign without phonetics...you'll understand why the proper use of phonetics is not only desirable, but, in some cases, mandatory.

PRO-WORDS

To further enhance effective communications, we need to become acquainted with several pro-words. The term "pro-word" is a contraction for "procedural word," and the pro-words we'll be using were developed and still in use by US military forces. While the use of these pro-words may, at first, seem awkward (and, in some cases, outdated), once you get used to using them, you'll find that they will dramatically enhance your station's ability to communicate - both as a transmitter and a receiver of information - more efficiently.

THIS IS: This pro-word is self-explanatory. THIS IS@ should precede your call sign in every transmission during a DIRECTED NET operation. For example, W9FX replies to the net control station (NCS), K7JAD: ATHIS IS WHISKEY NINER FOXTROT X-RAY.

ROGER, etc.

OVER: This pro-word is used at the end of a transmission when additional communications is expected with another party. For example, Harry, W9IB, is communicating with Pat, WW9E. Here's Harry's transmission: WHISKEY WHISKEY NINER ECHO, THIS IS WHISKEY NINER INDIA BRAVO. DO YOU HAVE ANYTHING FURTHER, MAJOR PAT? OVER.

Harry's use of the pro-word OVER indicates that he expects a transmission from Pat. An NCS asking for check ins to a net would also use this pro-word to end his/her transmission: ADDITIONAL STATIONS FOR THIS NET, OVER.

OUT: This pro-word is used to indicate that no further communication is expected from the other party. Using the above example, Pat, WW9E replies: THIS IS WHISKEY WHISKEY NINER ECHO. NOTHING FURTHER. OUT. The pro-word OUT is similar to hanging up the telephone - the conversation between the parties has ended. This pro-word would also be used by an NCS to terminate net operations: ALL STATIONS, THIS IS WHISKEY NINER INDIA BRAVO. THIS NET IS SECURED. OUT.

ROGER: This pro-word means that you understood the transmission of another station. This is not to be confused with answering a question in the affirmative. If you are asked a question and the answer is in the affirmative, use YES, or AFFIRMATIVE - not ROGER!

WAIT: There are two forms of use of this pro-word. AWAIT, or WAIT, OVER is used when an operator experiences a brief delay. For example, if you drop your pencil or have to reach into a drawer to retrieve a piece of paper or pen, transmit the pro-word WAIT or WAIT, OVER. The transmitter can be either be unkeyed or remain on the air during the delay. If, however, the delay is anticipated to be longer than a few seconds, transmit the pro-words WAIT, OUT. Circumstance that might dictate the latter use of this pro-word include a visitor in the radio room, a telephone call, or other disturbance. In any event, the pro-word WAIT is similar to putting someone you're talking to on the telephone on hold. Just as you must take the person on the phone off hold to conclude your conversation, don't forget to finish your communication with the station to whom you transmitted WAIT. If you are not acting as NCS and you've used the pro-words WAIT, OUT, be sure to once again obtain the permission of the NCS to resume your

communications with the other station. By using the pro-word OUT, you terminated whatever communications were earlier taking place. "WAIT, OUT," releases the frequency for use by the NCS and other net members.

SAY AGAIN: In a perfect world, all communications would be understood by all parties on the first attempt. Alas, the world is not perfect (nor is 20 meter propagation), and repeats or "fills" of transmitted information will be required. The pro-words ASAY AGAIN@ tell the other operator that you need a fill or repeat of information that was previously transmitted. If you=re copying formal traffic, other pro-words may follow. For example, ASAY AGAIN ALL AFTER xxxx tells the other operator that you need him or her to repeat everything in the message after a certain word or group of figures (xxxx). For example, you might transmit SAY AGAIN ALL AFTER SCHOOL, OVER. If you only missed a word or two or a short phrase, you can transmit the pro-words SAY AGAIN FROM xxxx TO xxxx. This tells the other operator that you need all the information contained in the message FROM the word (xxxx) TO the word (xxxx). For example, SAY AGAIN FROM ELEPHANT TO MONKEY, OVER.

FIGURES: Routinely, in handling messages, we encounter groups of numbers B telephone numbers, latitude and longitude indications, street addresses, and so forth. In order to let the operator on the other end of the communication pipeline know that what we're about to transmit is a group of numbers, or, a mixed group containing both numbers and letters but beginning with a number, we use the pro-word FIGURES. Here's how it works: We need to transmit this telephone number: 800-3743-7279. We transmit that information as FIGURES EIGHT ZERO ZERO DASH THREE SEVEN FOUR THREE DASH SEVEN TWO SEVEN NINE.

I SPELL: Here again, we rely on the International Phonetic Alphabet. Many words in the English language sound alike but have entirely different meanings. To, too, and two, for example, sound exactly the same. In order to make certain that the recipient of information understands what word we're using, when we encounter words we cannot pronounce, words that sound like other words, or uncommon words, we phonetically spell them out. In order to use this pro-word, we SAY THE WORD, SPELL THE WORD PHONETICALLY, and then, SAY THE WORD AGAIN. Here's how it sounds in practice: I AM GOING TO I SPELL TANGO OSCAR TO SEND YOU TWO I SPELL TANGO WHISKEY OSCAR TWO FORMS COMMA TOO I SPELL TANGO OSCAR OSCAR TOO PERIOD MIXED GROUPS: You will, from time to time, encounter groups of letters and numbers that, taken together, represent a single group. Ham call signs are a very good example. The rule for transmitting mixed groups by voice is very simple: If the group starts with a letter, use the pro-word I SPELL. For example: I SPELL WHISKEY FIVE ALPHA BRAVO. If the group starts with a number, use the pro-word FIGURES. Example: AFIGURES SIX ONE FOUR SIX ALPHA.

CORRECTION: We all, occasionally, make errors in our transmissions. When an error is made, the pro-word CORRECTION should be communicated, followed by the correct information. Example: THIS IS WHISKEY FIVE CORRECTION WHISKEY EIGHT ALPHA INDIA. OVER

NET CONTROL STATION RESPONSIBILITIES

As noted previously, the net control station (NCS) of a SATERN net is completely in charge of that net's operations. The NCS is responsible to see that traffic listed during the course of the net is handled in the most efficient manner possible. Additionally, the NCS is responsible to assign stations to net duties (more about those later) and to maintain firm control of the net during his or her tenure as NCS.

Every NCS should keep a written log of the net's activities. This is especially important during emergency network operations. Things can become pretty hectic during an actual emergency. Stations check into the net, leave the net, list traffic for other stations or individuals, leave messages for other net members, etc. Trying to keep up with all of these activities without a written (or computerized) log is, simply, impractical, and, in many cases, impossible. The NCS log should contain, at a minimum, the date and time the net commenced (or when the NCS took control of the net), the net's operating frequency, the stations checked into the net, a listing of traffic and by whom passed during the net, and when the net ceased operations (or the NCS was relieved by another NCS operator). Ideally, this log should be retained for a period of time after the emergency has abated. Review of the NCS logs by the NCS and/or senior managers can later be undertaken to further improve future net operations. And, having a written record of what happened on >your watch' is always of value.

IDENTIFYING THE NETWORK

As noted previously, all SATERN nets are DIRECTED NETS. As such, stations should only be recognized into the net when an invitation is extended to them. Before commencing operations, the NCS should equip him- or herself with a written "script" or "preamble". This script should be kept at the operating position so that every time the net needs to be identified, the NCS can simply read the script. From experience, I can tell you that having the information in front of you can avoid some very embarrassing moments. The script does not need to be poetic or high prose. A simple statement of what the net is about, why it's being held, and what you, as NCS are looking for (check ins, traffic, etc.) at this time will suffice. Here's what I used during the Hurricane Mitch/Honduras Operation - and I include this only as an example, not as a boilerplate script that should be copied by all: ALL STATIONS, THIS IS WHISKEY NINE FOXTROT X-RAY, NET CONTROL STATION FOR THE SALVATION ARMY TEAM EMERGENCY RADIO NETWORK, SATERN, EMERGENCY NET. THIS IS A DIRECTED NET ESTABLISHED TO HANDLE EMERGENCY AND PRIORITY TRAFFIC BOTH INTO AND OUT OF CENTRAL AMERICA IN THE WAKE OF HURRICANE MITCH. STATIONS WITH TRAFFIC FOR THIS NET, OVER.

Note that this version of my script does not invite stations with general information or comments into the net. Only stations with traffic are being invited into the net. Had I been interested, at that time, in opening the net to the general amateur population, I would have changed the last line to read: ADDITIONAL STATIONS WITH OR WITHOUT TRAFFIC FOR THIS NET, OVER.

The NCS is perfectly within rights to ignore stations who attempt to check in at times when such have not been invited. Having said that, however, remember that the net should be identified - and additional stations invited to join the operation - at frequent intervals. A net ID/invitation should be transmitted by the NCS on approximately five-minute intervals.

BREAKING INTO A NET

There is only one occasion when a station should be allowed or attempt to break into a net, and that occasion arises when the station breaking into the net has higher precedence information or traffic than that which the net is currently handling. The use of the words BREAK or, BREAK, BREAK have no place in directed net operations. To break into a network, a station should transmit the call sign of the NCS followed by the pro-words THIS IS and his or her call sign, followed with the pro-word OVER. Stations trying to "help" by providing relay of information should be discouraged from transmitting until and unless help is requested by the NCS.

NCS REQUESTS A RELAY

Circumstances will arise when the NCS cannot hear a station. On those occasions, the NCS should invite stations to relay information to the net. This is done as follows: THIS IS WHISKEY WHISKEY NINE ECHO. MAY I HAVE A RELAY, PLEASE. OVER

The NCS should choose one of the responding stations, recognize him or her, and ask that he or she relay the necessary information.

RELAY BETWEEN STATIONS IN THE NET

Circumstances will arise when two stations, both checked into the net, need assistance in communicating, as they cannot hear each other. On those occasions, the NCS may act as a relay station, or, may assign another, third station to handle those chores. Here are two examples:

NOVEMBER FIVE FOXTROT MIKE, CALL KILO SEVEN JULIET ALPHA DELTA. RELAY HIS TRAFFIC TO HOTEL ROMEO EIGHT ROMEO CHARLIE PAPA. OUT

or, the NCS chooses to handle the relay: KILO SEVEN JULIET ALPHA DELTA THIS IS WHISKEY NINE FOXTROT X-RAY. SEND YOUR TRAFFIC TO THIS STATION. I WILL RELAY. OVER

STATIONS WHO WANT TO "HELP"

Most amateur radio operators, in times of emergencies, truly want to be part of the "action." They want to help. Sadly, most have never been exposed to disciplined radio communications. Every emergency net I've ever heard or participated in has had offers of such help...Just wanted you to know that we're

riding along...here if you need us...can relay if you need me..., etc. These folks are well meaning (and may be potential new members of SATERN!) but should be courteously and tactfully discouraged from transmitting unless asked to do so. The best way to handle these folks is to thank them for their offer of help, encourage them to monitor the frequency, and that you will call them if you need their assistance. Depending upon the net's traffic load and propagation, you may or may not, as NCS, want to log these operators' names and locations. And, occasionally, you may well find yourself in a situation where you do, in fact, call upon them to provide services as a relaying station. In any event, do not generate controversy by berating them or acting officious. And, do not ignore them. As a rule, until they are recognized, they will not go away. They will only tie up the net as they repeatedly attempt to check into the operation.
Remember, when you're operating in a SATERN net, you are representing the Salvation Army to the amateur and SWLing world. You want to leave a favorable impression with all concerned of both SATERN and the Salvation Army!

HANDLING INTERFERENCE

It is important to note that while the SATERN net has operated for a considerable length of time on the same frequency, SATERN has no more right to "claim" any frequency than any other amateur operator. We - all amateur operators - share our frequency spectrum on a Federally mandated, non-interfering basis. Our net operations are important to us but may be of little no consequence to other users of the amateur bands. All net members should strive to achieve peaceful coexistence with other amateur band users - and, during normal net operations, be willing to move the net a few kHz, if necessary, to avoid interfering with other amateur stations.
On most occasions, other amateurs will respect the net's operation and steer away from - if not clear of the net. There are occasions, however, when unintentional and, sadly, intentional interference to the net will occur. The best way to handle unintentional interference is for the NCS or a station appointed by the NCS to establish communications with the interfering station, explain the situation, and politely request that he or she change frequencies. In most cases, that's all that's required. If the station, however, refuses to move, do not engage in an on the air argument. Such activities reflect poorly on all concerned, including SATERN. The net can be moved, too - something which the NCS will need to keep in mind when these unpleasant situations crop up. If the interference is unidentified and obviously intentional, the interfering station should be completely ignored by all net members. No comments regarding the interference should be made. In most cases, lacking the ego stoking complaints, jammers will simply go away - probably to find someone else to annoy.
If, as happened during the post-Hurricane Mitch operation, the FCC has declared a portion of an amateur band to be for emergency communications only and if the SATERN net is engaged in those emergency communications, interference is handled a bit differently. As a rule, the FCC declares a center frequency and the range of frequencies 3 kHz above and below the center frequency to be off limits

for non-emergency use. Not all amateur operators receive W1AW/ARRL bulletins and will not be aware of the FCC's declaration. On those occasions when stations not engaged in emergency communications engage in transmitting within the emergency sub-band, the NCS (or a designated representative of the net) should politely and tactfully inform the interfering station of the FCC's declaration and ask them to move their operations out of the emergency communications sub-band. If deliberate interference or belligerent operators are encountered, the NCS should immediately contact one of the SATERN Net Coordinators who will take the appropriate actions to initiate FCC enforcement. In any event, no member of a SATERN net should ever engage in any on the air verbal battles with other operators.

COMMAND/CONTROL AND TACTICAL NETS

These terms come directly from military communications manuals. The military command and control net is a network where the bulk of business is conducted, i.e., the primary network operation. Tactical nets may be established on other frequencies and stations assigned to them to handle point-to-point communications and/or meet a specific need. In SATERN's terms, our command and control net would be the primary network operation on 14.265 MHz. If the traffic load is so heavy as to create a backlog of messages waiting to be passed, the NCS may direct two or more stations to move to a different frequency and establish a secondary, or "tactical" net for the purposes of moving some of the backlog of traffic. If the creation of a tactical net is accomplished, the NCS should name one of the stations remaining on the primary frequency to be a LIAISON station. This station should be informed that he or she may be called upon to take messages from the primary, or command and control, net to (one of) the tactical networks. Until told to leave the primary net frequency, the LIAISON station should remain on the primary net frequency. Here's how the assignment is accomplished:

WHISKEY SEVEN LIMA X-RAY ROMEO, THIS IS WHISKEY NINE FOXTROT X-RAY. YOU ARE ASSIGNED AS A LIAISON STATION. REMAIN ON THIS FREQUENCY UNLESS OTHERWISE DIRECTED. OVER

And, when the time comes for the need for a LIAISON station to move to another net:

WHISKEY SEVEN LIMA X-RAY ROMEO, THIS IS WHISKEY NINE FOXTROT X-RAY. SECURE OPERATIONS ON THIS FREQUENCY. MOVE TO FIGURES ONE FOUR TWO FIVE FIVE KILOHERTZ.

INFORM THE NET CONTROL STATION OF THAT NET THAT THIS NET IS SECURING OPERATIONS IN FIGURES THREE ZERO MINUTES. REPORT BACK INTO THIS NET UPON COMPLETION OF YOUR COMMUNICATIONS. OUT

Tactical networks can be of great benefit to an NCS, especially in circumstances where a heavy traffic load of health and welfare traffic is being listed. The NCS, in this circumstance, would be well advised to establish a tactical net for the purpose of gathering the outbound messages. Another tactical net (or digital

operation) might be established, then, to send the gathered messages on to the disaster site.

MANAGING THE MOVEMENT OF TRAFFIC

Stations should list their traffic when checking into the net, i.e., I LIST ONE EMERGENCY FOR TEGUCIGALPA HONDURAS. Or, I LIST ONE PRIORITY CHICAGO ILLINOIS.

Messages should be handled according to their precedence B Emergency precedence messages should always be handled first, followed by Priority precedence messages, and so on. It's up to the NCS to make sure that the messages listed on his/her net are handled properly. Again, in a directed net, the NCS directs the flow of information at all times. So, in order for a message to be transmitted, the NCS must give permission to the transmitting station and tell him or her to whom to transmit the message:

NOVEMBER SIX WHISKEY X-RAY TANGO THIS IS WHISKEY BRAVO NINE ROMEO ROMEO LIMA.

CALL KILO NINE SIERRA TANGO PAPA AND PASS YOUR PRIORITY CHICAGO TRAFFIC. OUT.

ADDITIONAL RESOURCES

While the foregoing information presents the fundamentals of ECOM operations, it is by no means an extensive nor exhaustive discussion of the topic. Many additional resources are available to the radio amateur. One resource that is highly recommended to all operators is the ARES Field Resources Manual, A Quick Trainer and Field Resource Guide For the Emergency Communicator. Published in December, 1995, by the American Radio Relay League. This inexpensive ($5) manual contains NTS nets schedules and frequencies, information regarding how to originate NTS messages, and a host of additional ECOM related information. Copies of this manual are available from the ARRL. For those seeking more in depth discussions of emergency communications, net operations, and traffic handling procedures, the ARRL has other publications, as well, including:

The ARRL Operating Manual

ARRL Emergency Coordinator=s Manual

Public Service Communications Manual

Internet/world wide web resources are, of course, available. A good starting place for amateur radio related emergency communications information is The California Auxiliary Communications System's site: www.garlic.com/oes/acs1.htm

SATone SESSION ONE
Introduction
and
OVER and OUT

During today's net, I'm going to present the first of a series of training sessions designed to help make all of us, the operators of SATERN, better emergency communicators. Before we begin that endeavor, however, I'd like to introduce myself. My name is Brad Pioveson, I'm 48 years old and I live in extreme Southern Illinois - about equidistant from the Ohio and Mississippi Rivers. I've been a licensed and active ham since 1963. During the past 36 years, I've participated in all types of emergency operations both at the amateur and professional levels. I am a member and senior manager of the Navy-Marine Corps MARS program. In that regard, I am the author of much of the training material and all of the emergency communications plans for Navy-Marine Corps MARS Region Four, which encompasses 14 Midwestern states. I currently serve the MARS program as the Region Emergency Communications Planning Officer and have done a tour of duty as the Region's Training Officer. I am also an active member of the US National Communications System's Shared Resources or SHARES program. My station is equipped to operate on all of the HF bands at the kilowatt plus output level using voice, CW, and most of the popular digital modes of communications. The station is, additionally, equipped with several computers allowing me access to the Internet for email communications and web access.

Now, as far as the training I'll be conducting is concerned, don't misunderstand - it's not that I or anyone else thinks we're not capable of doing the job - the Hurricane Mitch experience showed us that we can handle emergency communications. After the Hurricane Mitch nets were closed, however, comments and critiques were collected from a number of stations, including those folks who had acted as net control stations. Out of those collective remarks, it became apparent to SATERN's managers that some formal training would benefit our operators in meeting the unique challenges posed by disaster related amateur HF communications. I was asked to take on the job of SATERN National Training Officer and, the task of writing and presenting a basic training program for our system's operators. Now, I'm not going to tell you that I have all the answers when it comes to emergency communications. In fact, anyone who tells you that they do have all the answers is likely not playing with a full deck of cards.
What I will tell you is that if you have questions that I cannot answer, I will do my level best to dig out the answers and get back to you with them. I can also tell you that the procedures I'll be teaching have been proven to be effective. So, for the next few months, I'll be your SATERN net control station for the Wednedsay morning 20-meter nets. During the time that we spend together on the air, I'll be

presenting some bite-sized training sessions. Each session I present will last no longer than 10 or 15 minutes - you know the old adage about the 'mind only absorbing what the rear end can stand.' Once in a while, we'll conduct some interactive training sessions where I ask for participation from or engage one or more net members in on-the-air experience. Finally, we will occasionally run the net in full emergency exercise mode, which will entail an emergency exercise disaster scenario and emergency exercise messages. Just to keep things interesting, the emergency communications exercises may not be announced in advance.

During my years of emergency communications, or ECOM, experience, one rule has always stood out: Efficient communications requires circuit discipline. To have little or no discipline in a net circuit is to invite chaos, misunderstanding, inefficiency, self-inflicted interference, and result in mistakes - none of which can be well afforded during any emergency situation. The written material which Major Pat, WW9E, asked me to prepare, and which you hopefully have, by now, received in the mail, was written with that basic tenet in mind. Those of you who have either military communications or MARS backgrounds will, undoubtedly, recognize the material I wrote as being the basic elements of the military model of communications procedures. I suspect that some of you winced when you read my training materials and noted that my program requires the use of such arcane terms as "over" or "out" and stipulates the use of the International Phonetic Alphabet as opposed to non standard and cutesy phonetics. The words over" or "out" are only used by old fogies - mostly World War II veterans, right? Hardly. They are in use on a daily basis by present day military communicators and professional pilots, to name a few. Why? Because they work...they improve communications circuit efficiency - and, during an emergency situation, time is always something that cannot be wasted. During the course of your lifetime, you've probably discovered that doing things right the first time invariably takes less time than having to do a shabby, hurried job over again.

That's what we're striving for, here...we are going learn to do things the right way the first time.

So, today, we're going to take a small bite out of the ECOM apple. We're going to learn how and when to use those arcane words, "over" or "out." Let's, for the moment, imagine that, instead of talking on a radio, you're talking on a telephone. This telephone, however, only allows one person to talk at a time - it's simplex, in other words. In order to tell the person you're talking to that it's their turn to talk, you end your sentence with the pro-word "OVER." This word tells the other person that it's their turn to talk and that you're waiting for their response. When the other party concludes talking, the pro-word "OVER" will indicate to you that it's your turn to talk. Note that the pro-word "OVER" is used only one time. Honestly, I cringe sometimes when I tune the ham bands and hear "OVER" used twice, as in "...my name is Brad...over over." I'm not sure what the duplication is supposed to accomplish, but trust me - one "OVER" is quite enough.

When our hypothetical telephone conversation comes to a close, the last person to talk will end the conversation with the pro-word "OUT," to indicate to the other party that no response is expected, and no further communication is required or

expected. The use of the pro-word "OUT" is the equivalent of hanging up our hypothetical telephone.

Let's look at a real world example: When I made my initial net call-up, I asked for stations to check in. I ended my transmission with the pro-word 'OVER,' as I expected one or more stations to respond. When I recognized a station or group of stations, I ended my transmission with the pro-word 'OUT,' indicating that I expected no more communications at that time with those folks. When it's their turn to transmit, they will be called, asked for comments or business, and at the end of my transmission, I'll use the pro-word 'OVER,' indicating that it's their turn to talk. Again, at the end of the communication sequence, either party can use the pro-word 'OUT' indicating that the communication between those two stations has ended. We will 'hang up the fone,' with that station, so to speak. During the course of a typical net session, the net control station will usually communicate with one station at a time. While that communication is underway, each party should end his or her transmission with the pro-word "OVER."

As long as the net control station uses "OVER," the station he or she is communicating with 'has the floor,' so to speak. When, however, the net control station ends the sequence with the word "OUT," that series of communications with that particular station or stations has ended and, in a directed net, any station desiring to communicate on the net frequency must request and obtain the permission of the net control station to establish further communications. We'll talk more about directed net procedures in future sessions.

So, to recap, if more communications are expected or anticipated from the station you're communicating with, use the pro-word, "OVER." When you're done talking with that station, use the pro-word "OUT."

Try using these pro-words in your daily HF radio communications. You'll find that their use practically eliminates doubling and does, in fact, enhance your communications efficiency, as you'll find that the stations you're working don't have to wait and see if you were truly done transmitting when you quit speaking, or, if you were simply catching your breath. By using "OVER" or "OUT," there is no doubt when your transmissions have ended.

That's it for this morning's session. If anyone needs to contact me, I can be reached by email at w9fx@arrl.net or by US Mail at my call book address. The material I've presented this morning will be electronically transmitted to Harry, W9IB, who has made arrangements to post the information on the SATERN website. Additionally, the information will be retransmitted during the Saturday 40 meter SATERN net.

SATtwo SESSION TWO

More Pro-words
and
A First Look At Directed Net Operations

This is session two of the SATERN Emergency Communicator training program. Session One was held last week and is available in written form from the SATERN Chicago web site.

Speaking of last week's net session, I have a couple of points to make. First, I received an email from one net member who quoted the ARRL's Net Directory publication to me noting that (and I'm paraphrasing here) the use of the ICAO phonetic alphabet should be minimized during net operations. That may be true for casual amateur nets and for local two meter and UHF operations. For HF emergency networks where, in many cases, stations from outside the United States are participating, the use of the International Phonetic Alphabet is an absolute must. Even if no foreign stations are participating in the net, if you're involved in any type of emergency net, you cannot afford to make a mistake of misunderstanding. I strongly encourage, therefore, the use of the International Phonetic Alphabet during ECOM operations.

Another email I received was from an angry member who claimed that I told folks during last week's net session (and in my written comments) to end their transmissions with the phrase "OVER AND OUT" and, further accused me of watching too much television. Neither accusation could be further from the truth. The complaining individual misunderstood what I wrote and what I presented on the air. The rules of English grammar allow me to speak these two words, "OVER" and "OUT" in the same sentence without using them in the same phrase. The phrase "OVER AND OUT" is best left to Broderick Crawford in the old TV series Highway Patrol episodes. I neither encourage nor train communicators to use both words together.

This week, we're going to push forward, pick up some additional pro-words and take a first look at directed net operations. You will recall that during last week's session, you were introduced to the pro-words "OVER" and "OUT." These words indicate to the other party with whom you are communicating whether additional communications with their station is desired or expected. "OVER" at the end of a transmission indicates that more is to follow. "OUT," in essence, 'hangs up the phone' on that communication. If you need the other station or, if you're the NCS, a group of stations to stand by while you accomplish other tasks, use the pro-word "WAIT." There are two applications of the use of the pro-word "WAIT." If

you anticipate a very brief delay in continuing communications with a station, simply say the pro-word "WAIT," or "WAIT, OVER."
Examples of the proper use of the "WAIT" AND "WAIT, OVER" include the delay that might be encountered if you were required to pick up a pencil from the desk or floor, turn the page in a logbook, flip on a light, change the display on your computer monitor, etc. These delays would all be brief - in the range of a few seconds. If, however, you anticipate a more extensive delay, issue the pro-words "WAIT, OUT." This tells the other station or stations that you anticipate being unavailable for a period of time in excess of just a few seconds. By using "WAIT, OUT," you have, temporarily suspended communications with the station or stations and, in order to talk with them again, you must, again, initiate communications. The business of the net can and should continue while you take care of the business that has resulted in your absence. As do many other hams, I have a radio shack equipped with a telephone. Actually, my shack has two of them - and, one or the other has been known to ring during net operations. If I am in the process of sending or receiving traffic when the telephone rings, I use the pro-words, "WAIT, OUT" to end my transmission. This allows the net to continue operations without me. When I've concluded my telephone business, I let the NCS know that I'm back and ready to continue with net operations.

Earlier in this session, I alluded to the necessity of the use of the International Phonetic Alphabet. One of the chief uses of this communications tool is to spell words and character groups on voice nets in a manner that is easily understood. Many English words sound alike but have entirely different meanings. The word "to," as spoken, for example, can mean the result of adding one plus one, can mean also, or can mean an intended destination, as in "I'm going to town." Another word that can easily be misunderstood when spoken is "here." "Here" can be a place or it can be the act of receiving auditory information. The proper meaning becomes apparent if the word is spelled out. Uncommon words and proper names can also be easily misunderstood or misspelled. For those reasons, when we communicate these rascals of the English language, we need to spell them out.

The three steps for communicating words that need to be spelled out are simple:
1. Say the word.
2. Spell the word phonetically.
3. Say the word, again.

Here's how to do it on the air. The phrase we need to communicate is: "I am en route to your location with two antennas" I would transmit the following:

I AM EN I SPELL ECHO NOVEMBER EN ROUTE I SPELL ROMEO OSCAR UNIFORM TANGO ECHO ROUTE TO I SPELL TANGO OSCAR TO YOUR LOCATION WITH TWO I SPELL TANGO WHISKEY OSCAR TWO ANTENNAS PERIOD.

Of course, during times of poor communications, such as with heavy interference or high atmospheric levels, many words may need to be spelled out - even those that under ordinary circumstances would be easily understood.
Of course, not all words can be easily pronounced. My last name, for example, if you've taken the time to look me up in a database, is not a common name. I can almost guarantee that of 100 people, all 100 will mispronounce my name on the first try. When we encounter words that we cannot pronounce or are unsure of the proper pronunciation, we spell them out by saying the pro-words "I SPELL" and then phonetically spelling the word. My last name, for example, would be communicated as without the attempt to pronounce it, as follows:
I SPELL PAPA INDIA OSCAR VICTOR ECHO SIERRA OSCAR NOVEMBER

Occasionally, we'll run across groups of letters that do not form a word - acronyms, for example, fall into this category. We treat them the same as we would an unpronounceable word. Say "I SPELL" and phonetically spell out the word.

Numerals are communicated using another pro-word: "FIGURES." When we need to communicate a number, we precede the number with this pro-word. For example, my zip code is "FIGURES" 62812. Or, the SATERN net meets on FIGURES 14.265 MHz.

Groups of combined letters and numerals form special cases. If the group begins with a letter, use the pro-word "I SPELL." even though there are numbers in the group. Ham call signs are a good example of this. "I SPELL" WHISKEY WHISKEY NINE ECHO," for example. Or, "I SPELL KILO NINE SIERRA TANGO PAPA."

If the mixed group begins with a number, use the pro-word "FIGURES." For example, the final tube in my amplifier is a "FIGURES 6146 BRAVO."

Finally, there is one additional special case...lineage designators. Some examples, Robert Thorn, III, or Henry IV. Roman numerals are used for this purpose. The proper pro-word to use to precede these designators is "FIGURES ROMAN." For example, "HENRY FIGURES ROMAN FOUR."

Let's take a break from the pro-words for a bit and talk about directed net operations. A directed net, as used in this training program, is a network that is strictly controlled the net control station (NCS). The NCS is the boss. During the course of his or her tenure as NCS, he or she is the final authority on what happens during that net session. There is no appeal. The purpose of holding directed nets as opposed to informal nets is to pass the maximum amount of traffic or information in the least amount of time. During the course of a directed net, no station may transmit unless that station has requested and been granted permission to do so. Think of the NCS as being a virtual traffic cop standing in the middle of a very busy city intersection. The NCS directs the flow of

information from station to station just as our virtual cop directs cars and trucks from one place to another. If the directions of our virtual traffic cop or our NCS are not followed, collisions and confusion will result.

The NCS should identify the network at least once every ten minutes, just to meet the FCC's identification regulations. At that time, he or she should also ask for additional stations to join the net and ask if there are any stations with business for the net. Ideally, the net should be identified and an invitation extended for others to transmit more often - say, once every five minutes or so...but, as long as the 10 minute rule is followed, we are at least keeping our NCS legal. When stations check into the net, they should indicate if they have traffic for the net. The NCS will copy the precedence and destinations of the message traffic and manage the distribution of the messages according to precedence. If you are already checked into the net, have listed no traffic, but need to communicate something to the NCS or another net member, the appropriate time to let the NCS know is during one of the 'any stations with business' call-ups. The only time anyone should break into an emergency net is when that station holds traffic of a higher precedence than that which the net is currently handling.

Managing and participating in emergency net operations is a demanding chore. In order to keep up with the net's activities, participants should devote full attention to the net. If other demands are being made on the operators' time and attention, that is, for example, 2 meter operations or frequent telephone calls, family matters, etc., those stations should check out of the net until they are able to devote full attention to the ECOM net's operations. To do less is to reduce the efficiency of the ECOM net. When you check into an ECOM net, the NCS assumes that you are paying attention to what's going on. If he or she needs you to perform some net function and you don't answer or have to ask for a repeat of the request, you've not helped the net at all. In fact, you've only impeded the smooth flow of information.

So, this week we've picked up some new pro-words: "WAIT," "WAIT, OUT," "I SPELL," and "FIGURES." We also took a first look at how directed nets are supposed to operate. Next week, we'll learn some additional pro-words and talk more about directed net operations. As always, I can be reached by email at w9fx@arrl.net or by US Mail at my call book address.

SATthree SESSION THREE
The Last of the Pro-words
and
More on Directed Net Operations

Pro-words are single words or phrases that enhance communications efficiency. In the early days of electronic communications, abbreviations were created by telegraphers to communicate common or frequently used phrases. The term pro-word is a contraction of the terms: procedural words. In the past two SATERN emergency communications training sessions, we've been introduced to the following pro-words:

- •Over
- •Out
- •Wait
- •I Spell
- •Figures
- •Figures Roman

This week, we'll finish with pro-words, at least for a while, and we'll delve a bit deeper into the concepts and practical aspects of directed net operations.

'ROGER' is a term that's heard quite frequently in amateur communications. And, not surprisingly, its use is often misunderstood by those using the term. The term 'ROGER' means, simply, you understood the other party's transmission. It does not mean 'I agree with what you said.' 'ROGER' is a one word acknowledgment transmitted by a receiving station. The word 'ROGER' is shorthand for 'I received your transmission.' If you're communicating with another station and he asks if you're operating from your home station, which you are, how do you answer him? If your answer is 'roger,' you really have not answered the other station's question. All you've done is indicated that you received his transmission. To answer the question, use 'yes,' or 'affirmative,' not 'ROGER.'

We all make mistakes from time to time. Out tongues get twisted, words take on new and unintended meaning... How we correct our on-the-air mistakes can have an effect on communications efficiency. When, for whatever reason, we stumble while transmitting a message, the proper manner in which to correct the mistake is to use the word 'CORRECTION.' How you correct the misinformation depends a great deal on what type of information you were communicating. If, for example, you were in the midst of spelling a word and phonetically transmitted the wrong character, you should start sending the word, again, from the beginning. Here's an example. I'm trying to communicate the word 'Exxon.' Here's the transmission: EXXON I SPELL ECHO X-RAY X-RAY QUEBEC

CORRECTION EXXON I SPELL ECHO X-RAY X-RAY OSCAR NOVEMBER EXXON

And, in the case of mixed groups:

I SPELL WHISKEY WHISKEY NINE FOXTROT CORRECTION I SPELL WHISKEY WHISKEY NINE ECHO

If you're in the middle of a plain language sentence and simply mispronounce or misread a single word, go back to the last punctuation mark and retransmit from that point forward. For example:

THANK YOU FOR YOUR MESSAGE PERIOD I AM AVAILABLE CORRECTION PERIOD I AM NOT AVAILABLE FOR SERVICE PERIOD

By going back to the last punctuation symbol, you leave no doubt in the other station's mind where the information you're retransmitting should be placed in the message body.

Sometimes, even under the best of conditions, it's necessary to ask for information to be repeated...or, in the communicator's lingo, get fills. The magic words to use when asking for a fill or fills on a voice net are 'SAY AGAIN.' Those words put the sending station on notice that he or she is going to have to repeat something to you. After you use the magic words, you have to tell the other station what you need repeated. Your request can take one of three forms:

- SAY AGAIN WORD AFTER
- SAY AGAIN WORD BEFORE
- SAY AGAIN FROM ... TO ...

SAY AGAIN WORD AFTER and SAY AGAIN WORD BEFORE are fairly well self explanatory.
If you're missing a single word, we use these forms to request the needed information. If, however, you missed more than a single word or several words of a sentence, you can give the station the last word before and the first word after the missing information by using the SAY AGAIN FROM... TO... request.
It's easier to give an example than to explain...so, here's an example. I missed several words of a sentence. What I copied was: "WILL ARRIVE IN DALLAS ... EVENING."
I transmit the following: SAY AGAIN FROM DALLAS TO EVENING. The other station transmits "I SAY AGAIN FROM DALLAS TO EVENING... DALLAS FIGURES 14 APRIL SATURDAY EVENING"

If I had missed only a single word, I would transmit "SAY AGAIN WORD AFTER DALLAS..." or, "SAY AGAIN WORD BEFORE EVENING..."

Speaking of punctuation symbols, when transmitting formal traffic, be it routine, priority, or emergency precedence, you won't come across many punctuation symbols. The period, comma, colon, semi-colon, question mark, exclamation mark, at-sign, dash and slant bar are about the only symbols you'll come across. When communicating messages by voice, these symbols are transmitted by using the names of the symbols, just as I gave them. When you encounter internet addresses, the dot of 'dot com' as well as the decimal point found in frequency designations are communicated as periods. Slant bars, the symbol we append to a ham call sign when operating away from home, are communicated as 'SLANT.' And, hyphens are communicated as 'DASH.'

Now, let's shift gears and talk some more about directed net operations. As you may recall from the last session, a directed net is a network in which all transmissions are controlled by the net control station (NCS). SATERN's HF emergency nets, for the most part, will cover large geographic areas. The vagaries of radio propagation, atmospheric and weather related noise can make net operations quite challenging. Not all stations who wish to participate in the net can be heard by the NCS. Conversely, stations who might join the net don't get the opportunity if they cannot hear the NCS. Each NCS should appoint an ALTERNATE NET CONTROL STATION. The ALTERNATE NCS should be located at some distance away from the primary NCS so that he or she may take advantage of propagation from his or her location, filling in the gaps in the NCS' ability to communicate. Additionally, the ALTERNATE NCS should maintain a complete log of all stations checked into the net and all traffic listed with the net so that he or she can assume the NCS position and carry on the business of the net without undue delay. One interesting exercise is for the NCS to turn off his or her transmitter in mid-sentence while simultaneously starting a stopwatch. This is done to see how long it takes for the ALTERNATE NCS to pick up the net's reigns and carry on. The ALTERNATE NCS should be able to pick up the net and continue conducting the net's business within 3 minutes. Having appointed an ALTERNATE NCS, the primary NCS should frequently use his or her services to make net calls and relay information to the primary NCS.

As stations check into the net and periodically during the net, it's a good idea for the NCS and the ALTERNATE NCS to poll the net members and obtain RADIO CHECKs in order to stay abreast of changing propagation conditions. The term RADIO CHECK is another military/MARS term and is answered not in S-meter readings but in terms of relative signal strength and readability. Signal strength is given by using the terms:

- LOUD
- GOOD
- WEAK

Readability is given by:

- •CLEAR
- •READABLE
- •UNREADABLE

The best possible RADIO CHECK response is LOUD and CLEAR. The worst is WEAK and UNREADABLE. The terms are mixed and matched to suit the circumstance. Readability, of course, can be affected by transmitter problems, propagation, and/or interfering radio signals or atmospheric phenomena. Here's a typical exchange between a NCS and a net member. In this example, W7LXR is the NCS.

W7LXR transmits:

NOVEMBER FIVE OSCAR KILO QUEBEC THIS IS WHISKEY SEVEN LIMA X-RAY ROMEO. RADIO CHECK. OVER.

N5OKQ responds:

THIS IS NOVEMBER FIVE OSCAR KILO QUEBEC. LOUD AND CLEAR. OVER.

W7LXR transmits:

THIS IS WHISKEY SEVEN LIMA X-RAY ROMEO. LOUD AND CLEAR. OUT."

I'll quit there for this week's session. To recap, this week, we have talked about the term 'ROGER' and it's meaning, giving and getting fills, discussed how to transmit punctuation marks, learned how to get and give RADIO CHECKS and introduced a new net officer - the ALTERNATE NET CONTROL STATION. Next week, more on directed net operations. As always, I can be reached by email at w9fx@arrl.net or at my Call book address.

Sat four SESSION FOUR

Conducting and Participating in Emergency Nets

I'm sure that many of you will breathe a sigh of relief when I tell you that the introduction and discussion of the use of pro-words has been completed. I encourage each of you, however, to occasionally review our list of pro-words and, to the extent possible, use them in your day to day amateur communications. When emergency communications are required, the pro-words that have been discussed on this net and in this training series are indispensable and can dramatically improve communications efficiency.

Today, we are going to talk about conducting and participating in SATERN emergency networks. Ideally, every member of SATERN should be capable of and trained to operate as a SATERN NCS. That's the purpose of this training program.

Not everyone, however, can act as NCS at the same time. An NCS can appoint one or two stations as alternate NCS's, and the primary NCS can appoint some net members to specific duties. What those duties entail will depend in large part on the type and scope of disaster that has been responsible for the activation of the ECOM net. Our response will be tailored to the situation, but, in any event, as a group, we will remain flexible to the needs of the affected area.

Our response can be easily expanded or contracted to account for heavy or light traffic volume. If the disaster situation is such that an overwhelming volume of traffic is anticipated to come out of the affected area, a variety of options are available to the SATERN system. Amateur radio may well provide the only reliable communications either into or out of the disaster scene. Traffic coming out of the affected area always, ALWAYS, takes precedence over inbound health and welfare inquiries. In fact, inbound health and welfare inquiries are, as a rule, not accepted for several days after the disaster has occurred since there is usually no infrastructure to handle the messages.

Voice nets provide the backbone of emergency communications but are not always the best choice for handling large volumes of traffic, such as might be generated following a large calamity in a populated area. We may have to consider setting up ancillary voice nets and/or digital HF radio systems to handle the message traffic. The primary SATERN net, in such circumstances, would be considered the Command and Control Net. Other nets, either voice or digital, would be considered to be Tactical nets, formed to meet a specific need. As many Tactical nets may be established as are required by the circumstances.

In cases where Tactical nets are utilized, the Command and Control NCS needs some manner by which to communicate with the Tactical networks. The Command and Control NCS can appoint LIAISON stations. A LIAISON station is someone who will, until otherwise directed, remain on the Command and Control network frequency.

When information or message traffic needs to be moved from the Command and Control net to a Tactical net, the LIAISON station is dispatched to the Tactical net where he or she establishes communications and relays the information. Upon completion of the communications with the Tactical network, the LIAISON station returns to and notifies the Command and Control net NCS that he or she has returned and that the mission has been accomplished.

The Tactical NCS is still responsible to report to the Command and Control NCS. For that reason, each Tactical NCS should appoint one or more LIAISON stations so that information can be easily and efficiently moved between the networks.

If digital operations are anticipated and routes or outlets for message traffic have been established, the Command and Control NCS or the Tactical NCS, depending on the nature of the incident and traffic volume, may appoint a DIGITAL STATION. This individual is someone who has HF digital as well as voice communications capabilities. When stations check into the net with message traffic that may best be delivered by digital means, the NCS should direct the relay of the message traffic by voice to the DIGITAL STATION. The DIGITAL STATION is then responsible to relay the traffic by digital means to it's destination or another station for additional relay. If the traffic load is heavy enough to warrant the appointment of a second DIGITAL STATION, it's probably a good idea to establish a Tactical net and move the traffic off of the Command and Control network's frequency entirely.

And, certainly, if the opportunity arrives, we should make every effort to utilize wired communications. Art Evans, KA9KLZ, and I discussed just this topic a few months ago. Art said it best when he stated "During an emergency, use any means at your disposal to move the traffic..." FAX machines, email, web pages, computer bulletin boards - they all can be utilized to good advantage during emergency communications operations. The smart emergency communicator is the guy or gal that makes the most effective use of the resources at hand. Just because the Internet does not rely on radio waves for point-to-point communications does not mean that we should ignore it. As you will recall, during the Hurricane Mitch operation, Quent, WA4BZY, was able to set up an Internet based email system to handle health and welfare traffic from and to Central America. Quent's system worked like a charm and was of incalculable service to SATERN as well as the many friends and family members of Central American hurricane victims.

Who should check into a SATERN emergency net? Only stations that have emergency traffic or communications directly related to the post-disaster relief efforts should actually check into the net. As a rule, during the first few days of the disaster operation, the only traffic that will be accepted by the net will be message traffic originating from the disaster site. Health and welfare inquiries directed to the disaster scene will either be shunted off to another net, the Internet, or, simply refused until such time as the operators in the affected area are able to accept such messages. So, stations without emergency traffic should not check into the net. They should, instead, monitor the net's operation and be ready to accept traffic destined for their area. Additionally, stations not directly

involved in the net's disaster communications can provide an invaluable service by acting as relay stations during times of difficult propagation. Relay stations and all other stations not directly involved in the net's operation, however, should not transmit unless either invited or directed to do so by the NCS. Actually, there are three simple rules to follow with regard to how to conduct your operations in an emergency network: Listen, Listen and, Listen.

That's it for this week's lesson. To recap, the NCS of a SATERN emergency communications network can direct the establishment of tactical networks to handle overflow traffic of traffic that is inappropriate to handle on the primary, Command and Control SATERN net. Each tactical net and the command and control net should have Liaison stations capable of moving information between the nets. Heavy traffic flow can be shunted off to digital operations if the resources are available for such operations. In that case, digital stations can be appointed to move message traffic between the voice and digital networks. Finally, we talked about who should check into an emergency network. Only stations that have emergency traffic should actually check into the network. All other stations should listen, transmitting only if invited or directed to do so by the NCS.

Sat five SESSION FIVE
Individual Conduct in ECOM Nets

This week's training material was adapted from the 14 SEP 1998 edition of California's Auxiliary Communications Service Newsletter. Information on obtaining additional information about the ACS Newsletter can be found at the end of this article.

The Four C's of Emergency Communications The best advice for anyone performing emergency communications can be summarized by four C's: Calm, Courteous, Correct, and Concise. CALM. Try to keep emotion out of your voice. No matter what the emergency situation, a calm, professional attitude will help keep things cool and get the message through more quickly and accurately. Losing your cool, calm attitude may cost an important message. The more reason you have for getting excited, the more important it is for you to remain calm. As an emergency communicator, you should set a controlled, calm example for the other people to follow. COURTEOUS. As an emergency communicator, you must always think of yourself as a public servant. Regardless of the provocation, remain courteous at all times. Never display your temper on the air. Remember the "Golden Rule" at all times and practice it. Never fight with other operators over calls or reports. Always follow the instructions of the Net Control Station - whether you agree with those instructions or not. Most problems can wait until after the emergency situation is over. If some problem absolutely must be ironed out, do it by telephone, on another frequency, in person, or via the Internet - but, not on the net. CORRECT. Work to keep errors out of your communications. Use the International Phonetic Alphabet and repeat the message where appropriate to get names, locations, and other information accurately. Write everything down for reference. Remember, your role is communications. When the Emergency Operations Center or Net Control Station asks a question, go get the answer from the person responsible, don't just give your best guess. It is always better to admit you don't know rather than give out information that is wrong. Always use plain language -- do not use jargon, Q-signals, 10-codes, etc., which may not be understood by everyone. Avoid using specialized words and codes, even those of the agency you are supporting unless the message is going specifically to an addressee of the same agency who will clearly understand the acronyms and abbreviations. CONCISE. Your job as an emergency communicator is to get the message transferred while also allowing time for the other operators to get their messages transferred. Avoid tying up the net by keeping your transmissions as brief as possible. Always leave a few seconds between transmissions in case someone needs to break in with an emergency traffic. A strictly business attitude is your best technique for assuring effective and efficient communications. You must consider the conditions - if everyone on the net is being heard well, there is little need to spell common words, but if conditions aren't good or the word is unusual particularly difficult, then it makes sense to spell it phonetically. Don't rush - speaking a little

bit slower often gets the message through faster because the other operator doesn't have to ask for repeats. Don't assume everyone has a pad and pencil instantly ready when you need to send them a long or complex message - ask first, it saves time in the long run."
The archives of and instructions for subscribing to the California ACS newsletter can be found at that organization's web site: www.garlic.com/oes Calm, courteous, correct, and concise are good rules to follow when participating in any form of emergency communications - whether the situation is one of local, regional, or international in scope.

SATsix Session Six
On Training...
De W9FX

My job title with SATERN is a bit ostentatious: National Training Coordinator. That title indicates that I should have a staff of training officers scattered across the country. And, contrary to what you might think, I actually do. Each member of this network is, in fact, a training officer in waiting. As frightening as it may sound, at some point in each of your careers as emergency communicators, you're probably going to be asked to pass along the torch of knowledge to some new folks who have not had the benefit of emergency communications instruction or experience. Like it or not, when that day comes, you'll become the training officer for your group or community.

So, today, I thought I'd pass along some tips to help prepare you for those troubled times which lay ahead..

1. Have a plan prepared well in advance of your training session. This serves two purposes: It bolsters your confidence as a trainer and having a well rehearsed plan in hand makes your training session to your students appear to be much more professional. Depending on your training topic and your personal preferences, you may choose to write a complete script for your session, or, you may choose to work from index cards or other notes. I strongly encourage you to refrain from extensive ad lib training. Invariably, when the teacher is working from memory, some point or points will either be forgotten or misunderstood.

2. While it's customary to open speeches and, sometimes, classes, with something humorous, intended, of course, to 'break the ice,' make certain that your attempts at humor do not include comments or suggestions that may be off color or offensive to some or all of your students. Better to leave the ice 'unbroken' than to create a room full of resentful students before you even start your presentation!

3. The basic concept of training that I use and recommend is very simple:

A. Tell 'em what you're going to tell 'em
B. Tell 'em
C. Tell 'em what you told 'em

Translated into plain text, the concept reads as follows:

A. Provide an introduction to the material by informing your students what they will learn from you during the course of your training session.
B. Conduct your training session.
C. Recap the highlights of the topic you presented before closing.

4. Plan your training session with the students' attention span in mind.

Someone once commented that the mind can only absorb what the rear end can stand. Truer words have not often been heard. It's far better -- and your students will respond better -- if you hold three 20-minute classes instead of one 60-minute class. If you're doing your training session on the air, remember to allow time to obtain a list of stations checking in to your net, time to identify the

net, and time for the formal presentation, which, since it's being given via radio, should run no longer than about 15 minutes in length. Finally, there should be time for comments and/or questions from the net participants.

5. Take your training material 'to the kitchen table.' When you plan your training session, do not assume that all of your students understand jargon, technical terms, or specialized abbreviations. Teach at the level of the least common denominator. Your class may, well, consist of a group of hams, 20 of which are old timers with more than 40 years of amateur service under their belts, along with a few hams who have only been licensed a few months. The newer hams will probably be more familiar with computer terms...while the old timers may be more familiar with communications protocol. In order for your training session to be successful, each student should leave the class with a clear understanding of what you were talking about.

6. One of the more popular buzzwords in today's language is "interactive." Well, our training sessions should be, to some extent, and, depending upon the method of presentation, interactive. By that I mean that your students should be able to freely ask any questions that occur to them regarding the training topic. You, as the trainer, should be prepared to answer those questions to which you have answers and to be willing to perform the research and follow-up necessary to answer those questions to which you do not have immediate answers. To do less will seriously damage your credibility with your students.

If you're lucky, your turn in the barrel as a training officer will occur well in advance of any actual emergency situation. If you find yourself in the position of needing to train operators in the midst of an emergency, I have one piece of advice: Forget it. It just won't work. An emergency situation is the worst of all possible training environments. As an emergency NCS, you should use good procedures and attempt to keep the net operating with some measure of discipline and purpose. Hopefully, those stations that join your net will follow your good example.

So, there you have it, SATERN training folks. Plan your training sessions, reduce the material's complexity to the level of the least of your students' abilities, keep your sessions short, and, then, Tell 'me what you're gonna tell 'em, tell 'em, and, finally, tell 'em what you told 'em. Do not try to train operators during emergencies. That's what training nets are for.

Join SATERN http://www.qso.com/satern411/joinform.htm

APPENDIX B

FCC Guidelines for ID, and the use of Tactical Call Signs

Tactical Call Signs - Tactical Call signs can identify the station's location or its purpose during an event, regardless of who is operating the station. This is an important concept. The tactical call sign allows you to contact a station without knowing the FCC call sign of the operator. It virtually eliminates confusion at shift changes or at stations with multiple operators.

Tactical call signs should be used for all emergency nets and public service events if there are more than just a few participants. It is often helpful if the tactical call signs have a meaning that matches the way in which the served agency identifies the location or function.

Station Identification - In addition to satisfying the FCC's rules, proper station identification is essential to promoting the efficient operation of a net. The FCC requires that you identify at ten-minute intervals during a conversation and at the end of your last transmission. During periods of heavy activity in tactical nets it is easy to forget when you last identified, but if you identify at the end of each transmission, you will waste valuable time. What to do?

The easiest way to be sure you fulfill FCC station identification requirements during a net is to give your FCC call sign as you complete each *exchange*. Most exchanges will be far shorter than ten minutes. This serves two important functions:

1) It tells the NCS that you consider the exchange complete (and saves time and extra words)

2) It fulfills all FCC identification requirements

note (1) Text in this Appendix is taken from AARL CCEP Level I Amateur Radio Emergency Communications Course. Although this publication is copyrighted, the reproduction of this material is not for the purpose of resale, but only for ad-hoc educational purposes to further the purposes of amateur radio for which the ARRL is the endorses. Permission has not been obtained from the publisher for this excerpt..

Disaster Relief Tactical Communications Utilizing VHF Business Band And MURS Frequencies

By Alan R. Caho (KA3DYL)
Disaster Relief Communications Ministries
Baptist Convention of Maryland/Delaware
SouthBEARS of MD/DE (W3MDB)

At the 2008 North American Mission National Disaster Relief Roundtable, Fort Caswell, NC), Communications leaders of the represented state conventions recognized the need for standard and interoperable communications from front line disaster relief units to incident command and all the way to the NAMB DOC in Alpharetta, Georgia.

1. Interoperable Tactical Communications

Forward Deployed or Front Line units are generally defined as units operating forward of the incident command site and in direct contact with disaster victims. Support units are generally defined as units operating around or in support of the incident command. Forward Deployed units include recovery units, assessment teams, feeding units, child care units, and chaplains. Support units include logistics (warehouse/supply, housing, medical support), shower, laundry, water purification, and administrative support.

The units operating forward of the Incident Command are many times in areas that have limited access to cellular based communications. These areas may also have limited availability to emergency medical and law enforcement or security services, leaving our volunteers vulnerable to injury or assault. Therefore, establishing reliable communications between the incident command and the forward deployed units is a priority for each communications unit.

Understanding that the communications units themselves have limited resources, including a limited number of licensed amateur radio operators and amateur equipment, it is most advisable that each front line unit acquire at least one mobile and several portable (handy-talkie) radios programmed for NAMB's National Disaster Relief Frequency which is currently on a FCC licensed itinerant VHF Business frequency of 151.625MHz.

To establish total interoperability between units from different states that may be operating near each other in a disaster zone, standardization of the first four channels on all VHF business radios is essential. To augment the single licensed business frequency, Multi-User Radio Service frequencies will be added to the channel 3 and 4 positions of each portable radio allowing tactical and "talk around" channels without tying up our main frequency (currently 151.625 MHz). States may choose to operate a private channel in the number 2 position. A CTCSS PL code of 100Hz will be become standard within three years on channel's 1, 3, & 4.

The North American Mission Board and our National Disaster Relief Communications Leadership is pursuing acquiring another VHF (high band) Business Band frequency to replace the current shared itinerant frequency. If/when this frequency becomes available; NAMB will hold the nationwide license and this frequency would replace the current 151.625 MHz in the channel 1 position on standardized radios.

2. Manned Relay Stations / Forward Net Controllers

Understanding that the VHF business radios have the same performance of 2 meter amateur radios operating in simplex mode, it is obvious that if our Forward Deployed Units have an effective range of between 3 and 15 miles depending on equipment and terrain. The Communications Unit must provide a unit to bridge that gap. This unit in the middle can be as simple as a couple of guys in a vehicle equipped with the business radios and an amateur radio capable of reaching Incident Command. Your state may call this type of unit

a “jump team”, “Rapid Deployment Team”, etc. Whatever they are called, they need to have the right equipment to bridge the gap between recovery units and chaplains with business band walkie talkies and the folks at Incident Command.

3. Incident Command Communications

This is what most of the Communications Unit do best. Provide voice and data communications between the local Incident Command and the State Area Commander, all the way up to the Disaster Operations Center at NAMB. This communications usually includes providing email capability to the Incident Commander and feeding unit leaders so they can file reports and order supplies. Full internet capability allows Incident Command to monitor other national incidents as well as weather projections. The Incident Command Communications Unit should also be monitoring and checking in with the local RACES and ARES nets usually on the 2 meter or 70 cm amateur bands.

Maintaining contact with the local Emergency Operations Center via the RACES/ARES net allows for liaison as well as a direct link to local emergency communications should one of your units need emergency medical or law enforcement assistance. This is where we should understand the need for the unbroken chain of communications all the way from the front line units to Incident Command (through a forward relay station if necessary). Assume a Katrina like situation, our volunteers on the front lines doing chain saw operations with extremely limited communications other than the radios we bring with us. One of your guys gets hurt, how do we get proper medical attention to him if he has no other way to call for help?

Recommendation / Action Items for Each State Convention with Active Disaster Relief Units:

1. Each State Convention should obtain and maintain their own FCC license to operate on the itinerant VHF Business Band frequency.

2. Each State Convention should establish policy strongly encouraging (leaning toward requiring within 3 years) each Disaster Relief Unit (including Chaplains) to have VHF (high band) radios available on each deployment. These radios can be either portable(HT) or mobile with a standardized programming as follows:

a. Channel position 1 – 151.625 MHz with a transmit CTCSS of 100Hz
b. Channel position 2 – State dictated channel
c. Channel position 3 – 151.820 MHz with a transmit CTCSS of 100Hz
d. Channel position 4 – 151.880 MHz with a transmit CTCSS of100Hz
e. For radios with more than four channel positions, it is recommended that at least some of the additional channels be National Weather Service frequencies on receive only. Any additional channels programmed at the discretion of the state communications director/coordinator.

3. Each Communications Unit including each Rapid or Forward Deployment Team or Unit should have VHF Business radio capability.

Footnotes:
1. National standard, all new radios must be able to transmit a CTCSS tone of 100Hz, CTCSS tone on receive will not become national standard until April 30, 2011.
2. Some states already have a licensed state use frequency. Other states may choose to use the itinerant VHF Business Band frequency of 151.625MHz or one of the other MURS frequencies with a private PL code.

Added May 30, 2008

APPENDIX C

State Communication Coordinators

AL:				
AK:				
AR.:				
CA:				
CO:				
DC:				
DE:				
FL:	Hugh Cater	KE4CRO	hcater@flbaptist.org	904.596.3130 or 800.226.8584, x3130.
GA:				
KY:				
HI:				
ID:				
IL:				
IN:				
IA:				
KS:				
LA:				
MD:				
MI:				
MN:				
MS:	Dale Little	KB5JN	KB5JN@ARRL.net	Hm: 601.466.7884 Wk: 601.442.5339
MO:				
MT.:				
NE:				
NV:				
NM:				
NY:				
NC:				

ND:				
OH:				
OK:PA:				
SJersey:				
SC:	Ken Norton	W4HKZ	W4HKZ@att.net	864.244.5700 or 864.350.4728 (cell)
SD:				
TN:				
TX:				
UT:				
VA:				
WV:				
WS:				
WY:				

APPENDIX D

Southern Baptist FCC License

Federal Communications Commission
Wireless Telecommunications Bureau

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RADIO STATION AUTHORIZATION

Licensee: NORTH AMERICAN MISSION BOARD SBC

FCC Registration Number (FRN): 0004464089

TERRY HENDERSON
NORTH AMERICAN MISSION BOARD SBC
4200 N POINT PARKWAY
ALPHARETTA GA 30022-4176

Call Sign	File Number
WQAL495	0001634285

Radio Service
IG - Industrial/Business Pool, Conventional

Regulatory Status
PMRS

Frequency Coordination Number

Grant Date	Effective Date	Expiration Date	Print Date
06-28-2004	06-28-2004	06-28-2014	06-29-2004

STATION TECHNICAL SPECIFICATIONS

Fixed Location Address or Mobile Area of Operation

Loc.
1 Area of Operation
Operating Nationwide including Hawaii, Alaska, and US Territories
LOCATION 1 SPECIAL CONDITION: Area of operation is restricted to south of Line A and/or west of Line C.

Antennas

Loc. No.	Ant. No.	Frequencies (MHZ)	Sta. Cls.	No. Units	No. Pagers	Emission Designator	Output Power (watts)	ERP (watts)	Ant. Ht./Tp meters	Ant. AAT meters	Construct Deadline Date
1	1	151.62500	MCI	100	0	20K0F3E	40.000	40.000			

Control Points

Control Address
Pt. No.
1 4200 N POINT PARKWAY
City: ALPHARETTA
County: FULTON
State: GA
Telephone Number: (770)410-6452

Conditions:
Pursuant to Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 606.

FCC 601 - LM
January 2004