Purpose

Use of these voice communications protocols increases the reliability of voice messaging and improves messaging throughput for emergency communications. These protocols also enhance interoperability between Seattle ACS communications groups and other EmComm groups.

Scope

These protocols are to be used in all Seattle ACS voice communications practices and activations.

Contents

Techniques/Tips – Before Transmission

Know where you are

It is essential that responders know where you are and where they need to respond.

Compose your message before transmitting

A few seconds spared to plan your message will save time in accurately relaying information and will keep frequencies open for other traffic.

Break up long messages into small, logical segments

In an emergency, every second counts. Long messages may prevent other urgent traffic getting through; short phrases reduce confusion and repetitions.

Pause before transmitting

After you identify yourself, wait 2-3 seconds ["one-one thousand, two-one thousand"] before transmitting. This allows Net Control time to acknowledge you and leaves the frequency open for traffic with a higher priority.

Prioritize your messages

In any event, there are messages that need attention immediately and those that do not. It is your role to relay information as you get it; if you prioritize each message, Net Control will better be able to judge how to relay your message.

Also, NCS may only be able to take 1-2 messages per operator during each roster sweep due to amount of traffic.

LISTEN

After asking for reports or soliciting traffic, LISTEN!

Communication Basics

Identify

You must identify every ten minutes with your FCC call sign, even when you have a tactical call sign. During a true emergency, the FCC will probably forgive operators not identifying in a timely fashion. During events and drills, they are not as forgiving. Get into the habit of giving your FCC call sign every time you finish passing traffic. [47 CFR, Ch.1, Part 97, Amateur Radio Service Subpart B, Section 97.119 Station Identification]

Speak slowly

Talking on the radio is not like talking in person or on the telephone. Technical limitations in reproducing voice on ham radio, signal quality, and a number of other factors make it necessary to slightly exaggerate enunciation to ensure that you are easily understood the first time. Speak slowly and precisely; remember that most, if not all, of what you are saying is being written down.

Speak across the microphone

Speaking directly into a microphone frequently causes pops and hisses when making "s", "p", and other similar sounds, due to overdriving the microphone. This causes distortion and decreases understandability. Some microphones are also sensitive enough to pick up breathing sounds, which is distracting. Always talk across the microphone to produce a more even and understandable tone.

Use International [ITU] phonetic alphabet

Yes, there are others… but this is the standard in Amateur Radio Emergency Communications. Be aware, you may also have to interpret phonetics from people who use other systems (Police, Fire and Military). There are also a number of people who learned the OLD international phonetics ("Able, Baker, Charlie, Dog..") and still use parts of it. The most important thing is to practice using phonetics, both sending and receiving.

Courtesy tones and squelch tails

Almost all repeaters have a courtesy tone. This tone is used to let the other operators using the repeater know that the operator speaking has released the PTT. The squelch tail is the white noise that you hear for a second or two after the courtesy tone, which is the end of the repeater transmission. Proper radio procedure is to let the courtesy tone sound, and the squelch tail drop before you key up to reply. This is necessary for two reasons:

1) Other operators have the chance to break into the net, and

2) The repeater needs to rest and reset the time-out timer.

Clipping

The other side of the equation is that when you engage the PTT, you need to pause a second before beginning to speak. There is a short amount of time between when you begin transmitting and the other radios start to process the received signal. If you start to speak at soon as you depress the key, then the first few syllables you say are not heard (clipped). When using a repeater there is a further delay while the signal from your radio tells the repeater to start its process of receiving and re-transmitting. Working simplex with PL (tone) has a similar delay. It is a good practice to always depress the key, and then wait 2 seconds before starting to speak.

Think, then talk

Air time is precious. Do not hang on the air trying to decide how to say something or how to ask or answer a question. If you are called for information and you do not have it, say "please standby" or "no information at this time", then let go of the mike! Other operators are waiting their turn. If you need information, make sure you have considered the wording of your request prior to keying up. Make requests as direct as possible, and if it is complex, break the request into parts to be recorded (and answered) separately.

Confidentiality

You are transmitting on public frequencies: Your messages will be overheard by others [press, government, victims' families, etc.] than those you are transmitting to. Air waves are public and your messages, as sensitive or confidential as they are, will probably be heard by others. Use care in choosing what you say and how you say it.

Changing frequencies

Make a habit of announcing any frequency changes to allow others to know that you are switching to another frequency.

Plain language

When transmitting messages, avoid using specialized terminology. All messages and communications used during an emergency (or training drill) should be in plain language. "Q" Signals (except in CW operations), 10 codes and similar jargon will be avoided.

The use of "Pro-words" is an exception, some are:

- "CLEAR" – End of contact

- "OVER" – Used to let a specific station know to respond

- "GO AHEAD" – used to indicate that any station may respond

- "OUT" – Leaving the air – will not be listening

- "STAND BY" – A temporary interruption of the contact

- "ROGER" – Indicates that a transmission has been received correctly and in full

- "SAY AGAIN ALL AFTER" – Used to get message fills. Repeat everything after a certain point in the message

Tactical Call Signs and Communications

Tactical call signs can identify the station location or its purpose during an event regardless of who is operating the station. Stations assigned to community centers will use the name of the center as their tactical call sign.

Example

You are assigned to Magnolia Community Center and you want to contact the Seattle EOC – Your transmission would be "Seattle EOC this is Magnolia"

At the end of your exchange you would transmit – "Seattle EOC this is Magnolia KD7XYZ"

Seattle EOC ACS will use the tactical call sign "Seattle EOC" and will end each communication with: "Seattle EOC, W7ACS"

Making contact

When you are trying to make contact with a station, remember you are calling them! The standard for calling a station is THEIR call sign, THEN YOUR call sign. This is the only way you are going to reliably contact stations and not cause confusion.

Message fills

Repeat back only the parts of a message that you are asked to repeat, not the entire message. Use phrases such as, "Say again all after…", or ask for specific information to be repeated only. If you copy a message clearly, do not repeat the entire message back – just say, "I copy."

Net Basics

Like anything else, becoming a good emergency communicator requires practice. There are ample opportunities to practice these skills, in contests, through community events, and by taking the Net Control position during a weekly Public Service net. Contact the ACS Net Manager - that person will be GLAD to help you find opportunities.

Compose your message before transmitting

A few seconds spared to plan your message will save time in accurately relaying information and will keep frequencies open for other traffic.

Pause before transmitting

After you identify yourself, wait 2-3 seconds before transmitting. This allows Net Control time to acknowledge you and leaves the frequency open for traffic with a higher priority.

Speak slowly, enunciate

Remember, someone is transcribing your message on the other end, so speak as slowly as you would write your own message. Enunciate as clearly as possible, and AVOID CONTRACTIONS, such as, "don't", "isn't" etc.

Break up long messages into small, logical segments

In an emergency, every second counts. Long messages may prevent other urgent traffic getting through; short phrases reduce confusion and repetitions. After each segment, say "Break", wait for Net Control response or for other emergency calls, then continue. When you have completed the message, say "Clear" and end with your call sign.

Prioritize your calls to Net Control

In any event, there are messages that need attention immediately and those that do not. It is your role to relay information as you get it; if you prioritize each message, Net Control will better be able to judge how to relay your message.

Report your status

Every communicator will be important and it will be important, then, to know your status, such as active or out of service; at your assignment or enroute.

Use tactical call signs

Tactical call signs give clues to your location and your function; they save time. To remain in compliance with FCC rules, use your tactical call sign until you complete your message, then finish with your call sign.

Net Control Procedures

Net Control is in charge

In emergency and non-emergency events, a Net control is often established. All traffic is directed to the Net Control and Net Control is the final arbiter of the net and how messages are directed.

Checking in and checking out

When you arrive at your post and are ready to operate, check in with your primary net control giving your call sign and location, and that you are ready to pass traffic. If you are not sure of your tactical call sign, ask net control what your tactical call sign is. If you need to leave the net, and you have no relief operator, you must notify net control first. If you are the net control, you should always try to get a relief operator, but if that is not possible you must announce that you will be off the air for a time.

When it is time to leave your post, check out with your net control, indicating your call sign, location, tactical call sign, and if the post is secured or if you are being relieved by another operator. Do not leave your post without permission of net control or a supervisor!

Standby for change of operator

When there is a change of operators at a given post, it is standard procedure to announce the change. This will let everyone else on the net know that the post will be unavailable for a short time, and that there will be a new voice at that post. This helps reduce confusion for other operators on the net. It is also important that when there is a change in operator, that any pending matters be explained to the new operator by the old operator, or else be resolved prior to the change. This will prevent wasting air time and repeating requests or messages.

Know how to interrupt a net

For Urgent traffic, say, "Break," give your call sign, and wait to be acknowledged by Net Control. For Emergency traffic, say, "Break, Break," give your call sign, and wait for Net Control to acknowledge you.

Operational Do's and Don'ts

DO

- Do listen for your tactical call sign.
- Do answer promptly when called.
- Do keep the channel available for others needing to break in.
- Do keep all transmissions short.
- Do use simplex for your personal use if feasible- avoid using a high-level repeater for long periods.
- Do know how to interrupt the net with emergency traffic by saying "break, break" and state your call sign. Wait for Net control to acknowledge you before passing emergency traffic.
- Do use short, simple phrases.
- Do establish contact before sending messages that are longer than just a few words. Wait for receiving station to acknowledge before passing each sentence
- Do acknowledge all transmissions to you.
- Do state questions in a positive form.
- Do answer questions as directly as possible; do not explain unless asked for a clarification.
- Do ask for whom the message is intended if not obvious.
- Do shield your microphone from the wind.
- Do use earplug or earphone unless someone else has to hear.
- Do bring charged spare batteries.
- Do bring a higher gain antenna for your HT.

DON'T

- Don't use VOX or a locking PTT switch.
- Don't wear HT on belt and try to talk.
- Don't leave a net without checking out.
- Don't make unnecessary transmissions.
- Don't use CW shorthand jargon, e.g. Q signals or 10-signals; instead use "affirmative", "will do", "I copy", "I understand" etc.
- Don't talk louder in a noisy environment, relocate to a quieter place.
- Don't acknowledge the existence of a jammer in your transmissions.
- Don't assume interference is always due to a jammer, it could be that someone has a PTT switch closed

Use of Standard Phonetics

We need to be sure that what we say is always interpreted exactly as intended. Therefore when spelling of certain words in a message is required the ITU Phonetic Alphabet will be used.

A - alfa (AL-fa)

B - bravo (BRAH-voh)

C - charlie (CHAR-lee)

D - delta (DELL-tah)

E - echo (ECK-oh)

F - foxtrot (FOKS-trot)

G - golf (GOLF)

H - hotel (HOH-tell)

I - india (IN-dee-ah)

J - juliet (JU-lee-ett)

K - kilo (KEY-loh)

L - lima (LEE-mah)

M - mike (MIKE)

N - november (no-VEM-ber)

O - oscar (OSS-cah)

P - papa (PAH-PAH)

Q - quebec (kay-BECK)

R - romeo (ROW-me-oh)

S - sierra (SEE-air-rah)

T - tango (TANG-go)

U - uniform (YOU-ni-form)

V - victor (VIK-tor)

W - whiskey (WISS-key)

X - x-ray (ECKS-ray)

Y - yankee (YANG-key)

Z - zulu (ZOO-loo)

Numbers are somewhat easier to understand. Most can be made clearer by simply "over-enunciating" them as shown below.

One: "Wun"

Two: "TOOO

Three: "THUH-ree"

Four: "FOH-wer"

Five: "FY-ive"

Six: "Sicks"

Seven: "SEV-vin"

Eight: "Ate"

Nine: "NINE-er

Zero: "ZEE-row"

Numbers are always pronounced individually. The number "60" is spoken as "six zero," not "sixty." The number "509" is spoken as "five zero nine," and not as "five hundred nine" or "five oh nine."

Types of Nets

There are three types of nets which usually are set up during an emergency. These are the TACTICAL NET, RESOURCE NET, and the COMMAND NET. Which net, or whether all three evolve during an event, is strictly a function of the size of the incident.

A Net may be declared to be "OPEN", if the incident has little traffic volume, or if there is little need to direct individual stations with a Net Control (NC). This type of net is considered to be informal in its approach.

A Net may also be declared to be "DIRECTED" (or "CLOSED"), which directs amateurs to pass traffic through the NC, or obtain the permission of the NC before communicating directly with another station.

Tactical Nets

The TACTICAL NET is the "front line" net during an incident. This type of net is usually used by a single city to manage amateur radio operations within that city's boundaries. There may be several TACTICAL NETS for a single operation depending on the volume of traffic. For small incidents, types of traffic on this net may include traffic handling, resource recruiting or interagency communication.

If you are the NC, it is suggested that you have a second operator who is in a position to transcribe incoming traffic. This keeps your hands free to operate the radio and take notes as necessary to keep the net moving. Also recommended is an operating position with adequate workspace and good access to the radio's controls. Also, if operating in close proximity to other operations, consider using headphones to prevent distracting or being distracted by others.

Resource Nets

When an event goes beyond the boundaries of a single city or agency to the point where mutual aid is necessary, it becomes necessary to create a RESOURCE NET. A RESOURCE NET is used to recruit resources (both operators and equipment) in support of operations on the TACTICAL NET. As an incident requires more operators or equipment, the RESOURCE NET evolves as a check-in point for volunteers to register and receive assignments.

Command Nets

As the size of an incident increases and more jurisdictions become involved in the incident, a COMMAND NET may become necessary. The COMMAND NET allows the incident leadership to communicate with each other to resolve inter- or intra-agency problems, particularly between cities, or within larger jurisdictional areas. It is conceivable that this net could become cluttered with a high volume of traffic. It may be necessary to create further COMMAND NETS to allow this traffic to flow efficiently.

Other agencies, such as Red Cross can establish their own TACTICAL NETS. The 'other' tactical nets should have someone monitoring the main TACTICAL NET, so that communications between that agency and the TACTICAL NET can occur.

Communications Methods and Confidentiality

Confidentiality Considerations

Emergency communications generate a large volume of communications traffic. Radio traffic, telephone messages and data systems enable information to be distributed to large numbers of users. Much of the traffic is mundane, hardly worth mentioning. Some of the information is of a highly sensitive nature, and must be dealt with in a discrete manner.

It is essential that personnel involved with emergency operations be familiar with the types of message traffic that are generated and the need to carefully consider the method of transmission prior to the transmission of the traffic. Particular types of messages are automatically considered sensitive and warrant special handling. Examples of these types of messages are:

- Messages concerning the death or injury of victims of the incident.

- Messages concerning the death or injury of emergency responders at the incident.

- Messages that affect the health and well-being of those people in and adjacent to the incident area.

- Messages of such a nature that the disclosure of the information could cause panic or other grievous harm to individuals, public or private.

- Messages of a private nature.

All message traffic should be evaluated for its sensitivity and transmitted to its destination via the most appropriate method.

Electronic Communications Interception

The explosion of electronic communication technologies has been somewhat of a mixed blessing as far as confidentiality is concerned. Radios, facsimile machines, cellular telephones and computers have many benefits but also bring with them some inherent weaknesses that can, if understood, be minimized. Among the most obvious is the problem of message content security and confidentiality.

Many of the electronic communications methods that are used in emergency communications allow interception by individuals other than the intended recipient. The widespread availability of equipment capable of receiving electronic information makes it essential that operators involved in emergency communications consider the nature of their traffic and the possible impact that the information could have if released to the public-at-large.

Radio Communications

Radio communications are, by their very nature, unsecured. Radios generally broadcast over a wide area to allow base, mobile, and portable communications within the system service area. Most normal business communications are conducted 'in-the-clear'; i.e., the content of the communication is not encrypted and can be received by any person who has access to radio receiving equipment such as a scanner.

Communications of a confidential nature SHOULD NOT be conducted over the radio UNLESS there is a direct and immediate threat to life and/or property that requires immediate attention by Public Safety (police, fire, medical, etc.) agencies.

Cellular Telephones

Cellular telephones allow for direct connection to the public telephone system from portable, mobile and fixed locations. They are somewhat more secure than general use business band radio systems. However, they are still susceptible to interception by scanner radio operators.

Sensitive information SHOULD NOT be discussed over cellular telephones UNLESS there is a direct and immediate threat to life and/or property that requires immediate attention by Public Safety agencies.

Landline Telephones

Landline telephones, the ones that people are most familiar with, are the most secure type of communications. Direct connections via wire preclude interception by scanner radio operators. Interception is only possible by a technically competent technician and then only by court order.

Discussion of confidential information on the telephone should only be done when it can be assured that both parties are able to conduct their conversation in private.

"Dead Air" – some things to think about.

If you come up on a frequency where you expect to have traffic, and hear nothing, try some of these suggestions:

Check to make sure your equipment is functioning:

- Antenna connected

- Power/power supply on

- Microphone connected

- Speaker, if any, on

Check that you are on the proper band, frequency, etc.

- Make sure you have the correct sub-audible tone

- Check that the repeater shift is correct, or is on simplex

- If possible, return to a previous frequency to notify others of your problem, and get a signal report