

RUTHERFORD COUNTY AMATEUR RADIO EMERGENCY SERVICES

RCARESM 100-1

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This page contains radio procedures used in emergency services, but these practices make for good radio communications generally. For reprinting for personal use, save as an HTML file so it can be readily edited and printed.

RUTHERFORD COUNTY ARES Radio Communication MANUAL

These procedures are to be used for RCARES,SAR AND NCCC&PS radio communication. They are intended to provide clear and concise communication between trail teams, base camp and other rescue personnel. Radios may be either NCCC&PS radios or amateur (ham) radios. Remember, the world is listening to what we say. It is more important to listen than to talk.

1- MESSAGE HANDLING

a- The most easily understood messages are short and concise. Compose complex messages before transmission, avoid long messages. Aim to be easily understood. Think before talking. State a short summary and then follow with more details as requested. Never use 10-codes and other jargon (except for the below listed pro-words). Avoid monopolizing a channel, leave silence between transmissions so that others may communicate.

2- SENDING A MESSAGE

1. Determine if the message is really necessary.
2. Listen to see if the channel is busy. Wait until another communication is finished.
3. Call the destination station and give your tactical callsign:
"Base camp, this is Team 1".
Repeat several times until the destination answers:
"Go ahead Team 1".
Do not give a go ahead until you are ready to copy a message.
Do not give your message until you have gotten a go ahead .
4. When the destination answers, start your message by stating your purpose, e.g.
Reporting current position
Radio check
Requesting assistance
Message for Incident Commander, ready to copy?
5. State your message, speaking slowly.
"Hasty team's position is top of ridge above Tunnel Creek.
Position follows...Go ahead".
If the message is long, ask for confirmation every 15-30 seconds:
"Position is blah blah ... How copy?"
"Understood" or "Say again"
6. Repeat numeric values:
"47 degrees 45 decimal 4 minutes North"

Pause.

"I repeat 47 degrees 45 decimal 4 minutes North"

Pause.

Say "zero" NOT "Oh" for 0 ; say decimal for a decimal point.

a- FORBIDDEN TOPICS

Since anybody can be listening, do not report any injury or death or refer to bodies or corpses in plain language. Mission leaders will assign code words when appropriate to indicate these topics. Reception of a code word by base camp will be a signal to turn off radios or to go to other channels so that the general public in base camp may not inadvertently hear devastating news.

3- RECEIVING A MESSAGE

a- If possible, write down messages to be passed to other personnel. If a message is not completely received, ask for repeat: "Say again". After a message is received and understood, reply with: "Understood" or "Will comply". If you do not have an immediate answer, ask the calling station to "Standby".

4-PHONETIC ALPHABET

a- Spell out easily misunderstood names and words using the international phonetic alphabet below. "Subject's name is Sundahl, spelled Sierra Uniform November Delta Alpha Hotel Lima".

5- FORMAL MESSAGES

a- Base camp will usually log all message traffic. When a formal message is received, it will be repeated back to assure correctness. Keep formal messages short and concise.

6- FREQUENCIES AND CHANNELS SAR CHANNELS

a- NCCC&PS SAR radios use Tac 1 and Tac 2 channels:
NC2200 (152.315) - primary operating channel
unit # (154.600) - Point to point field operations
Do not transmit on any other channels. Some RCARES radios may have other public safety and law enforcement channels.

7- AMATEUR RADIO (HAM) FREQUENCIES

a- See below. Several amateur radio repeaters are used for communication between base camp, EOC and field teams. Use of these frequencies requires having an Amateur Radio Technician License.

8- OPERATING PROCEDURES

1. Before a team leaves for the field, a radio check should be performed for each radio. A radio check consists of a call to somebody close by and receiving a re-ply that transmission is OK.
2. When a radio is received, an extra battery should be obtained if possible. Single use (not rechargeable) alkaline battery packs should be used whenever possible.
3. Before leaving, set up a schedule for periodic team check in. For missions expected to last less than four hours, one radio in a team is left on receive continuously. On longer missions, agree upon a

time schedule when teams will turn on a radio and check in.

4. Normally there is only one radio operator per team. Even if a team has more than one radio, only one should be on at a time. The team radio operator always speaks only for the team leader. Otherwise confusion about team status may result.

9- TACTICAL CALLSIGNS

a- During a mission, each RCARES team is assigned a tactical callsign , e.g. "Base camp", "Team 2", "Relay 1". Avoid using personal names. FCC callsigns are used only as legally required, at the end of each communication (not each transmission) and every ten minutes during a long communication.

10- RADIO OPERATION

1. A radio usually has Volume, Squelch and Channel knobs. The Volume control usually turns on the radio. The Squelch should be adjusted just beyond the point where static is silenced.

2. Keep the antenna vertical and away from metallic objects. Hold the antenna as high as possible and between you and your destination. Hold the microphone several inches away from your mouth. Speak sideways across the mike, not directly into it.

3. VHF radio transmission can vary greatly depending upon location. If transmission is poor, try moving a few feet. Keep trying a variety of nearby locations. Try improving the radio's ground by holding the metal handle or case against your cheek, a metal pack frame or a sheet of aluminum foil.

SAR radios operate best on a clear line-of-sight. Transmission can be difficult from the bottom of a canyon. You may have to climb up a ridge in order to get a better line-of-sight.

4. If your destination does not respond, ask for a relay from another station. Sometimes in order to improve communication, a permanent relay may be stationed at a high point with line-of-sight to teams and base camp. When operating with a relay wait for the relay station to confirm that your message was delivered and understood.

5. If communication is difficult, repeat back the message you heard and have the sender confirm that it is correct. Compose short and concise messages before sending.

6. Operate away from groups of people to avoid background chatter and signal absorption.

7. Wait before replying. Then press the Push-to-Talk button for a second before talking. Let the destination hear your first word.

8. Speak slowly with a firm voice. Enunciate well, but don't shout, even in a noisy environment.

9. Relax before sending your message, don't rush. Let your destination understand the message the first time.

10. Use 24 hour (military) local time. Noon is 1200, midnight is 2400. One minute after midnight is 0001.

11. Periodically check the radio to see that it is turned on and still on the correct channel. Turn down the squelch and verify that static is heard. If a radio needs to be turned off to conserve battery power, set up a schedule for regular check in. Try to keep radios dry. Put the radio in a plastic bag in wet conditions.

12. During a mission, teams should check in with a position report to base camp or the EOC at least once an hour or whenever a position is changed.

13. Weak radio batteries may have to be warmed up in a pocket or sleeping bag. Batteries may also recover somewhat after several hours rest.

14. Some radios may have low/high power controls. Use low power to conserve battery power unless high power is required for clear communication.

11- BREAKING INTO A COMMUNICATION

a- If you have an urgent message, you may have to break into a communication. If your signal is weaker than the other parties, you will have to wait for a pause in their communication. Wait for a pause and then quickly say "BREAK" or "BREAK BREAK" before the next party starts talking. Parties in a communication must allow several seconds before replying in order to allow interruptions for urgent or emergency messages. If a break is heard, the replying party says "Go ahead break".

12- PUSH TO TALK CLICK CODES

a- If your message cannot be understood due to poor transmission, you may be asked to reply to questions via Push-to-Talk button clicks.

1 click - Negative

2 clicks - Affirmative

3 clicks - I require assistance

4 clicks - I have an emergency

13- RADIO COMMUNICATION PRO-WORDS

a- Pro-words are radio communication action words. They are a shorthand used for clear and concise communication.

Affirmative - Yes

Break, Break-Break - Used to interrupt a communication in progress.

Break-break - Also indicates an emergency.

Clear - End of communication and continuing to monitor this channel (frequency). No answer is expected.

Correction - The previous communication was incorrect. Follow with the correct information.

Decimal - Decimal point (in a number).

Go ahead - Send the next part of your message.

How copy? - Do you understand my communication?

I say again - I will repeat my last words (message).

Monitoring - Will continue to listen to this channel (frequency).

Negative - No

Off the air - No longer monitoring this channel.

Over - End of transmission, please reply.

Ready to copy? - Are you ready to copy my message?

Received - Message received correctly. Does not imply compliance or that the intent of the message was understood.

Relay - Send a received message to another station.

Roger - OK, understood, will comply.

Say again - Repeat the last communication.

Speak slower - From now on, speak at a slower pace.

Spelled - The previous word will be spelled letter by letter, often using the phonetic alphabet.

Standby - Wait for further communication. Do not transmit until requested.

Standing by - Waiting for further communication.

This is (call) - Identify yourself with your tactical callsign.

Understood - Message received and understood. Does not imply compliance.

Wilco or Will comply - Will comply with instructions.

14-a PHONETIC ALPHABET

Alpha
Bravo
Charlie
Delta
Echo
Foxtrot
Golf
Hotel
India
Juliet
Kilo
Lima
Mike
November
Oscar
Papa
Quebec
Romeo
Sierra
Tango
Uniform
Victor
Whiskey
X-ray
Yankee
Zulu

NUMBERS PRONOUNCED

0 ZEERO
1 WUN
2 TOO
3 TREE
4 FOWER
5 FIFE
6 SIKS
7 SEV-EN
8 ATE
9 NINER

15- AMATEUR RADIO REPEATERS AND SIMPLEX FREQUENCIES REPEATERS

a- Frequency Offset PL Tone Callsign Usable area

145.270 MHz -600 KHz None WA4KNI Henderson County

145.330 MHz -600 KHz None KF4KVI Polk County

442.000 MHz +5 MHz 114.8 AI4M Rutherford County

444.250 MHz +5 MHz None WA4KNI Henderson County

SIMPLEX

146.520 MHz simplex calling frequency

147.505 MHz Shelby Net

146.505 MHz Shelby QSO

147.555 MHz Back-up simplex, rtty and psk

446.000 MHz alternate simplex calling frequency

b- HF Nets

3,926 KHz 7.45am ARES emergency net

3,923 KHz 6.30pm Evening Net

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