Radio operations for CERT

There are all kinds of radios that can be used post disaster. This is a primer on some of those methods. The most common is Amateur Radio so we will start with that.

Hams provide a service to the community and to local Emergency Management officials. They pass messages containing life safety, health and welfare, damage assessments and requests for assistance. These messages may be the ONLY way to communicate post disaster for a period of time!

To be prepared you need to take many steps prior to the need for your services.

1) Assemble your equipment and test it to make sure it works. This means getting used to how your radios work, what frequencies are programmed into the radio, how to program your radio, how to assemble and place an external antenna and where you can get power.
2) Practice checking into nets.
3) Making contacts on simplex because repeaters may not be working.
4) Possibly using alternative modes like DMR, Winlink etc
5) Know how to format messages using ICS forms

This is not a complete list of preparations but just the basics to get you started. Practice, Practice, Practice is Rule number One! The more you do the more comfortable you will be when you are nervous. Stress levels will be high in the hours after a disaster. Most of your messages will be on the first few days post disaster and then things will settle into a routine. As normal communications are restored you will see a drop in the need for your services. This is normal!

The most important thing to remember is to remain as calm as you can possibly be under stress. Have someone give you messages and practice sending them via radio to someone acting as a relay point or net control. Participate in practice exercises and drills! This will get you ready and build your
confidence.

Getting ready

To assemble your gear it is best to work off of a go kit packing list. Everyone needs the same basic items and you may want to add additional equipment depending on your needs, location and expected services you may be asked to provide.
The basics include a radio, dual band (2 meters/70 cm) is preferred. You will need at least 2 batteries and it is suggested that you purchase a clamshell that will take AA batteries for when those batteries are exhausted. Remember you will most likely not have power to recharge your batteries! Some radios can be recharged via the 12 volt system of a vehicle. Having the cable to do this is another plus.
For mobile radios you will need a 12 volt battery. This could be anything from a lawn mower size to marine size battery. You will need cables to connect the radio to the battery. Keep spare fuses with all radios and batteries. The next thing is to have more

than the small rubber duck style antenna that comes with the radio. This can be a longer whip antenna. The best thing to have is an external antenna that can be placed at a high spot for more range. There a MANY types of antennae from a simple magnet mount mobile antenna, a ground plane antenna or a yagi with 3 or more elements. Have a way to get any antenna as high as possible. This includes rope to pull an antenna up in a tree. A painters pole or PVC pipe can get you up 10 feet or more. You will also now need some cable to connect that antenna to your radio. A 50 foot length of RG 8X or better cable will do the trick for this. Having adapters to connect the cable to your radio is also a must.

If you have an antenna mounted on your house or another building, don't count on it being there post wind event! A nice thing to have is a spare to replace the mounted antenna but any suitable antenna that can be mounted on a pole would be appropriate.

SPARE equipment All electronics are subject to fail and usually at the worst time. Have a back up that can establish communications if your primary radio/antenna fail. Some hams will only have a portable radio and if possible you should have some backup equipment that can be loaned to them if needed. Some hams have identical set ups that can be used to replace failed equipment and when you have down time you can troubleshoot and repair the failed units. Fuses, microphones, cables and batteries all fall into the "will fail sometime" category. It is much easier to just replace whole subsystems (power, radio and antenna) than to try to isolate what has failed.

Operations

When you are assigned to provide communications for your team you should find a suitable location that will allow you to have access to outside for an antenna, shelter from the elements and access to power if you have a generator running on site. Once you have set up your equipment, do a test to make sure it works and contacted the EOC or another CERT or relay point you can begin operation. Be ready to send messages that come from the Team Leader, Logistics Section or public officials. ALL messages should be written out unless the microphone is handed to the person that will be sending the message. You should do a handwritten copy of the message if possible. (At least put the generality of the message in your log) Keep accurate records of messages sent and received! Log all incoming and outgoing messages with a number, date, time, person originating the message, where the message was sent and to/from whom. If you have received a reply to the message make sure that is also included in your log.

Hopefully you have more than one operator and you can set up a schedule of when you will be on duty. If you are the only person doing communications make sure you take rest breaks and food is delivered to you at your operating position. If you leave the radio unattended make sure the net control knows you are stepping away for a brief period. Let them know when you have returned. This includes sleep and Bio breaks!

Be prepared to move to another location at a moment's notice. This could be due to conditions changing; Incoming weather or structure compromise and a host of other issues. In a worst case scenario you may have to abandon equipment. This is when those spares are a saving your bacon item! Be prepared to set up ASAP at a new location. ALWAYS notify net control when you are shutting down or moving. As things wind down you should know when you will be told to stand down. Most hams will continue monitoring the frequencies in use after they have shut down operations at their location.

Some other common equipment one may want to include and use:

Some people may want to use Family Radio Service, (FRS), (UHF), these are simple radios to use, are 2.0 watts, and don't require a license. They are limited in range but work well for a mile or less. They may work well for a team to communicate within their community (HOA). FRS radios are fairly inexpensive and can be purchased from many stores locally or ordered online. The cost ranges from 30-70 dollars.

Some people may use General Mobile Radio Service, (GMRS), (UHF), this radio maximum wattage is 50 from a base or mobile station. It requires a FCC license that costs $35.00 for a 10 year period. There are a variety of radios available online. An individual handheld radio starts about $40.00. This type of radio has more options than FRS but you will still need a way to get the message to the EOC.

The majority of CERT & other disaster communications from the public is through amateur radio. With amateur radio the number of frequencies available is much greater. The cost of a handheld radio starts about $35.00. You'll need to study and take a test to get your ham technician license. The cost for the license is $35.00 There may also be a cost to take the test ($15).

Some CERTs are designed to serve a Home Owners Association (HOA) and they will require communications both within the HOA and to the EOC. Know how your Team will set up and if They will use a command post where your radios will be set up. Some teams might refer to this as an AOC or Area Operations Center. Do not confuse this with the county EOAs or Emergency Operations Areas. They are totally different! It is best to leave having multiple radios to the more experienced and advanced operators Who will be at the Command Post (CP) The CP should be staffed by one or two trained and experienced ham radio operators.

In south Palm Beach County there is a weekly ham radio net starting on Wednesday evenings at 5:15 pm. The frequency is 147.225 and the PL tone is 107.2. ALL licensed amateur radio operators are welcome to participate.

Remember your equipment needs to be kept in good working order and it is good to practice with it to keep your skills sharp.

Dolph ~ WA2NTW and Rob ~ KC7FBN