

THE DUVAL COUNTY AMATEUR RADIO EMERGENCY SERVICE EMERGENCY COMMUNICATIONS PLAN

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de KG4CQK

INTRODUCTION

As the population of North Florida has grown dramatically over the past several years, so have the demands placed on the *Amateur Radio Emergency Service*. We now serve more than a half-dozen agencies with divergent needs, including requirements for communications beyond the Duval County political boundaries (ARC and NWS are two good examples).

Each of these served agencies is now facing new threats which were unheard of just a decade ago. For example, Duval County now hosts 4 commercial and 2 military airfields, so the potential for aircraft incidents is greater than ever. As a major transportation hub, hardly a day goes by that hazardous materials are not transported through the city, by rail, truck and sea, and potential for hazardous material incidents grows accordingly. In the wake of the Oklahoma City bombing, Jacksonville is high on the list of potential terrorist targets with its many federal installations.

Thanks to La Nina, North Florida has experienced a whole new set of weather-related emergencies. Twice in the last 3 years, forest fires of unprecedented magnitude have raged out of control here, while soaring temperatures make fire-fighting nearly impossible. Local fire fighters have been forced to develop expertise in dealing with a whole new class of threat - the boundary fire - as woodland fires make the transition into populated areas. And the list of new threats goes on.

In the same time period, there has unfortunately been a decline in participation in Amateur Radio. Ham Radio is no longer a major player in long distance and portable communications, and sadly finds itself having increasing difficulty in attracting and holding the attention of new members.

In some counties, this has meant that ARES affiliated clubs have dissolved, and there are no organized ham resources to meet the needs of an emergency. For larger counties like Duval, this not only means a decline in participation, but also means that we are increasingly called upon to take up the slack formerly carried by the now-extinct smaller clubs.

As the number of served agencies grows, the traffic demands may be expected to grow as well. It may no longer be feasible to carry all of our ARES traffic on a single net as we have in the past. Yet if more than one net is to be used, it will be crucial that all operators know which net is appropriate for their traffic, and have all of the net parameters (frequency, offset and PL tone) pre-programmed into their equipment in advance.

The bottom line is that we need to make the transition from a medium-sized county operation to a large-sized county operation. We can no longer afford to just meet on ".76", plan as we go, and

shoot from the hip. But at the same time, we need to do more with less - we need to work smarter.

Our response to any threat now must be carefully planned and rehearsed in advance if we are to have any hope of doing a good job. We need to take advantage of state-of-the art tools where ever practical, and we need to train our people in their use.

This plan seeks to provide a framework for dealing with emergency incidents and volunteer activities which need our help in the most efficient manner possible. The plan is not intended to be a textbook in how we operate, but rather a springboard for launching dialogue about new ways to communicate more effectively. It is hoped that this plan will never evolve into a laminated SOP, but rather be a living document which is amended and upgraded every time we find a better way of doing our job.

OPERATIONS

The plan presented here incorporates an number of basic strategies which are new or have seen only limited use in the past. These strategies are outlined below:

- 1) Two operators will be on duty at any position where heavy traffic is expected or more than one frequency must be monitored.
- 2) The net control function will be split away from information consumers and information providers. The role of the net control operator (NCO) is to facilitate delivery of messages, and any distractions (such as ambient noise, visitors, interruptions, etc.) only handicap the NCO. Just as a switchboard operator normally operates in a restricted area with no distractions, our net control operators need to be geographically separated from the chaos of a disaster.
- 3) Net control operators will be tasked with transmitting messages and collecting information. Routine reports, (such as hourly shelter census data) will be requested on schedule by the NCO, freeing the information consumer from the need to make repeated requests. Ad hoc queries will be processed as requested, using the channels which best match the traffic. For example, messages for the State EOC will be routed to the local HF gateway, a request for relief will be routed to the dispatch net, and a Shelter Nurse needing to consult the ARC Medical Officer will be routed to a simplex channel. A request for a commercial power status from all stations would be conducted by roll-call on the net.
- 4) Use of simultaneous multiple nets. If there is even a chance of one net being saturated with traffic, then it makes sense to plan for more than one net, and clearly define what kind of traffic is appropriate for each one. For example, this plan calls for the dispatch function to be carried out on one net, and tactical operations to be carried out on a second.
- 5) Operators will have available all of the information resources which could facilitate efficient performance of their task. This would include a local phone directory, a list of shelters with phone numbers, a list of QRT team members, etc.

6) Computers will be used to expedite handling and display of information where practical. For example, the graphic display of APRS is the perfect tool to determine which stations are closest to an incident scene.

7) Nets will be reserved for brief messages of emergency and priority precedence. Longer messages, confidential communications, editorial comments, short distance and routine traffic will be referred to other resources, including land-line, cell phone, simplex frequencies and packet resources.

8) Duval County ARES will be prepared assist with communications for outlying counties when requested, and the communications can be accomplished without handicapping in-county operations. For example, if the NWS Skywarn operator asks for an observation from Nassau County, and Nassau County has no Skywarn resources, the NCO could ask a Duval County station to QSY to the Nassau repeater and obtain the needed information, and report back to the net.

9) As much as possible, every key job description will have one or more persons who have trained specifically for that job. For example, if a ham lives close to a hospital and is willing to operate there, he should be encouraged to become familiar with the setup and staff, and should be called first anytime a need arises for an operator there. Thus, this hospital would be designated as the operator's primary mobilization billet.

Network Operator's Workstation

The minimum equipment necessary to participate in a 2m net is simply a Handie-Talkie (H/T), and at times this is all that is desirable. However, when dependable communications over the long haul is the goal, a number of other factors come into play.

The following resources are recommended for use at any ARES base or Gateway station (including Network Control Operators):

2m Radio

- 50 W minimum output on 2m band
- CTSS and tone squelch required
- Headphones and hands-free microphone (desk, headset, or boom)
- Foot-control PTT switch (Hands free for computer keyboard or note-taking)
- Radio is tested at least twice-a-month on Wed night net.
- All ARES repeaters and simplex frequencies are fully programmed
- H/T is handy for monitoring during trips to restroom

Antenna

- Outdoor antenna at least 10 ft off ground (Ground plane, 5/8-wave whip, metal J-pole or beam, depending on location)
- 1:1.2 or better SWR
- Lightning protection installed

Easily grounded when not in use

Work Area

- Radio in easy reach
- Adequate lighting
- Telephone handy (visual bell desirable RS # 43-177, 43-178, 43-179)
- Cell phone on belt (on vibrate)
- Adequate white space for operator
- Battery powered clock
- Jacksonville Phone Directory handy
- Radio operating manual is handy
- ARES forms on hand
 - Gold form
 - Standard message traffic form
 - ARRL Radiogram forms
 - Shelter census forms
 - Printed copy of Duval County ARES *Emergency Communications Plan*

Shack Computer

- GUI Operating System (Windows/Mac/Linux - not DOS)
- ISP connection (Broadband or DSL is better, dial-up is OK)
- Internet browser (Internet Explorer 6.0 or higher or Firefox)
- E-mail capability (ARRL E-mail mailbox : yourcall@arrl.net)
- Quiet Printer (not dot-matrix)
- Simple word processor for notes and traffic (e.g. MS Wordpad, Notepad)
- Mapping Program (Delorme Street Atlas, Street finder, etc.)
- Ham Station Logging program
- For Packet Stations and other modes
 - APRS
 - Simple Packet program (e.g. BUXTERM, PACOMM)
 - PSK31
 - ATV programs

Building

- Disaster supplies in stock as recommended by American Red Cross
- Not located on flood plane
- Has storm windows

Power

- Battery or emergency power for minimum of 4 hours operation
- Solar charger for battery preferred

Radio Shack Room

- Not in traffic flow of house
- Sound isolation from TV, noisy children, etc.
- Privacy
- Room may be locked

In addition, **Net Control Operators** should have the following

Misc:

- Telephone with visual bell only (RS # 43-177, 43-178, 43-179)
- Chair and white space for second operator
- Timer to remind when to ID (set to 9 minutes)
- Current Weekly Net Script
- Current hard-copy of all ARES lists (from web site)
 - ARES call-out list + Repeater Control Codes
 - All repeaters for N FL and S GA, incl CTSS tones, etc.
 - List of county simplex frequencies
 - All packet nodes, freq and map
 - All potential shelters, w/ phone #'s
 - All hospitals, w/ phone # and name of contact
 - NWS offices, phones, direct lines, etc.
- Spreadsheet program on computer (for check-ins)

In addition, **Gateway Stations** will require the following

- HF Radio**, 100 W minimum, 500 W preferred
 - Outdoor antenna for 40 and 80 meters (tuner)
 - All of above 2m Radio features (e.g. foot switch, boom mic, etc.)
 - Radio is tested at least twice-a-month on NFAN Net
 - All ARES HF net frequencies are fully programmed

Duval County ARES Voice Nets

The Duval County EC designates a *primary* and *backup repeater system* in the 2m band for use by the Duval County Emergency Net at all times. If there is an activation, all ARES personnel are expected to attempt to check in on the *primary repeater system*. If this repeater is not working for any reason, operators should try the *backup repeater*. If the *backup repeater* also fails, then operators should attempt to make contact using the *primary repeater's receive (down-link) frequency in simplex mode*. (This usually requires manually setting the downlink frequency in the VCO of the transceiver.) If there is interference on the primary simplex mode frequency, operators should attempt contact using the *back-up repeater's receive frequency in simplex mode*.

With this procedure, all operators should know exactly where to check in in the event of a mobilization of any kind, and should be able to establish contact, regardless of whether any repeaters are working or not.

Local Voice Nets

Tactical Net -- The Tactical Net is the front-line net employed during an incident, usually used by a single served agency to coordinate operations within their jurisdiction. There may be several tactical nets in operation for a single incident depending on the volume of traffic and number of agencies involved. Communications include traffic handling, and resource recruiting.

Resource (or Dispatch) Net-- For larger-scale incidents, a Resource Net is used to recruit operators and equipment in support of operations on the Tactical Nets. As an incident requires more operators or equipment, the Resource Net evolves as a check-in place for volunteers to register and receive assignments.

Command Net -- As the size of an incident increases and more jurisdictions become involved in the incident, a Command Net may become necessary. This net allows the incident managers 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 also be necessary to create multiple command nets to promote efficiency.

RDF Net -- Occasionally some form of interference may arise which hampers network operations. This can be especially troublesome during emergency operations. A team of amateur operators may be designated to track down the source of the interference by using *Radio Direction Finding* (RDF) equipment. Often the team will make measurements to determine a bearing to the source of the interference, and this can be accomplished most effectively by having team members widely separated geographically. The RDF net is then used by the team members to report their measurements and coordinate their efforts to locate the source.

Suggested Standard Operating Procedures for all ARES voice nets.

1) Tactical call signs will always be used to avoid confusion. All stations will transmit a legal ID at the end of each dialog and at least once every 10 minutes to comply with FCC regulations. For example:

NCO: Landmark, I need your census report. Over.
Landmark: Roger, please copy 32 shelterees and 8 shelter staff. Over.
NCO: Landmark, I copy 32 shelterees and 8 staff. Over
Landmark: Roger, KG4CQK.

If the called station forgets to ID at the end of a dialog, the NCO should remind him:

Landmark: Roger, Landmark standing by.
NCO: Landmark, please ID. Over.
Landmark: KG4CQK.

The net control operator will monitor the time since his last ID, and transmit the Net call sign at less than 10-minute intervals. (Use of a wrist-watch timer is recommended for this purpose.) If the net is not busy at the time, other net stations may follow in alphabetical order of suffix with their call sign only, and no acknowledgment. For example:

NCO: This is KA4OBP serving as net-control for the Duval County ARES net. The net is in condition red. Over.

Landmark: KG4CQK
Shands: KG4FET
LaVilla: AI4GS
Baptist: KE4IOR

2) If the net is not busy, the NCO should broadcast routine updates for the benefit of hams who have recently tuned in. This could be done in lieu of the periodic NCO ID's at 10-minute intervals. For example:

NCO: This is KG4FET serving as net control for Duval County Skywarn. The net is in condition *Red*. A *Tornado Warning* is in effect for all locations west of I-95 in Duval County. We are currently accepting reports of severe weather from any station for relay to the National Weather Service. Stations observing any of the following should report as soon as possible:
1) Hail larger than a nickel. 2) Wind speeds of 32 mph or higher. 3) Major roads that are flooded. 4) Tornado sightings. Please do not respond unless you have one of these to report. This is KG4FET standing by.

3) Non-ham resources will be used where ever practical to avoid congestion on the net. For example, FRS radios provide an excellent tool for a shelter operator to stay in touch with a shelter manager. Other tools include business and agency radios, e-mail, hand-delivered paper messages, US mail, pagers, land-line, cell phones and Nextel.

4) Every effort will be made to keep net traffic at a minimum. Successfully received messages will be acknowledged with a simple "*Message Received*" and station call sign. (e.g. - "*Message Received - KG4FET*"). Editorial comments will be reserved after-action critiques, simplex frequencies or land-lines.

PRINCIPLES OF DISASTER COMMUNICATIONS

1. **Keep the QRM level down.** In a disaster, crucial stations may be weak. All other stations should remain silent unless they are called upon. If you're not sure you should transmit, don't.

3. **Avoid spreading rumors.** During and after a disaster situation, especially on the phone bands, you may hear almost anything. Unfortunately, much misinformation is transmitted. Rumors are started by expansion, deletion, amplification or modification of words, exaggeration or interpretation. All addressed transmissions should be officially authenticated as to their source. These transmissions should be repeated word for word, if at all, and only when specifically authorized.

4. **Authenticate all messages.** Every message which purports to be of an official nature should be written and signed. Whenever possible, amateurs should avoid initiating disaster or emergency traffic themselves. We do the communicating; the agency Officials we serve supply the content of the communications.

5. **Strive for efficiency.** Whatever happens in an emergency, you will find hysteria and some amateurs who are activated by the thought that they must be sleepless heroes. Instead of operating your own station full time at the expense of your health and efficiency, it is much better to serve a shift at one of the best-located and best equipped stations, suitable for the work at hand, manned by relief shifts of the best-qualified operators. This reduces interference and secures well-operated stations.

7. **Use all communications channels intelligently.** While the prime object of emergency communications is to save lives and property (anything else is incidental), Amateur Radio is a secondary communications means; normal channels are primary and should be used if available. Emergency channels other than amateur which are available in the absence of amateur channels should be utilized without fear of favoritism in the interest of getting the message through.

8. **Don't "broadcast."** Some stations in an emergency situation have a tendency to emulate "broadcast" techniques. While it is true that the general public may be listening, our transmissions are not and should not be made for that purpose.

Definitions

"AEC" – Asst. Emergency Coordinator

"APRS" – Automatic Packet Reporting System – A digital system that transmits and displays data on maps on computer screens. Highly effective as a parallel to voice circuits.

"ARES" – Amateur Radio Emergency Service headed by the Section Emergency Coordinator (SEC); is part of the ARRL field organization.

"ARRL" – American Radio Relay League – National Amateur Radio organization dedicated to implementing Part 97 of the FCC regulations.

"Blue Alert" – Condition Blue – Alert status allowing ARES officials at their discretion to shut down operations when they complete their emergency-related duties.

"CEM" – County Emergency Manager or County Emergency Management

"Communications Emergency" as defined the FCC occurs when normal communications systems are disrupted in a specified area.

"County" - Any geographical jurisdiction assigned to an EC. For ARES purposes a County can be an actual Florida County, a portion of a County, or a combination of counties.

"County Warning Point" – A county public safety site, such as a Sheriffs dispatch office that functions 24 hours a day. It is a principal contact point for the State Warning Point.

"DEC" – District Emergency Coordinator, an appointee in charge of ARES activities in a cluster of counties comprising a District

"DEM" also EDEM – The Florida Division of Emergency Management

"Disaster" – An event causing death or injury to humans or a major loss of property.

"Distress traffic" – Any traffic relating to an acute, immediate threat to human safety or property; i.e. SOS, MAYDAY, or EMERGENCY traffic.

- "District" – Two or more contiguous counties assigned to a DEC.
- "EC" – Emergency Coordinator. An ARES appointee who supervises emergency planning and operations in a specified geographical area. Reports to the DEC.
- "Email" – Electronic messages exchanged over the Internet or local computer network.
- "Emergency" – any situation in which human life or property is threatened. The emergency ceases when relief agencies have no further need for our services. (See "Disaster")
- "Emergency Net" – A group of Amateurs using the same frequency and associated side frequencies to support emergency relief measures.
- "EOC" – Emergency Operating Center; an emergency headquarters.
- "ESF" – Emergency Support Function. Each of the 16 ESFs is a group of people in an EOC dealing with specific kinds of problem.
- "FDEM" – Florida Division of Emergency Management (see DEM).
- "FEMA" – Federal Emergency Management Agency
- "Formal traffic" is written in ARRL message form. It is used when Amateur Radio operators relay information between third parties.
- "GATEway Stations" – Fixed stations providing liaison between two nets.
- "GPS" – Global Positioning Satellite
- "HAZMAT" – Hazardous Materials.
- "Informal communications" – Radio exchanges between two people not requiring verbatim relay to any third party. Classified as non-traffic; not handled on emergency nets.
- "Jump Team" – A group of experienced Amateur volunteers selected and trained to mobilize on very short notice to meet an emergency.
- "Key City" – A cluster of GATEway stations within a specific geographic area providing liaison between activated emergency nets or a Served Agency HQ.
- "LGL" – Local Government Liaison is an appointment made by the State Government Liaison (SGL) for any specific task.
- "NF" – Northern Florida - The Northern Florida Section of ARRL.
- "NM" – Net Manager.
- "NOAA" – National Oceanic and Atmospheric Administration - Home agency for the National Weather Service
- "No alert" – same as Condition Green. Normal operations.
- "NTS" – National Traffic system..
- "NWS" – National Weather Service
- "Orange Alert" – Condition Orange ARES members are active at assigned duty posts – not on standby.
- "QNC" - QN signal for CW or digital net use meaning "All net member stations please copy." It indicates that the message to follow is of general interest.
- "RACES" – Radio Amateur Civil Emergency Service – RACES organizations, where they exist in Florida, operate at the County level under direct control of the County Emergency Management Director.
- "Red Alert" – Condition Red – Maximum level of ARES activation in the Northern Florida ARES Plan.
- "Section" – ARRL administrative unit headed by elected Section Manager (SM). Florida

has three Sections; Northern, Southern, and West Central.

"SEC" – Section Emergency Coordinator – Official responsible for all ARES activities within a Section.

"Secondary net" – A communications channel associated with the primary emergency net used for traffic handling and other time-consuming net business.

"SEOC" – State Emergency Operations Center in Tallahassee.

"Service information" – Handling notes attached to a message form.

"Service message" – Radiogram relating to handling of another message.

"SGL" – State Government Liaison is an appointment made by the Section Manager. The role is that of interface between amateur radio and all facets of state government.

"Side Frequency" – Secondary Net.

"SITREP" – Situation Report – message reporting status of emergency-related activities.

"SM" – Section Manager

"STM" – Section Traffic Manager

"SWP" – State Warning Point – Communications center at FDEM; operates 24 hours a day, everyday

"SWPAS" – State Warning Point Amateur Station – An amateur station located at the State Warning Point in the State Emergency Operations Center in Tallahassee. It is activated by the SEOC Operations Officer when needed, is staffed by amateurs recruited by the LGL who has that role, and serves the roles given to it by the SEOC Operations Officer. Usually that will include receiving input from the Tallahassee GATEway, including SITREPS from the SECs, and transmitting traffic for County Emergency Managers from the SEOC. It will NOT usually include receiving or transmitting messages to individual amateurs unless they are serving County Emergency Managers or SECs.

"Tactical traffic" – Spoken instructions or consultation on the air. No third party communication occurs.

"Traffic" – Any exchange of information between two or more Amateur Radio stations.

"Traffic Log" – A list of incoming and outgoing traffic at an Amateur station.

"White Alert" – Condition White – Notice to ARES members to prepare for deployment on very short notice.