



New Hanover County

Amateur Radio Emergency Services®

Emergency Plan

New Hanover County Amateur Radio Emergency Services® Emergency Plan

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I. PREFACE

The New Hanover County Amateur Radio Emergency Service® (ARES®) is an organization composed of interested individuals and FCC-licensed amateur radio operators whose major purpose is to provide county-wide emergency communications. ARES® may supply communications services where no established links exist or supplement existing system(s) if they are overloaded or disabled. Such services may include:

1. Communications between New Hanover County and other governmental agencies.
2. Emergency communications between county officials and other officials.
3. Communications among county, private and public service organizations.
4. Additional public service communications.
5. Health and welfare communications.

A secondary purpose of ARES® is to provide non-emergency communications for county agencies and services or other qualified organizations at the discretion of ARES® officers. Such services are opportunities to practice communication skills.

The information contained in this plan is to be used as a guide. It is not the intent of this plan to limit the actions of an amateur radio operator who is on site and best able to assess the prevailing conditions. ARES® is organized to provide communication services only. Amateur radio operators on ARES® duty are not expected to serve any other function.

Authenticity of messages is the sole responsibility of the originating authority. Validity of such messages shall be determined by the Department of Emergency Services.

This plan is subject to alterations and/or revisions as required.

II. INTRODUCTION

A. *What is ARES®?*

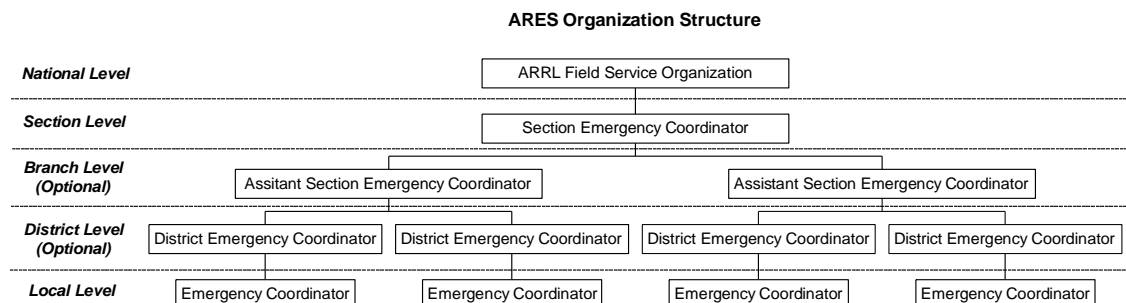
The Amateur Radio Emergency Service®, or ARES® for short, is a program of the Amateur Radio Relay League (ARRL) that consists of licensed amateurs who have voluntarily registered to provide emergency communications during an incident where normal communications may be hindered and could cause loss of life or property.

B. *Who can join ARES®?*

Membership in ARES® is open to any individual who holds a valid Amateur Radio License. All new members are expected to register themselves and their operating capabilities with the Emergency Coordinator (EC) and take part in the training sessions that will be provided. Registration can be done on the NHC ARES website (See Appendix K) or by filling out the ARRL Form FSD-98. All members must keep the EC apprised of any changes in their equipment or amateur status that may affect the operation of ARES® by simply re-registering and providing the new information. Identification cards will be issued to all new members and existing members whose card has expired.

C. *How is ARES® organized?*

There are four levels of ARES® organization: National, Section, District, and Local. At the national level, the ARES® program is under the direction of the ARRL Field and Educational Services Manager, followed by a division director, covering multiple states, and finally a section manager, covering a single state. Within the section, the section emergency coordinator is appointed to lead the ARES® organization within that state. In many cases, the state is divided into branches led by an Assistant Section EC and then into districts led by a District EC, as is the case with North Carolina, while others only use districts which are led by a District EC. North Carolina uses both branches and districts which follow the N.C. Dept. of Emergency Management model. Finally, within each county is a local emergency coordinator. Within the organization, there are also assistant coordinators that can help with the duties of the appointed coordinator(s).



D. Typical duties for each organization level

1. Section Manager (SM)

Appoint staff to cover the areas of emergency communications, message traffic relay, technical activity / problem solving, volunteer monitoring, government relations, public relations in the community, information services for amateurs, and cooperation with affiliated clubs.

2. Section Emergency Coordinator (SEC)

Appoints county Emergency Coordinators, Assistant Emergency Coordinators at the branch level, and District Emergency Coordinators. Promote ARES® membership at the section level. Collect monthly reports and submit summaries to the Section Manager. Serve as liaison at the section level with all agencies served in the public interest.

3. Assistant Section Emergency Coordinator (ASEC)

Recommend candidates for Emergency Coordinator and District Emergency Coordinator to the Section Emergency Coordinator. Assists the Section Emergency Coordinator in his duties at the Branch level. Collect monthly reports and submit to the Section Emergency Coordinator.

4. District Emergency Coordinator (DEC)

Recommend candidates for Emergency Coordinator to the Section Emergency Coordinator. Coordinate the training and participation of Emergency Coordinators within the district. Assist with maintaining contact with governmental and other agencies within the district. Act as Emergency Coordinator for areas without one.

5. Emergency Coordinator (EC)

Recruit for and promote ARES® within the local area. Coordinate the training and participation of amateurs in ARES® within the local area. Establish working relationships with governmental and private agencies in the local area which can benefit from the services of ARES®. Conduct drills to test communication networks. Oversee activations and insure continued coverage during an event.

III. ACTIVATION

A. *What triggers activation?*

An ARES® activation is triggered when a communications outage occurs which can affect life or property. Normally, Emergency Management will respond to the incident and notify ARES® that its services are needed. The Emergency Operations Center (or EOC) is also typically opened depending on the size and nature of the incident. Any representative of a served agency can notify ARES® of the need for its services and cause an activation. The means to do so can be found on the ARES® website <http://www.nhencares.org>.

B. *When and how are ARES® members notified?*

Notification is by phone and/or email to designated ARES® members. The emergency coordinator or assistant coordinators are normally the first to be contacted. The type of incident determines when ARES® is notified. It may not be until a communications outage has already occurred, or it could be in advance of when an outage might occur.

C. *How are individual operators activated?*

Once an activation is initiated, a callout to all ARES® members is made with the conditions of the activation (how many members are needed, what are the operational time-periods, etc.). The callout may be by voice (telephone and/or repeater), pagers, and/or email. For a large scale deployment, a call tree may be also used to provide a better response. If members know of a potential communications outage, they should continuously monitor the ARES® net frequencies.

D. What are the types of activations?

Activation Level 1 – Massive Deployment

EC/AEC schedules are updated to fulfill operator and net control requirements for up to two weeks. All ARES® resources shall be available to support served agencies. All nets and sub-nets observe strict net protocols until Level 1 Activation is rescinded.

Activation Level 2 – Moderate Deployment

EC or AEC deployed to EOC. Call up tree started for ARES® members to establish a 72 hour schedule. EC establishes Net and sets NCS (Net Control Station) volunteers schedule. All ARES® volunteers are asked to be prepared for deployment and monitor ARES® frequencies for instructions.

Activation Level 3 – Minimal Deployment

The EC is to determine the need for volunteers and contact minimal number of ARES® members to gather scheduling information. A net is not required for Level 3 but one may be established at the EC's discretion, at which time a call for NCS volunteers will commence. All ARES® members who are available are asked to monitor ARES® frequencies and be ready for an assignment.

Activation Level 4 – Standby

Standby activation level raises awareness of ARES® volunteers and provides advance notice for members to prepare for possible deployment. There is no requirement for a net to be established. Volunteers monitor ARES® frequencies and check their level of preparedness.

IV. PREPAREDNESS

A. Preparedness at home

Preparedness for ARES® activation begins at the home. If you and your family are not prepared for an incident, then you will not be ready for a deployment. Your home and your family must be safe prior to your deployment. There are numerous preparedness guides available. An example guideline can be found in the Appendix.

If you will be sheltering at home and can provide assistance, a good working amateur radio station is needed. This station should include emergency power (generator and/or battery backup) in addition to access to an indoor or attic mounted antenna. If this is not a primary operating station, the station should be periodically tested every year to insure its continued operation and availability. All radios that you may use in a deployment should be programmed with the ARES® operating frequencies as listed in the Appendix.

B. Preparedness to be deployed

ARES® has adopted the use of the Anderson Powerpole for all connections between a power source and a piece of equipment. Any equipment requiring 12 VDC that will be part of a deployment should be fitted with a powerpole to assure its use will be possible at a location where equipment is already available. Some deployment locations may already have power supplies and/or radios that are fitted with these connectors. If you have a radio that you would prefer to use, having a powerpole connector on it will allow you to simply plug it into any existing 12 VDC power source. Be sure that the connector orientation is correct (see Appendix for diagram).

Check the contents of your ARES® Go-Kit to insure all necessary items are in the kit. Replace any alkaline batteries suspected of being out of date and charge all rechargeable batteries. Rechargeable batteries should be periodically tested to insure continued performance. Over time, such batteries may develop a memory or no longer hold a charge at which time they should be discarded.

1. New Hanover County Emergency Operations Center

The EOC has all the equipment needed for activation. This equipment is tested periodically to be sure it is in working order. Some minimal equipment may be taken by a member if they are not comfortable operating the EOC equipment. A large capacity power supply equipped with Anderson Powerpoles is available if any member desires to bring their own radio equipment. A laptop computer capable of connecting to a wired or wireless LAN should be taken to be able to use the WebEOC system. Is it also desirable that the laptop be capable of using the Winlink 2000 system (using Airmail) installed at the EOC as well as Echolink.

2. Shelter

All shelters are equipped with a standard antenna jack connection with an SO-239 connector. The jack is a covered box mounted on the wall with an ARES® Logo on the face and the antenna connection on the bottom. Members should take their own power supply, radio, and length of coax sufficient to reach the jack from an operating position. The operating position may at times be moved from the position determined when the jack was installed. Therefore, always plan for changes in operating positions by having a 20+ foot length of RG-8x or equivalent coax available.

3. Other

All other places where a deployment may occur will require a complete radio setup including an antenna, radio, coax and cables, and power source. A commercial power source may not always be available during a deployment. A large capacity battery at a minimum should always be maintained and be available. A long term deployment may give the opportunity to have a generator available for power.

V. OPERATING GUIDELINES

A. Safety Concerns

1. Home and Family

Safety is of the utmost concern during an incident. If you are not comfortable traveling in inclement weather or you do not feel safe staying during an incident, you and your family should seek shelter in a safe location. If you must travel in inclement weather, drive very cautiously and do not attempt to be in communications either on a cell phone or on the radio while the vehicle is in motion. Pull off the road and stop before attempting to make any type of communication.

2. While deployed

a) New Hanover County Emergency Operations Center

At the EOC, your safety is important, but is mostly handled by the building itself. The building is able to withstand very high winds and is resistant to lightning strikes. Your safety at the EOC depends largely on the duties you perform while there. For instance, do not assume you can go outside and put up an antenna in the middle of a storm. That would compromise your safety. Instead, get there early if possible to setup any additional equipment that is needed. If that is not possible, do what you can inside and let a superior know of any limitations in your communications ability.

b) Shelter

At a shelter, your safety is paramount. It is your responsibility to perform any duties you have in a safe manner. During an incident, you may not be able to receive proper medical treatment should an accident occur. Careful planning should be used to avoid accidents. Always get help when needed and tell someone where you are going if you leave your position even if it is not far away. Similar to being at the EOC, never assume you can erect an antenna upon arrival. You may be arriving under adverse weather conditions that will prevent you from working outside. Always be prepared with extra equipment such as a portable antenna that may work indoors.

c) Other

Any other location where you may be deployed will have the same concerns. If you are in a location that is not managed by an agency, such as in a public location, your ability to receive medical treatment will be greatly reduced depending on the incident. You should always have a second person deployed with you to assist when necessary and to give you relief when you need it.

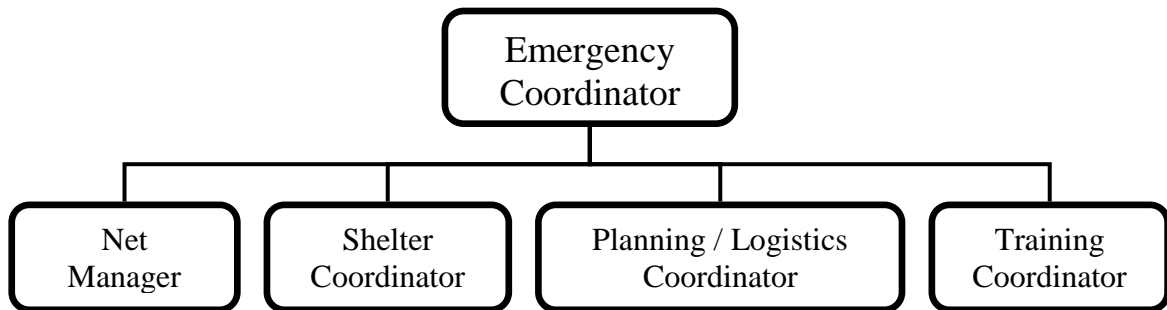
B. Notification Procedures

ARES® members should be notified far enough in advance for them to be able to secure their house and family, gather any needed belongings and radio gear, and travel to the deployment location. When notification is given, any details about the situation for which they are being deployed should be given. Those details should include the potential length of the activation, whether there will be other members also deployed to the same location for relief, and what radio gear is needed for proper operation at the deployment location if that is known.

If possible, an email to the ARES® email list (nhncares@yahoo.com) should be sent first to provide an archive of the situation and allow those members who can regularly check their email but may not be near a radio, to hear a net operation. Next, an ARES® net should be started on the primary ARES® net frequency (or a secondary if the primary repeater is not operating). Depending on the situation and how much time is available before adverse conditions arise, the net should be operated in either standby or active mode. If there is a lack of response after sufficient time or if an emergency exists, members should be notified by telephone, cell phone, or pager if available. If you are acting as net control, then once someone else has been contacted, instruct them to begin a call-down while you return to net operations. The ARES® net is the primary means for contacting members and recording their availability and status.

C. Assignments

1. ARES® Organization chart



2. Position responsibilities

a) Net Manager

This person is responsible for ARES® net operations and should insure that a net control operator is available each week for the ARES® net as well as during an activation. He/she should make the decision for which repeaters or frequencies will be used for net operations and will be responsible for proper conduct and etiquette during the net. While not running the net, he/she may also act as a liaison into other emergency nets.

b) Shelter Coordinator

This person is responsible for insuring radio equipment installed at shelters is operational by conducting a yearly inspection and test of all equipment prior to hurricane season. In addition, this person is responsible for continued coverage at each shelter during an activation. There should be at least one operator for each shelter plus relief operators scheduled for the next operational period. Each operator should be familiar with the shelter they are being deployed to and have the proper training requirements.

c) Planning / Logistics Coordinator

This person is responsible for planning prior to and during events. Throughout the year, drills should be planned and conducted. The plan for the yearly Simulated Emergency Test should be made. In addition, this person is responsible for logistics including insuring operators being deployed have the necessary equipment. If they do not, the necessary equipment should be located and delivered to the deployment location.

d) Training Coordinator

This person is responsible for insuring all ARES® members have the necessary training as required by the ARES® organization.

3. Qualifications and Training Requirements

a) ARES® Membership

Membership in ARES® is open to every licensed amateur. The only qualification is to have a desire to serve with ARES®. Opportunities within the organization vary greatly and there is a place for everyone. However, if you are willing to be deployed during an activation which involves an emergency, you will be required to have additional minimum training as detailed below. Without such training, you would only be able to help during an event in certain capacities, such as with net operations or logistical needs.

b) Deployments

(1) *New Hanover County EOC*

Any ARES® member who will be deployed to the Emergency Operations Center (EOC) is required to have a minimum set of training which includes:

- ICS-100, Introduction to Incident Command System (ICS)
- ICS-200, ICS for Single Resources and Initial Action Incidents
- ICS-700, Introduction to National Incident Management System (NIMS)
- ICS-800.A, Introduction to National Response Plan

In addition, anyone deploying to the EOC should have at least an understanding of the WebEOC software that is used by Emergency Management together with all reporting agencies.

(2) *Shelter*

Any ARES® member who will be deployed to a shelter is required to have a minimum set of training which includes:

- ICS-100, Introduction to Incident Command System (ICS)
- ICS-700, Introduction to National Incident Management System (NIMS)

(3) *Other*

Any ARES® member being deployed to locations where interaction with emergency management or a government official is possible will be required to satisfy the same requirements as the EOC. Any other location will not require any special training unless specified at the time of the deployment.

4. Assignment procedures

Before any member is assigned for deployment, they should be sure their home and family are safe and secured. Should anything happen during an activation, it may not be possible to travel from the deployment location back home or even to a shelter. They should be prepared to shelter in-place at the deployment location. All members should refer to the Go-Kit details in the Appendix for a suggestion on what to bring to the deployment location.

Prior to being assigned for deployment, the ARES® member's minimum training requirements must be verified. The requirements are maintained by the Emergency Coordinator and reflected in the ARES® Online Membership Database available on the website. In addition, the person should confirm they have the proper equipment necessary to operate at the deployment location. Refer to the preparedness section in addition to the Go-Kit suggestions in the Appendix.

A log should be kept at all times by the Emergency Coordinator or his designee detailing who has been assigned for deployment. Refer to the Operational Procedures for details on what to log.

D. Deployment

1. Rapid Response Team

The Rapid Response Team concept allows for timely response to an emergency. The objective is to give a limited response within the first hour, followed with a more complete response within a few hours. The teams are grouped into two levels, Level I provides the immediate response, and Level II provides the extended response. For this concept to work, it must be exercised periodically to insure an adequate and timely response. While this type of response is not always needed, it is a best practice to have available.

a) Level I

The Level I Rapid Response Team (RRT) provides a quick response (within an hour) to an immediate communications outage. Team members may have a complete equipment setup ready to use with them at all times, but typically this response is to the EOC which has radio equipment ready to use at any time. Using personal equipment gives the risk of a more limited response since not all members may have HF equipment or digital equipment that may be needed.

This response is called out through the ARES® leadership after having been contacted by a served agency. A callout of Level II members should immediately follow to provide relief for the Level I members.

b) Level II

The Level II Rapid Response Team provides a response within a few hours (3 to 5 hours ideally) and is available for field deployments. They have a little more extensive equipment selection and have longer term deployment kits (24 to 48 hours or longer).

This response can be called out by the Level I RRT members or by ARES® leadership.

2. Shift duration

All operational shifts are assumed to be 12 hours. Rapid Response Teams may have a shorter shift time depending on RRT member availability.

3. Demobilization

All ARES® members participating in an event should document all important details of the event. All activities and communications should be time stamped and written on proper forms or entered into the WebEOC system.

All borrowed equipment should be re-packed and taken back to where it was obtained.

a) Forms submittal

All written notes, messages, logs, etc. should be submitted to the Emergency Coordinator. Any electronic correspondence not available in the WebEOC system should also be submitted to the EC.

b) After action report

All recorded information for the event and information on the overall response of the organization should be compiled and put into a report. That report is submitted to Emergency Management for use in the debriefing.

c) Debriefing

Emergency Management usually conducts a de-briefing meeting following an activation to discuss the overall response. This gives all agencies a chance to learn about problems that arose and how to potentially avoid them in the future. Inter-agency communications are also reviewed and criticized. In most cases, only the Emergency Coordinator or the designated AEC for the event needs to attend the de-briefing.

E. Communications Plan

1. Frequency list

See the appendix for a current emergency communications frequency list.

2. Local area communications

Always remember, any transmissions over the airwaves can be monitored by anyone, including the media. It is vital that all transmissions remain as professional and courteous as possible. Information given to an ARES® member within the confidence of a served agency should not be transmitted over the air without consent from the agency. Always use good judgment in determining what information should be given out over a repeater. Never give out details of an evacuee at a shelter unless specifically asked to do so. If an evacuee asks to have health and welfare traffic sent, be sure to inform them of the possibility that personal information could be obtained by unsuspecting people who could use it to do harm.

a) Repeater etiquette

- Use minimum power necessary (conserves battery power)
- Place a 2-3 second pause between exchanges to allow for stations to break in with emergency or priority traffic
- Listen more than talk (unnecessary communications may deplete valuable resources such as battery power at a repeater site)
- Think before you speak (clear concise communications are key)

b) Disaster communication principles

- Avoid spreading rumors (repeat only known facts and do not modify a message unless authorized)
- Authenticate all messages (if it came from an official, be sure to get the message written with a signature and date/time stamp)
- Avoid initiating disaster or emergency traffic not from an official
- Be rested when transmitting (avoids common mistakes)
- Select the proper mode and band for the transmission
- Do not broadcast information unless requested to do so
- Do not use Q signals unless transmitting using Morse code

3. Message/Traffic handling

All NTS traffic should be handled on a designated frequency or repeater. Emergency and Priority traffic should always be handled first. Health and Welfare traffic should always be held until no other Emergency or Priority traffic is being passed. No routine traffic should be passed on an ARES® net. To expedite operations for outgoing traffic, a NTS traffic net liaison should be designated to collect and prioritize traffic and send through a normal NTS net.

Any messages that will be written (NTS traffic) and delivered to a non-ARES person should be done so on the proper form, normally an ICS-213. Any message given verbally that is to be transmitted should be written and verified by the originator prior to transmission to reduce errors. Any message given to an ARES® operator on an ICS-213 form that is going to an outside location should be formatted using an ARRL radiogram prior to transmitting to an NTS net. A copy of all messages should be maintained by the ARES® operator and submitted to the EC at the end of the activation.

UNDER NO CIRCUMSTANCE SHOULD PERSONALLY IDENTIFIABLE INFORMATION BE TRANSMITTED OVER THE AIR WITHOUT THE EXPLICIT PERMISSION OF THE ORIGINATOR.

Addresses, Phone Numbers, Email Addresses, etc. of evacuees should never be transmitted over the air unless the evacuee gives explicit permission to do so. Shelter evacuee lists containing such information should only be sent in a secure digital form (not via ham radio). If a secure means is not available, the information should be sent using a digital mode that is least likely to allow interception by an unauthorized third-party. If this is done, it should be agreed upon by both parties that the information could be compromised.

F. Operational procedures/protocols

1. Net operation

An ARES® designated net should be started when an event includes an activation of the EOC. The net should stay in operation until released by emergency management or an ARES® official.

a) Standby Mode

When an ARES® net is in standby mode, normal communications on the repeater may continue, but additional time should be given between transmissions to allow for net control to break in and give important announcements if needed. The net control operator should periodically (no more frequently than every 10 minutes but no longer than 1 hour) announce that the net is operating in the standby mode and give identification and a current status of the situation. Also during this time a query of available ARES® members should be performed and written into a log in case there is a need to deploy. This will reduce the time necessary to deploy ARES® members.

b) Active Mode

In active mode, an ARES® net is in full operation and all other communications should be moved to an alternate repeater. In this mode, the purpose of the net becomes to stay in contact with each deployment location and provide information of importance to the event. The net should be periodically (about every 10 minutes) polled for any others who are listening and can provide additional support or information. Any tactical or routine communications should be moved off to an alternate repeater if possible. Emergency and Priority traffic may be moved through the net and takes priority over other transmissions.

2. Message formats

a) ARES® Operational Messages – Station Log

Net Operations (check-ins, check-outs)

b) ARES® Tactical Messages – Unit Log

Deployments, Assignments, Logistical needs

c) Shelter Messages – ICS-213

Shelter status, Shelter needs, etc.

d) Health and Welfare / Formal Traffic – ARRL Radiogram

Evacuee health and welfare messages, NTS traffic

3. Documentation

Good documentation is the most important aspect of providing emergency communications. Every message, log entry, and important event should be written down together with a date and time. While at the EOC or deployed location with Internet access, the WebEOC system will capture the date and time automatically. If the WebEOC system is not available or not accessible, a paper log should be maintained. Where possible and practical, ICS forms should be used for all logging. All formal messages should be written on the appropriate form and a copy of the message retained. Be clear on the time zone used for recording events. If using local time, be sure to indicate AM or PM or use military time. If using UTC time, be sure to indicate you are using such time by appending Z to the time.

VI. APPENDIX

A. Training Opportunities

Any training received that benefits ARES® should be documented and sent to the EC or a designated assistant. If a certificate of completion is available, it should also be sent.

1. ARES® Net

The ARES® net provides a means to train for net operations during activations. Having a member act as net control from time to time allows that person to become more comfortable with the role of net control. The net also provides a means to practice passing formal traffic. On occasion, a simplex net may also be called to test everyone's ability to switch to a simplex frequency and to find what distances your station can reach. It is also a great opportunity to practice relaying messages since not all stations may be able to hear each other.

2. Drills

Drills are conducted annually to test a response to a simulated incident. Drills can either be tabletop only or could be a full scale deployment. Every ARES® member should participate in drills so an accurate response evaluation can be performed. Public service events can also be used as a drill for practicing net operation skills.

3. Instruction

At certain times, instruction is given on various topics such as traffic handling, antenna design and safety, packet operations, and NIMS/ICS training. Members should always take advantage of any instruction provided free of charge.

B. Frequency Plan

1. Local ARES® Repeater Resources

Trustee Callsign	Frequency +/- (Tone)	Function
AD4DN	146.670- (88.5)	Primary ARES® Repeater
AD4DN	224.500- (88.5)	Secondary ARES® Repeater
AD4DN	443.400+ (88.5)	Secondary ARES® Repeater
AD4DN	53.43- (88.5)	Secondary ARES® Repeater

At **NO** time should other repeaters be used for ARES® business without explicit permission from the trustee to do so for the particular event.

2. VHF/UHF Simplex Frequencies

The following frequencies are suggested to be used for ARES® if no repeater resource is available or to conduct tactical traffic:

Frequency	Function
146.520	National Calling Frequency
146.525, 146.535, 146.550	Typical VHF Simplex Frequencies
145.500-145.800 146.400-146.610 147.390-147.600	Band Plan for VHF FM Simplex
446.000	National Calling Frequency
433.000-435.000 445.000-447.000	Band Plan for UHF FM Simplex

Any available FM simplex frequency can be used as long as all those involved in ARES® communications have a way of knowing which frequency will be used.

3. HF Frequencies

Frequency (Mode)	Function
3.923 Mhz (LSB)	Tarheel Emergency Net Primary
7.232 Mhz (LSB)	Tarheel Emergency Net Secondary
14.325 Mhz (USB)	Hurricane Watch Net (active when hurricane within 300 miles of land)

Since HF frequencies are not coordinated, the net may move up or down in frequency, but will stay as close as possible to the listed frequencies.

4. Digital Frequencies

The following are suggested packet frequencies for various functions:

Frequency	Function
144.390	Automatic Position Reporting System (APRS)
144.900-145.200	Band Plan for Digital
145.770	Emergency Digital Communications

5. IRLP/Echolink Nodes

The National Hurricane Center uses the conference “WX-TALK”, node 7203, during an activation of the center. In addition, the IRLP node 9219 may be used. Current information on how to contact the center can be found at the website <http://www.wx4nhc.com>. Any net operating will normally request that stations do not attempt to talk to net control unless called upon for reports. There may be a large number of stations listening to these nodes for information and all transmissions should be short and to the point to allow others to give their reports in a timely manner.

C. Served Agencies

1. Response Categories

a) Tier 1

New Hanover County ARES® provides equipment and operators.

b) Tier 2

New Hanover County ARES® provides equipment and operators if available, but agency is encouraged to seek their own radio operators.

c) Tier 3

The agency is responsible for providing its own equipment and radio operators.

2. List of Served Agencies

a) New Hanover County Department of Emergency Management

Address:

220 Government Center Drive (may be referred to as Market Place Drive)
Wilmington, NC 28403

Director: Warren Lee

Emergency Management Specialist: Wayne Pearce

Phone Number: 910-798-6900

Fax Number: 910-798-6904

ARES® Response Category 1

Amateur Radio Equipment Details:

Kenwood TS-2000 for HF/VHF/UHF voice

Diamond X-200 Dual Band (VHF/UHF) Antenna

Icom IC-718 for HF digital

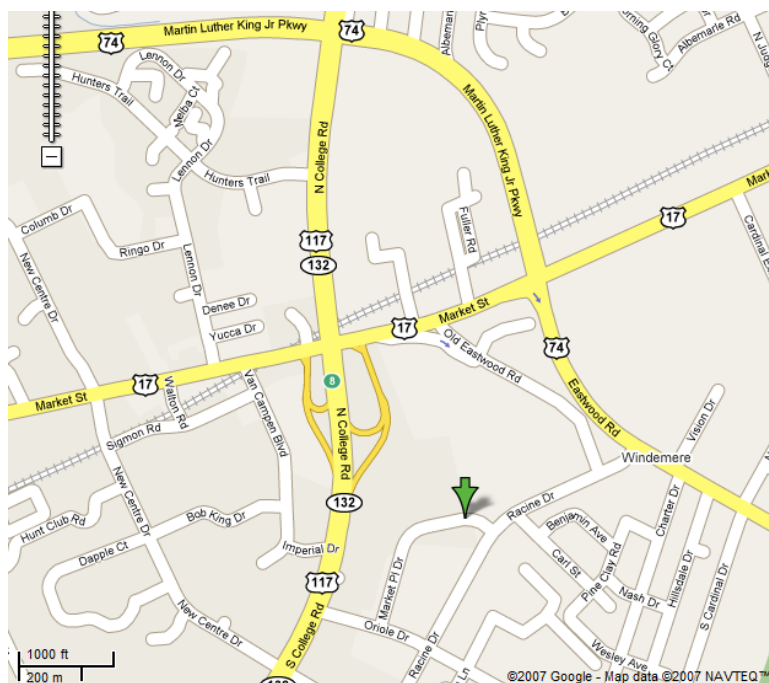
Icom IC-208H for VHF/UHF digital

SCS PTC-II Pro with packet module

LDG Z-100 Autotuner

Diamond V-2000A Tri Band (6m/2m/70cm) Antenna

Diamond X-3200A Tri Band (6m/1.25m/70cm) Antenna



Current MOU

Memorandum of Understanding

New Hanover County Department of Emergency Management and New Hanover County Amateur Radio Emergency Service

Foreword

The Amateur Radio Emergency Service (ARES®) is composed of licensed Amateur Radio operators who volunteer their time and equipment for public service at no cost to the public. A primary responsibility of ARES, as established by Part 97 of the Federal Communication Commission's regulations, is the rendering of public service communication in times of emergencies, when normal communications are not available. ARES volunteers provide a pool of trained communicators and equipment for a variety of communications needs.

Purpose

The purpose of this document is to establish a Memorandum of Understanding (MOU) between the New Hanover County Amateur Radio Emergency Service (NHC ARES) and the New Hanover County Department of Emergency Management (NHCEM). This MOU will serve as a framework within which the volunteer personnel of NHC ARES may coordinate their services, facilities, and equipment with the New Hanover County Department of Emergency Management in support of emergency communications.

When an emergency occurs, NHC ARES may be asked to furnish emergency communication assistance to:

1. Provide information from the SKYWARN Network;
2. Provide communications for damage assessments;
3. Provide communications with emergency shelters;
4. Provide communications with the NC Emergency Operations Center;
5. Provide assistance with communications for the public safety agencies.

Radios, antennas and cabling will be furnished and installed by NHCEM at the Emergency Operations Center for emergency communication operations. NHC ARES will be allowed to use the equipment during their training or field days, as long as the equipment does not interfere with the Public Safety radio system(s) installed in the New Hanover County Emergency Operations Center.

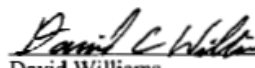
Activation

NHCEM will be the primary contact for activation. NHCEM personnel will attempt to make contact in the following order: the ARES Emergency Coordinator, Assistant Coordinator or other personnel as designated to NHCEM. It is the Emergency Coordinator's responsibility to maintain an up-to-date roster on file at NHCEM. NHC ARES will be provided a position and privileges in the EOC the same as other agencies staffing the NHC EOC. NHCEM understands that NHC ARES has no binding hold or sway over its volunteer workers and as such can only respond to the extent expressed by its membership.

Review/Approval

This agreement is to be reviewed annually and may be amended at any time as agreed to by the signatories. The effective date shall be the date of the last signature.

 Date 7/12/07
Warren Lee
Director
New Hanover County
Department of Emergency Management

 Date 7/12/07
David Williams
Emergency Coordinator
New Hanover County
Amateur Radio Emergency Service

b) Cape Fear Chapter of the American Red Cross

Address:

1102 S. 16th Street
Wilmington, NC 28401

Executive Director: Vicki LaBelle

Emergency Services Director: Victoria Kling

Phone Number: 910-762-2683

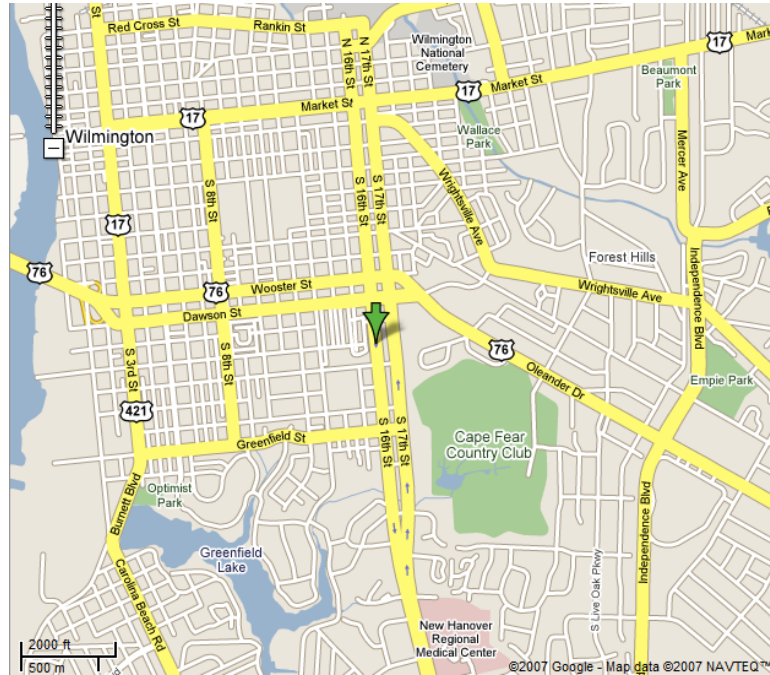
Fax Number: 910-343-5850

ARES® Response Category 2

Amateur Radio Equipment Details:

Kenwood TS-570S 6m/HF

Yaesu FT-8800R 2m/70cm



c) Others

Requests to activate other centers of operation will be evaluated based on the need and availability of ARES® operators. Such centers should prepare themselves by purchasing amateur radio equipment and training their staff in its use. If this is not feasible, then an agreement should be established with New Hanover County ARES® to provide coverage when needed.

ARES® Response Category 3

D. Shelter Operations

1. Dorothy B. Johnson Elementary School

Address:

1100 MacRae St.
Wilmington, NC 28401

Principal: Tammy Harvey

Phone Number: 910-251-6155

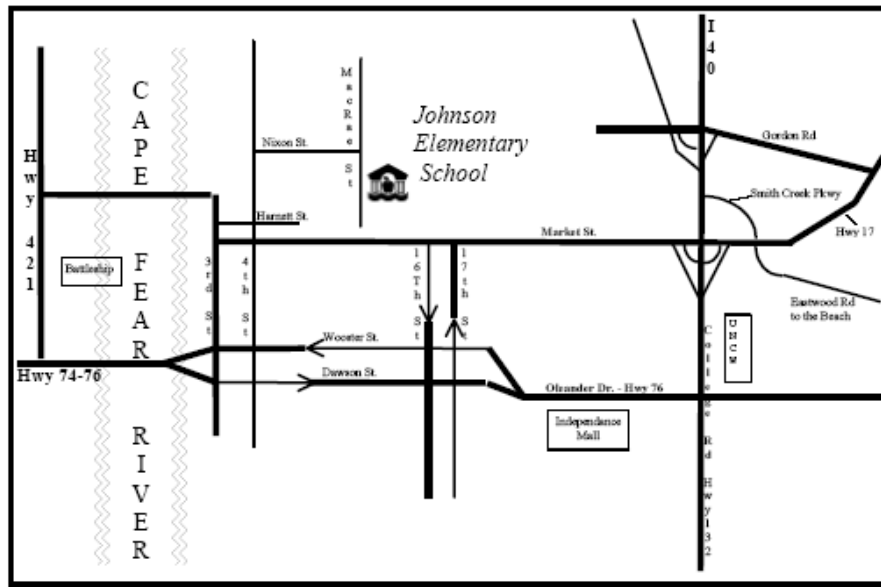
Fax Number: 910-251-6050

ARES® Response Category 1



Johnson Elementary School

1100 MacRae St., Wilmington, NC
(910) 251-6150



Directions:

From Hwy. 74-76, 421

Cross Cape Fear River (Memorial Bridge), Enter Wilmington by way of Dawson St.

1. Turn left onto 3rd. St.
2. (Cross Market St.) Turn Right on Harnett St.
3. Turn left on 4th St.
4. Turn right on Nixon St.
5. Turn right on MacRae St

Dorothy B. Johnson Elementary School will be behind some trees to your left.

From I-40

I-40 turns into College Rd (Hwy. 132)

1. Turn right onto Market St. (Hwy 17-south bound)
2. Turn left onto 3rd. St.
3. (Cross Market St.) Turn Right on Harnett St.
4. Turn left on 4th St.
5. Turn right on Nixon St.
6. Turn right on MacRae St

Dorothy B. Johnson Elementary School will be behind some trees to your left.

2. Eaton Elementary School

Address:

6701 Gordon Rd.
Wilmington, NC 28411

Principal: Heather Byers

Phone Number: 910-397-1544

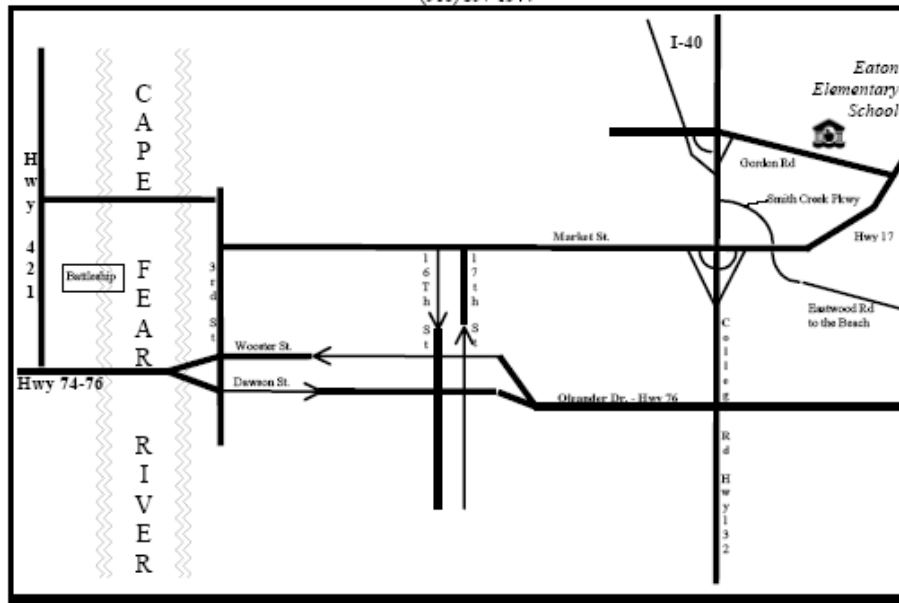
Fax Number: 910-397-1546

ARES® Response Category 1



Eaton Elementary School

6701 Gordon Rd, Wilmington, NC
(910) 397-1544



Directions:

From Hwy. 74-76, 421

Cross Cape Fear River (Memorial Bridge), Enter Wilmington by way of Dawson St.

1. Continue on Dawson St., following Hwy. 76. Hwy. 76 will turn onto Oleander Dr.
2. Follow Oleander Dr. to College Rd.
3. Turn left onto College Rd.
4. Take Gordon Rd exit from College Rd/I-40.
5. Turn right onto Gordon Rd.

Eaton Elementary School will be on your left.

From I-40

I-40 turns into College Rd (Hwy. 132)

1. Take Gordon Rd exit from I-40. (You will circle around to face Gordon Rd.)
2. Turn right onto Gordon Rd.

Eaton Elementary School will be on your left.

3. Noble Middle School (Pet Friendly Shelter)

Address:

6520 Market St.
Wilmington, NC 28405

Principal: Wade Smith

Phone Number: 910-350-2112

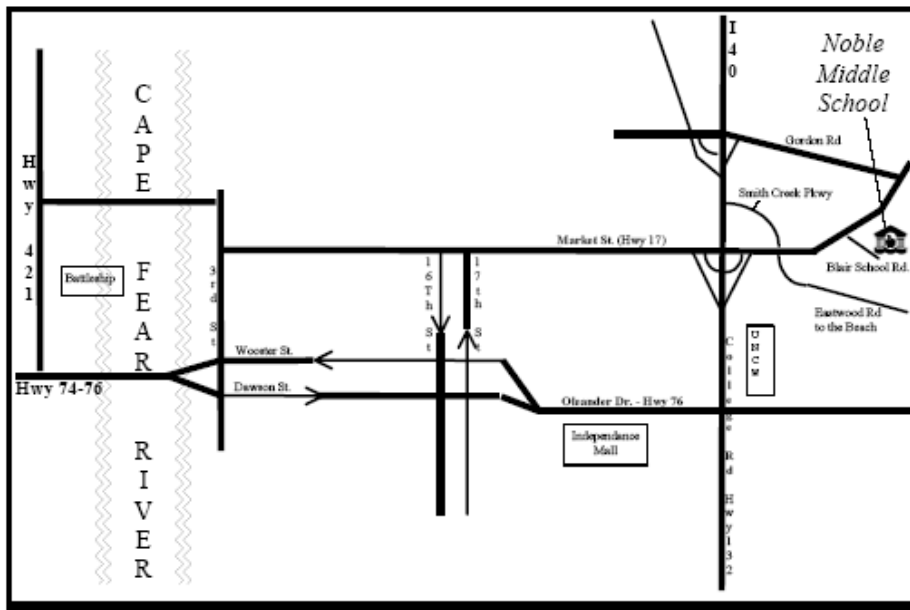
Fax Number: 910-350-2109

ARES® Response Category 1



Noble Middle School

Blair School Rd (6520 Market St), Wilmington, NC
(910) 350-2112 for assistance



Directions:

From Hwy. 74-76, 421

Cross Cape Fear River (Memorial Bridge), Enter Wilmington by way of Dawson St.

1. Continue on Dawson St. following Hwy 76. Hwy 76 turns right onto Oleander Dr. after you cross 17th St.
2. Turn left onto College Rd.
3. Take the Market St (Hwy 17) exit from College Rd.
4. Turn right at the light onto Market St.
5. Turn right onto Blair School Rd. (at the light just past Tysinger Furniture).

Noble Middle School will be on your left past Blair Elementary School.

From I-40

I-40 turns into College Rd (Hwy. 132)

1. Take Market St (Hwy 17) exit from College Rd. (You will circle around to face Market St.)
 2. Turn right onto Market St. (Hwy 17)
 3. Turn right onto Blair School Rd. (at the light just past Tysinger Furniture).
- Noble School will be on your left past Blair Elementary School.

4. Codington Elementary School

Address:

321 Carolina Beach Rd.
Wilmington, NC 28412

Principal: Budd Dingwall

Phone Number: 910-790-2236

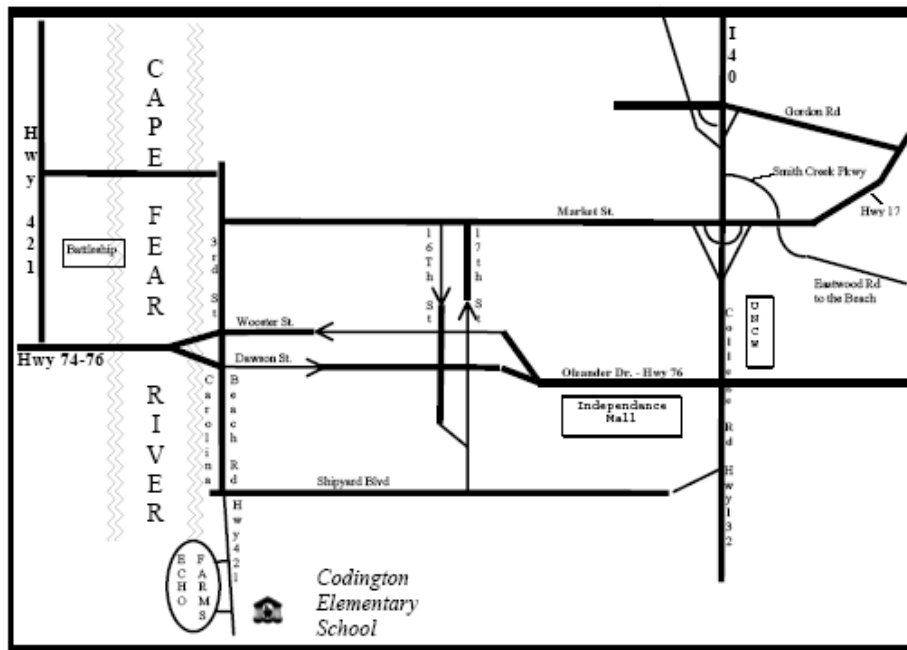
Fax Number: 910-790-2238

ARES® Response Category 1



Codington Elementary School

4321 Carolina Beach Rd. (Hwy. 421), Wilmington, NC
(910) 790-2236



Directions:

From Hwy. 74-76, 421

Cross Cape Fear River (Memorial Bridge), Enter Wilmington by way of Dawson St.

1. Turn right at the 3rd St. light. Follow Hwy. 421.
2. Hwy. 421 turns into Carolina Beach Rd.
3. Cross Shipyard Blvd.

Codington Elementary School will be on your left across from the 2nd entrance to Echo Farms.

From I-40

I-40 turns into College Rd (Hwy. 132)

1. Follow College Rd. south.
2. Turn right onto Shipyard Blvd.
3. Turn left onto Carolina Beach Rd (Hwy. 421).

Codington Elementary School will be on your left across from the second entrance to Echo Farms.

5. Trask Middle School

Address:

2900 N. College Rd.
Wilmington, NC 28405

Principal: Sharon Dousharm

Phone Number: 910-350-2142

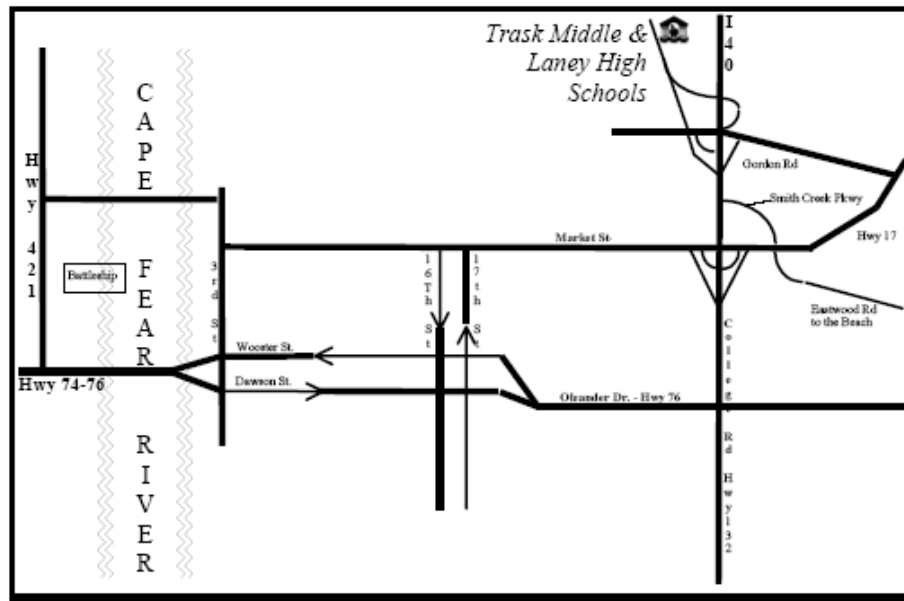
Fax Number: 910-350-2144

ARES® Response Category 1



Trask Middle & Laney High School

Trask - 2900 North College Rd (Hwy 132), (910) 350-2142
Laney - 2700 North College Rd (Hwy 132), (910) 350-2089
Wilmington, NC



Directions:

From Hwy. 74-76, 421

Cross Cape Fear River (Memorial Bridge), Enter Wilmington by way of Dawson St.

1. Continue on Dawson St., following Hwy. 76. Hwy. 76 will turn onto Oleander Dr.
2. Follow Oleander Dr. to College Rd.
3. Turn left onto College Rd.
4. Take Hwy 132 exit from College Rd/I-40. You will merge onto College Rd/Hwy 132.
5. Turn right at 2nd stoplight.

Trask Middle School will be on your left. Laney will be on your right.

From I-40

I-40 turns into College Rd (Hwy. 132)

1. Take Hwy 132 exit from I-40. You will circle around to end up facing Gordon Rd. Go straight.
2. Continue on College Rd/Hwy 132. Turn right at 2nd light.

Trask Middle School will be on your left. Laney High School will be on your right.

E. Insurance Coverage

ARES® members are to be fully aware and acknowledge that their participation in ARES® is voluntary and New Hanover County is not liable in the event of any unfortunate circumstances.

As such, ARES® members understand that in the event of an injury or death, the volunteer's individual insurance company is the primary insurer. ARES® members are not considered employees of New Hanover County for purposes of health, workman's compensation, or accident insurance. However, as funds are made available to the Department of Emergency Management, and suitable insurance policies are identified, a secondary accidental death and dismemberment policy may be made available to ARES® volunteers.

F. Anderson PowerPole Connectors

(Courtesy of WAKE ARES®)

Assembling Anderson Powerpole connectors is a relatively simple task. There are two main components: the colored plastic housing and the electrical contact.

Colored housings. The plastic housings can be mated to form multiple conductor connector assemblies. In the current case, we will build two-conductor assemblies comprised of one Red and one Black housing and two contacts and one locking pin. See Figure 7 at the end of this document.

Contacts. The contacts may be attached to individual wires by soldering or crimping. The following outline may be helpful in avoiding problems. Note that this is specific to the 30A contacts, but is also applicable to the 15A contacts. The 45A contacts require an additional step to close the sleeve around the wire before soldering or crimping.

Soldering. Attaching wires to Powerpole contacts by soldering is a simple task. There is one preliminary step that will greatly ease the process and that is to "flux" the exposed conductor before beginning the soldering process. This can be easily accomplished by using a "flux pen" (available at Radio Shack) or a non-corrosive liquid flux (preferably water based) prior to inserting the wire into the open contact end.

After stripping the insulation from the wire end, flux the bare end and insert into the open end of the contact. Apply the heated iron tip to the side of the contact barrel and carefully apply small diameter solder to the wire/contact junction at the open end of the contact. Be careful to avoid getting solder on the lip of the contact. Clean the contact to remove any excess flux and insert into the plastic housing.

Crimping. Contacts may be readily crimped onto bare wires by a number of tools. The Anderson full-cycle ratchet tool produces the best joint, but the cost is prohibitive for most Amateur Radio operators and clubs. Other suitable (but not full-cycle ratchet type) tools can produce good joints, given a measure of care. Among these useful tools are those manufactured by Klein, Gardner-Denver and Harbor Freight. After using all of those mentioned, I prefer the Harbor Freight 36411 tool, for a number of reasons, not the least of which is its \$6 cost. It also has, in addition to a properly sized anvil/die, a forged round forming section that is ideal for fixing mistakes.

The principal contribution to failure when crimping these contacts is allowing the width of the contact to expand during the process. This results in a contact that cannot be properly inserted into the plastic housing. If the crimping tool die is improperly sized (i.e., too big), the contact diameter will be enlarged as it is crimped or will become "flattened" during the process.

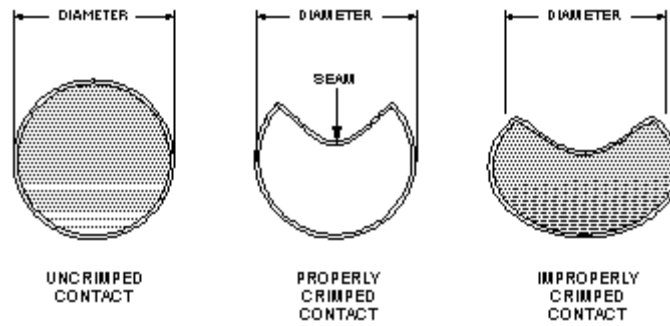


Figure 1

The first step in avoiding damage to a contact while crimping is to carefully align the contact into the tool before inserting the wire. I prefer to insert the contact into the anvil/die such that the seam of the contact barrel is adjacent to the die. (Explicitly, this means that the contact is placed into the crimping tool with the seam of the barrel facing the "pointed" side of the crimper). The seam side will be pressed into the wire as the tool is closed. This results in the least enlargement of the diameter of the contact as pressure is applied.

Wire preparation. Prior to soldering or crimping, you must first remove the insulation from the wire. A properly sized wire-stripping tool will make this task easy. For wire sizes 12-14 AWG, strip 1/4 inch of insulation from the conductor. See Figure 2

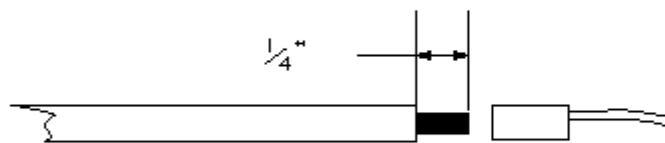


Figure 2

If you need to attach wires smaller than 14 AWG to a 30A contact, you should strip a longer length, fold the bare conductor in a "Z-fold" fashion and insert the multiple folds of the wire into the contact barrel. This will help to prevent flattening of the contact when it is crimped. See Figure 3

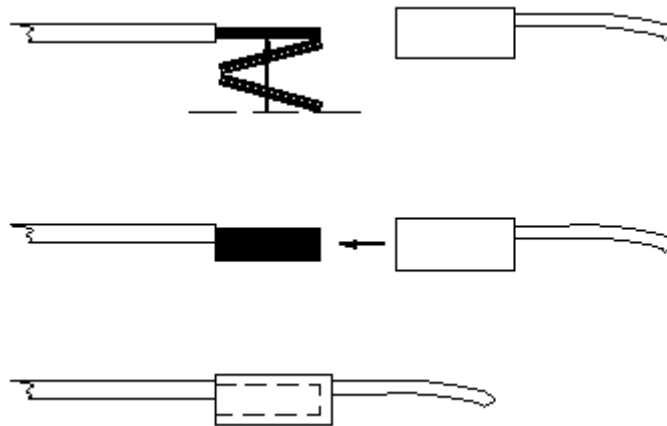


Figure 3

Crimping Tool. The 36411 tool from Harbor Freight (www.harborfreight.com) is shown in Figure 4, below. For those fortunate enough to have a local Harbor Freight store, you can sometimes find this tool on sale for \$4.



Figure 4

Figure 5 below shows the crimping die and anvil (right side of the jaw) as well as the circular forming section. The die is the part that indents the contact while the anvil side maintains the round shape. The round forming section may be used to reshape a contact that has been distorted during the crimping process.



Figure 5

The following photograph shows the anvil and die when the tool jaw is open.



Figure 6

A complete Powerpole connector assembly is shown below in Figure 7.

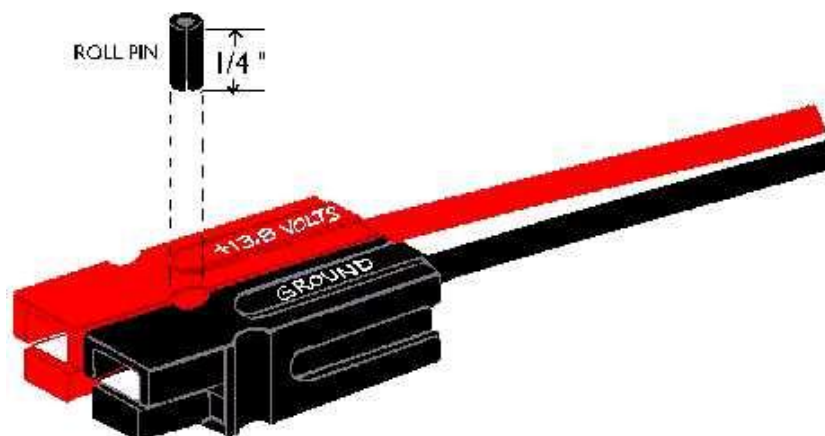


Figure 7

G. Go-Kit

The following are recommended contents for a Go-Kit - a kit (box, book bag, suitcase, etc.) containing equipment and supplies that are needed or may be needed during the course of a deployment.

Radio Equipment

- Handheld radio and antenna (dual-band if possible, dual-vfo is best)
- Batteries for the radio (in addition to original rechargeable battery, good to have a battery pack that takes alkaline or equivalent batteries along with a good supply of those batteries)
- 12V DC adapter (best) or AC charger for radio
- Manual for the radio
- Copy of your FCC amateur radio license
- ARES® identification badge
- Higher gain antenna such as J-Pole or mag-mount vertical and counterpoise if needed
- Coax cables (Coax length should be sufficient to reach from radio to antenna where necessary – suggested to have a couple lengths: 10 ft, 25ft)
- Coax cable adapters (always have a an adapter from your radio's antenna connector to a SO-239 for connection to standard coax jumpers or antennas – you should also have barrel connectors, PL-259 to PL-259 and SO-239 to SO-239, for when an extension is needed)
- Remote microphone and headphones or a good quality headset (highly recommend)
- Basic electronic repair tools and supplies (wire cutters, small soldering iron and solder, random lengths of various gage wire, electrical tape, etc)

Supplies

- ARES® Field Resources Manual
- FCC Rule Book
- Repeater directory
- Area road map(s)
- Notepads and writing utensils
- ICS forms and ARRL radiograms
- Flashlights or battery operated lanterns (both big and small lights are helpful)
- Pliers, Vise-Grips, screwdrivers, diagonal cutters, small socket set
- Extension cords and power strips, plus three-way plug
- Battery powered clock/radio with extra batteries
- First-Aid kit
- Blanket or sleeping bag
- Raincoat
- Aspirin or other pain reliever medicine (for your own use only)
- Food (canned food, snacks, cereal bars, etc) and Water with cup(s)
- Can opener
- Utility knife
- Work gloves

H. Home preparedness info

The following are recommendations for a kit to be kept at home in case a disaster strikes that prevents you from leaving your home. This kit should be stored in a place that is accessible, but not close enough that supplies are taken out of it for everyday use. Important documents (wills, insurance policies, deeds, stocks/bonds, bank information, passports, family records, etc.) may also be included with the kit or placed nearby.

Water

Bottled water should be kept together with a preparedness kit. Be sure to keep enough water for every family member to have a gallon of water per day for at least three days. Water is used not only for drinking, but also for cooking and sanitation. You should also have a water purification kit in case you run out of bottled water and cannot get more.

Food

At least a three day supply of non-perishable food for each family member should be stored with the kit. Include only foods that do not require refrigeration or cooking. Be sure to rotate out any food with expiration dates. Some potential ideas for the kit include:

- Canned meats, fruits, and vegetables
- Canned milk and soups
- Flavorings such as salt, pepper, and sugar
- Energy foods such as peanut butter, crackers, granola bars, etc.
- Vitamins
- Comfort foods such as candy, cookies, coffee, tea bags, etc.

First Aid Kit

A first aid kit should be purchased that has a sufficient set of aides to handle the family for three days. This kit can be one used for daily needs, but should be replenished when necessary. Also include non-prescription drugs such as aspirin or other pain medication and antacid.

Tools and Supplies

- Basic tool box supplies – pliers, wire cutters, screwdrivers, socket set, etc.
- Battery operated radio and extra batteries
- Flashlights and/or battery operated lanterns and extra batteries
- Mess kits or cups, plates, and utensils
- Manual can opener
- Portable gas stove and gas tank (for cooking or water purification)
- Utility knife
- Matches in waterproof container
- Paper and pencils
- Whistle
- Area road map
- Sunscreen lotion

- Insect repellent

Sanitation Needs

- Toilet paper
- Soap, hand sanitizer
- Personal hygiene supplies
- Feminine supplies
- Garbage bags and ties
- Disinfectant
- Chlorine bleach

Clothing and Bedding

- At least one change of clothes per person
- Shoes
- Raincoats or ponchos
- Hats and gloves
- Sunglasses

Special Items (if needed)

- Baby items (powdered milk, diapers, bottles, medications)
- Pet food, water, and bowls, medications, leash, pet carrier
- Contact lenses and supplies
- Extra eye or reading glasses
- Medication needs
- Books and games for entertainment

I. ARRL Radiogram



NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
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TO

TELEPHONE NUMBER

THIS RADIO MESSAGE WAS RECEIVED AT
 AMATEUR STATION _____ PHONE _____
 NAME _____
 STREET ADDRESS _____
 CITY, STATE, ZIP _____

REC'D	FROM	DATE	TIME	SENT	TO	DATE	TIME
-------	------	------	------	------	----	------	------

THIS MESSAGE WAS HANDLED FREE OF CHARGE BY A LICENSED AMATEUR RADIO OPERATOR, WHOSE ADDRESS IS SHOWN IN THE BOX AT RIGHT ABOVE. AS SUCH MESSAGES ARE HANDLED SOLELY FOR THE PLEASURE OF OPERATING, NO COMPENSATION CAN BE ACCEPTED BY A "HAM" OPERATOR. A RETURN MESSAGE MAY BE FILED WITH THE "HAM" DELIVERING THIS MESSAGE TO YOU. FURTHER INFORMATION ON AMATEUR RADIO MAY BE OBTAINED FROM ARRL HEADQUARTERS, 225 MAIN STREET, NEWINGTON, CT 06111

THE AMERICAN RADIO RELAY LEAGUE, INC. IS THE NATIONAL MEMBERSHIP SOCIETY OF LICENSED RADIO AMATEURS AND THE PUBLISHER OF QST MAGAZINE. ONE OF ITS FUNCTIONS IS PROMOTION OF PUBLIC SERVICE COMMUNICATION AMONG AMATEUR OPERATORS. TO THAT END, THE LEAGUE HAS ORGANIZED THE NATIONAL TRAFFIC SYSTEM FOR DAILY NATIONWIDE MESSAGE HANDLING.

PRINTED IN USA

J. ICS Forms

1. ICS-205

INCIDENT RADIO COMMUNICATIONS PLAN		1. Incident Name		2. Date/Time Prepared	3. Operational Period (Date/Time)
4. BASIC RADIO CHANNEL UTILIZATION					
System / Cache	Channel	Function	Frequency	Assignment	Remarks
ICS 205 8/96		5. Prepared By: (Communications Unit)			

2. ICS-213

GENERAL MESSAGE		
TO:	POSITION:	
FROM:	POSITION:	
SUBJECT:	DATE:	TIME:
MESSAGE:		
SIGNATURE:		POSITION:
REPLY:		
DATE:	TIME:	SIGNATURE/POSITION:

K. References

1. ARRL Field Resources Manual

2. Web Resources

New Hanover County ARES®: <http://www.nhcncares.org>

North Carolina ARES®: <http://www.ncarrl.org/ares>

Amateur Radio Relay League: <http://www.arrl.org>

WAKE County ARES®: <http://www.wakeares.org>

★Disaster Preparedness: <http://www.prepare.org>

Hurricane Information: <http://www.hurricane.com>

NOAA: <http://www.noaa.gov>

ARRL/ARES® MOU's: <http://www.arrl.org/FandES/field/mou/>