



BUCHANAN COUNTY

**AMATEUR RADIO EMERGENCY SERVICE (ARES)
AND
RADIO AMATEUR CIVIL EMERGENCY SERVICE (RACES)**

OPERATIONS MANUAL

BUCHANAN COUNTY ARES Website:

<http://buchanan.ruraliowaares.com>

Buchanan County ARES Callsign:

KC0QNI

January, 2009

TABLE OF CONTENTS

SECTION	TOPIC
1	Introduction
1.1	Amateur Radio and its Place In Emergencies
1.2	Amateur Radio Emergency Service (ARES)
1.3	National Traffic System (NTS)
1.4	Radio Amateur Civil Emergency Service (RACES)
1.5	Purpose of Document
1.6	Objectives
1.7	About this Document
2	ARES
2.1	General
2.2	National and Division Organization
2.3	Section and District Organization
2.4	Local Emergency Coordinator
2.5	General ARES Membership
3	RACES
3.1	General
3.2	Office of Emergency Management
3.3	RACES and ARES Interaction
3.4	General RACES Membership
4	Training
4.1	General
4.2	Training
4.3	Additional Training Resources
5	Net Control Operating Procedures
5.1	What is a Net Control Operator
5.2	Weekly Local Area Nets
5.3	Net Procedure for Emergencies
5.4	Net Control Guidelines
5.5	Break Terms
6	Incident Organization
6.1	Incident Command System
7	Creating a Professional Image
7.1	Be Professional
7.2	Uniform
7.3	Identification
7.4	Standard Power Connector

TABLE OF CONTENTS

SECTION	TOPIC
8	Operations
8.1	Principles of Repeater Operation
8.2	Principles of Disaster Communications
Appendix A	Area Repeater Guide
Appendix B	Simplex Frequency Guide
Appendix C	Area Scanner Frequencies
Appendix D	Other Organizations
Appendix E	Buchanan County ARES Contacts
Appendix F	ARES Net Script
Appendix G	ARES/NTS Organization Chart
Appendix H	Sample Radiogram and NTS Quick Reference
Appendix I	Phonetic Alphabet and Handling Instructions
Appendix J	Common pro-words
Appendix K	ARES membership application
Appendix L	RACES membership application

Section 1

Introduction

1.1 Amateur Radio and it's Place in Emergencies

The Communications Act of 1934 established Amateur Radio as a service. Amateurs have been instrumental in the development of communications ever since the early work of Hertz and Marconi, who were essentially amateurs as distinct from professionals as there was no established profession at the time of their extraordinary accomplishments. In the years just before World War I, a group of amateurs in Hartford, Connecticut established an organization, the American Radio Relay League (ARRL - web site: www.arrl.org), whose primary objective was to develop the art of communication through the establishment of a series of relay stations to expedite the transmission of public service messages across the country and to foster the experimentation which ultimately led to transcontinental and world wide communications systems.

Ever since these early days, Amateurs have established a reputation for public service communications, especially in times of crisis and special needs, which cannot be met by the regular communications systems. In the beginning, these services were rendered spontaneously and largely on an individual basis. As time progressed, the need for, and the value of organization became apparent; this led to the establishment of several organizations with clearly defined functions.

Today there exists in Amateur Radio a very complete and tight volunteer organization of Amateur Radio operators dedicated to public service. Sponsored by the ARRL, a field organization has been established which includes the Amateur Radio Emergency Service (ARES) and the National Traffic Systems (NTS). An independently organized system, sponsored by the Federal Government, called the Radio Amateur Civil Emergency Service (RACES) fulfills other functions not directly addressed by ARES and together, the two form integral parts of the Amateur Radio's public service effort.

1.2 The Amateur Radio Emergency Service (ARES)

The purpose of ARES is to provide backup communications for official organizations during an emergency when their normal communications structures are not able to provide adequate service. RACES operations are initiated by the request of the management of the Incident Command System. ARES does not handle routine non-emergency Health & Welfare communications. Those are handled by NTS. ARES consists of licensed radio amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service when disaster strikes. Every licensed radio amateur, regardless of other affiliations, is eligible for membership in ARES. The only qualification other than holding a valid Amateur Radio operator's license is a sincere desire to serve in the public interest.

ARES is self regulating and managed. These Amateur Radio operators have equipment suitable for emergency operations – many have expended substantial sums of money in state-of-the-art electronic equipment and emergency power supplies. ARES conducts regular training classes and exercises so that any future emergency operation will be carried out smoothly and effectively. These training exercises often take place in concert with regular public activities such as boat races, foot races, and bicycle/walking events for which ARES provides communications to facilitate general public safety. Such

exercises and procedures allow the ARES system to be tailored in scale to the different type of crises that may occur from time-to-time.

1.3 The National Traffic System (NTS)

The National Traffic System is used to move long-distance messages from origin to destination. Further it provides the training of Amateur Radio operators in the handling of formal radiogram traffic in efficiently directed nets. A radiogram is simply a form used to document the information being sent or received (similar to a telegram format).

NTS operations are concentrated on the high frequencies (HF), but local nets on UHF/VHF frequencies have become popular as the ideal place to distribute traffic for delivery. The ARRL Net Directory lists the nets available for members.

1.4 The Radio Amateur Civil Emergency Service (RACES)

RACES was founded in 1952 and differs from ARES in that it is a federally regulated activity within the Amateur Radio Service. It is administered by the Federal Emergency Management Agency (FEMA) of the United States Government and is intended to provide emergency radio communications for civil preparedness purposes only, during periods of local, regional or national civil emergencies.

These emergencies are related to the immediate safety of life, and/or the immediate protection of property and can include natural disasters such as fire, floods, and earthquakes. As defined by the rules, RACES is a radio communications service conducted by volunteer Amateur Radio operators to provide emergency communications to state or local civil preparedness agencies. As such, it can only operate at the specific request of the designated state or local official.

The main advantages of RACES are that Government insurance programs cover the participants during their active roles and some Federal funds are available to assist in the development of the program. The Government restricts RACES operations to one hour per week for communication drills during non-emergency periods of operations. Through special arrangement with the RACES Radio Officer (RO) an extension to no more than 72 hours twice in any calendar year may be authorized.

1.5 Purpose

The purpose of this document is to furnish essential information to Amateur Radio Operators, for use in disaster or other emergency situations. It has been prepared to provide the following types of information for use by local ARES/RACES members:

1. Provide general procedures for use by individual amateurs.
2. Define the organization and management structure of ARES and RACES for Buchanan County.
3. Define a basic organizational structure for ARES/RACES response to all types of incidents.
4. Identify management, personnel and equipment resources.
5. Provide information on available communication paths, nets, and traffic gateways for emergency use.

Note: All emergency communications are legal.

1.6 Objectives

There are an infinite variety of situations in which local ARES/RACES members may be called to provide communications in support of an emergency nature. The following categories of communications requirements are listed in the order of priority in which the particular need would receive ARES/RACES response and resources:

1. Primary or backup tactical, logistical and administrative communications support to Red Cross, fire, police, government or other agencies during periods of local emergency or when the area is designated an evacuation center by nearby areas.
2. Primary communications support for non-emergency message traffic including Health and Welfare inquiries and other traffic of a personal nature during periods of emergency.
3. Public Service support to provide community service for public health and safety and, secondarily, to provide training exercises for ARES/RACES personnel.

1.7 About this Document

This document is to be used as a reference document for all ARES/RACES personnel. As such, it is three-hole punched to permit placement in a binder. As a living document, the plan will be reviewed and revised as required and change pages issued or replaced. It is suggested that personnel use a binder large enough to hold this plan. The main body of the plan discusses the general day-to-day operation of ARES, RACES and the theoretical incident operations. The Appendixes contain frequencies, nets, and other information. Contact your local area Emergency Coordinator if you would like more information on any topics covered in this document.

Section 2

ARES Organization

2.1 General

Section two of this plan provides information on the Section, District, and Local organizations, which are in place to respond to emergency situations. Job descriptions are included for reference by amateurs designated to fill specific positions in this District organization.

2.2 National and Division Organization

The American Radio Relay League (ARRL) is the largest organization of radio amateurs in the United States. It was founded in 1914 and serves as the official voice of Amateur Radio in dealings with government agencies. The ARRL is a not-for-profit organization, governed by a board of directors elected every two years by League members. The Midwest Division is represented by an elected Director, who provides coordination between the Section Managers in Iowa, Kansas, Missouri, and Nebraska.

2.3 Section and District Organization

The Iowa Section is organized in accordance with ARRL guidelines and includes all of the counties in Iowa. The Section is administered by a Section Manager (SM) who is elected by the Section ARRL membership. The Section Emergency Coordinator (SEC), who is appointed by the SM, supervises ARES activities in the Section and reports to the Section Manager. The state is then divided into 13 Districts. The ARES District Emergency Coordinator is appointed by the SEC to supervise the efforts of local Emergency Coordinators (EC) within the District. The DEC must be a full ARRL member with at least a Technician class license. The following duties shall be performed by the DEC and/or personnel assisting the DEC.

1. Coordinate the training, organization and emergency participation of Emergency Coordinators (EC's) in the District.
2. Act as a backup for the local areas without an EC and assist in maintaining contact with governmental and other agencies within the District.
3. Recommend EC appointments to the SEC.
4. Coordinate the documenting and reporting of ARES activities in the District.
5. Be conversant in National Traffic System (NTS) routing and procedures.
6. Establish an emergency communications plan for the communities and agencies that will effectively utilize ARES members to cover the needs for tactical and formal welfare message traffic within the District. Establish a viable working relationship with all Federal, State, County, and private agencies operating within the District, which might need the services of ARES in emergencies.
7. Establish working relationships and mutual assistance agreements with adjacent ARES districts.
8. Establish and maintain a database of all ARES members within the District.
9. In times of emergency, evaluate the communications needs of the District and assign available ARES personnel to respond quickly to those needs. The DEC will assume authority and responsibility for emergency response and performance by personnel under his/her jurisdiction.

2.4 Local Area Emergency Coordinator (EC)

The ARES Emergency Coordinator (EC) is a key team player in ARES on the local emergency communications scene. Working with the DEC and Official Emergency Stations, the EC prepares for, and engages in management of communications needs in disasters. The EC must be a full ARRL member with a least a Technician class license. The following duties, while the responsibility of the local area EC, may be performed by ARES personnel assisting the EC.

1. Promote and enhance the activities of ARES as a voluntary, non-commercial communications service for the benefit of the public.
2. Manage and coordinate the training, organization and emergency participation of interested amateurs working in support of the local communities, and agencies.
3. Establish an emergency communications plan for the communities and agencies within the assigned local area.
4. Establish a working relationship with all private agencies and city governments in the assigned local area.
5. Establish local communications networks run on a regular basis and periodically test those networks by conducting realistic drills.
6. In times of disaster, evaluate the communications needs of the area and respond quickly to those needs. The EC will assume authority and responsibility for emergency response and performance by ARES personnel under his/her jurisdiction.
7. Do all that is possible to further the favorable image of Amateur Radio by dedication to purpose and a thorough understanding of the mission of Amateur Radio.
8. Recruit and train local Amateur Radio operators in ARES practices and procedures.
9. Hold regularly scheduled meetings of all ARES members within the local area.
10. Establish and maintain records of all ARES members within the local area of the District. Provide this information to the District database coordinator.

The District EC and the Local EC can appoint Assistant DEC's or EC's to help with some of these duties.

2.5 General ARES Membership

The only requirement for membership is a desire to serve and holding any current Amateur Radio license. To become a member, one must fill out an ARES Membership Application (Appendix K) and return it to the local EC. All members will receive a membership card.

ARES members are encouraged to attend training classes, participate in training activities, and register as a RACES communicator.

Section 3

RACES Organization

3.1 General

This section describes the Radio Amateur Civil Emergency Service (RACES) organization and operations.

The RACES organization provides essential communications during period of National, State or local emergency or upon request from the appropriate government authority. RACES are mobilized when there has been a government declaration of a state of emergency. Additionally, the RACES organization allows for operation under the FCC RACES regulations in the event of a Presidential Declaration of an Emergency.

3.2 Office of Emergency Management

The Office of Emergency Management (OEM) is responsible for RACES activation. The main task for RACES is to provide a communications link from the Emergency Operations Center (EOC) to each of the cities in the county, and to provide links to the State OEM, if necessary. The County OEM may also designate additional communication links to various facilities such as hospitals, as deemed necessary.

3.3 RACES and ARES Interaction

In order to share the resources of the amateur community effectively, the emergency preparedness and training comes under the jurisdiction of Amateur Radio Emergency Services (ARES) organization.

Amateur Radio operators are encouraged to maintain membership in both ARES and RACES. This allows ARES operation in certain situations without the government activating RACES. In the event that RACES is mobilized, the shift from an ARES activity to a RACES activity flows smoothly. ARES and RACES operations are identical except for the position name changes.

3.4 General RACES Membership

To become a member, one must fill out the RACES Membership Application (Appendix L) and return it to the local EC. The application needs to be signed by the county emergency management coordinator and approved at the state level. Once approved members will receive notification.

Section 4 Training

4.1 General

This section covers the normal, non-emergency operations of ARES. The purpose of these operations is to prepare for emergency operations through the use of training exercises and community support events.

4.2 Training

Training is provided by Buchanan County ARES to prepare ARES members to provide efficient emergency communications. Training for ARES members consists of, but is not limited to the following:

Introduction to ARES - Introduces ARES procedures.

Traffic Handling - Covers traffic handling procedures.

Net Operations - Covers participation / controlling of nets.

In addition, there are classes on RACES operations and how to use the RACES equipment. Some agencies that utilize ARES, such as the Red Cross also conduct their own courses. ARES members are encouraged to attend these courses to familiarize themselves with how the user agency operates.

ARES members should contact their EC for information on the current classes and class schedules.

4.3 Additional Training Resources

ARES operators are encouraged to continuously update and further their training on their own.

ARRL Emergency Communications Course – Levels I, II, and III

<http://www.arrl.org/cce/>

FEMA's Emergency Management Institute Independent Study Program

<http://training.fema.gov/EMIWeb/IS/>

Section 5

Net Control Operating Procedures

This section describes Net Control operations and the duties of the Net Control Operator both for the weekly ARES nets and for nets during emergency operations.

5.1 What Is a Net Control Operator

A Net Control Operator (NCO) is the Directory of Network communications and is a dispatcher. As such, it is important to know what is going on:

- the location of communicators and agencies,
- how many people are involved,
- how the personnel are equipped,
- the frequencies/nets available.

This information is vital to properly directing these resources.

The role of a NCO is similar to that of a traffic cop. This requires continuous judgments. As the traffic resides in the middle of the intersection, a NCO is placed in the middle of traffic net. In each case the visibility needed to carry out the job must be obtained. A traffic cop sees cars approaching and directs them according to the flow of road traffic, always away from accidents and points of congestion. The NCO directs message traffic so it flows in a smooth manner by assigning stations to simplex frequencies or repeaters depending on their available communications routes. The NCO is sensitive to priority and precedence. Both traffic directors have to sometimes make decisions that send personnel on routes other than that desired so that the overall task is properly accomplished.

The most important skill of a traffic cop and NCO is. The traffic cop must be nearly unbending in the execution of the task. Cars must move exactly as directed. The same is true for the NCO. The NCO must take control and be in control of the situation at all times or there is no control. The NCO's job is to prevent a logjam. To prevent a logjam the key is to be ASSERTIVE! For example: if the NCO directs a station to pass one piece of traffic, the NCO must be assertive if the communicators attempt to pass a second piece of traffic without authorization. It would seem a natural thing to do from the communicator's viewpoint. However, he/she may not be aware of high priority traffic or traffic that has been waiting longer than their second message.

Assertiveness must never be aggressive in nature or tone and must be done in a manner that does not strain relations with the working stations or the personnel on the net. The key is that authority must be exercised tactfully but firmly and with fairness, yet without delay of decisions.

Key Functions of a NCO are as follows:

- Control Frequencies. Establish a primary frequency and control it and coordinate the use of other established frequencies.
- Sort Traffic. Sort traffic by priority and distance. Emergency is first. Priority is second. Welfare is third, and routine is fourth. Distance between is the next parameter. Stations physically close can use simplex frequencies.
- Logging. Log times, names/calls, destinations and key data. The log may be the only record in a legal action.
- Net Shutdown. The operation is not completed until everyone is home. The NCO may be located almost any place. It is desired to have the NCO located in a secure location away from noise and confusion.

Some items that the NCO should have include the following:

- A 2-meter and 440 MHz radio. A second 2-meter radio and scanner are also highly recommended.
- Batteries, power sources, and antennas positioned for best coverage and operation.
- Maps of the area. (Maps mounted with a Plexiglas cover and grease pencils to mark are useful).
- Forms, paper, and pencils. A telephone and a telephone directory are a must, along with rosters of local ARES/RACES personnel.
- Knowledge of repeaters and the areas they serve. (Take time to get to know the repeaters in the area. Note autopatch capabilities and linking capabilities, and local area of coverage.)

5.2 Weekly Local Area Nets

ARES has local and countywide ARES nets. Each area conducts their own local area net, run by a local NCO. The ARES membership should check into their local area net to obtain information particular to their local area. When you have checked into a net, do not leave the frequency until the NCO has closed the net unless you have previously notified the NCO or asked permission. A list of nets is listed with the repeater guide. The ARES net script is included later in this document.

5.3 Net Procedure for Emergencies

In the event of a possible or actual emergency situation, any ARES member can start up a net to collect data. NEVER DISPATCH ANYONE ANYWHERE WITHOUT PROPER AUTHORIZATION. You can have individual operators report on conditions around them; list the individual operator's availability, and other pertinent data. This data should be compiled and made available to the DEC or EC when they come up on the frequency. When ARES or RACES is officially mobilized, the Emergency Coordinator (EC) will assign an operator to continue as the NCO. An assistant NCO should also be appointed. Should the conditions warrant, the EC may decide to let the net become informal, allowing each operator to contact one another directly without asking permission of the NCO.

5.4 Net Control Guidelines

- Do not use angry comments over the air. Courtesy is contagious. Please and Thank You are the most powerful tools at your disposal. (However, we need always remember to keep conversation short and at a minimum).
- Carry out your assignment with the following in mind: To provide communications in the most efficient and flexible manner possible.
- Do not discuss event details (victim names or circumstances) over the air unless directed by the operation leaders. There are no exceptions! Always be accurate and stick to the official facts as you know them. Information taken out of context or overheard may be inaccurate.
- When you are tired or need a break, get relief! Do not be a hero. Zombies do not operate well and they make many mistakes.
- Summarize your information and safeguard your logs for future reference. At the close of the incident, submit your log to the EC or as otherwise directed.

5.5 Break Terms

There are currently seven one word Break Tags. They are: answer, question, info, priority, medical, emergency and your call sign. Most of these tags have been used with great success in large public/emergency services nets.

Here is how they are used. Instead of saying 'break' in between transmissions during a directed net you use the word specified as a Break Tag without your call sign. They are to be used only when your traffic will be appreciated by net control and results in more efficient communications. They are to be used wisely, as net control is directed to stop and turn over the net to the breaker. The message that follows a break should be as short as possible. Here are their intended uses:

Answer: To be used when you have the answer to a question currently being discussed on the air.

Question: To be used when the answer of a question can't wait, for instance when the Mayor is standing next to you and requested you to get some info using your radio.

Info: To be used when information needs to be transmitted rapidly but is not related to what is being said on the air. For instance if something that net control needs to know about is going to happen in the next few seconds or if waiting for the end of an exchange will negate the value of the information.

Priority: To be used to report an important but non-life threatening situation such as a fender-bender that just happened.

Medical: To be used to report a minor medical incident that affects the operator in some way, like having to leave their post for a few minutes to walk someone with a minor cut over to a med tent.

Emergency: Only to be used to report an ongoing life or property threatening or damaging incident.

Your Call Sign: An indication that you have traffic that can wait and does not require the stoppage of the ongoing exchange. This tag is an expectation to be put on hold and in queue for your transmission.

Section 6

Incident Organization

6.1 Incident Command System

The Incident Command System (ICS) is a management tool that is rapidly being adopted by professional emergency responders throughout the country. ICS provides a coordinated system of command, communications, organization, and accountability in managing emergency events. Due to the wide spread use of ICS, Amateur Radio operators should be familiar with the system, as well as how they will interface with agencies employing ICS.

Integral to the ICS is the concept of Unified Command. There is only one boss, the Incident Commander, who is responsible for the overall operation. For any incident, there are a number of functions that must be performed ranging from planning and logistics to handling the press. The functional requirements of planning, logistics, operations, and finance are always present despite the size of the incident. They may be handled by a single individual for a small incident, or a "Command Staff" in a large incident. Another characteristic of ICS is "span of control." In simple terms, any manager should only directly manage a small number of people. ICS uses the number of five for organizational purposes. The number five isn't hard and fast, but provides a useful organizational guide line.

How does the Amateur Radio volunteer fit into the Incident Command System? We are expected to be communicators, and within the ICS, this would place us in the Logistics Section in the Service Branch as part of the Communications Unit. The communications unit provides all communications services for the operation.

Section 7

Creating a Professional Image

7.1 Be Professional

Public service communications rendered by amateurs is based on a series of factors. Specifically, authorities must accept amateurs, and once accepted, our continued ability to contribute in times of disaster is based on the efficiency and effectiveness of our performance. While acceptance, image, efficiency, and effectiveness are all important to the on-going working relationships between amateurs and police/fire officials, it is the initial acceptance that is often difficult to achieve.

The primary question then, is how local public safety personnel can more readily accept amateurs. A significant part of the answer is understanding something about what appeals to the police officers and fire fighters, and what does not.

Police and fire officials tend to be very cautious and skeptical concerning those who are not members of the public safety professions. This posture is based primarily on experiences in which well intended but somewhat overzealous volunteers have complicated/jeopardized efforts in emergencies. The amateur operator or other volunteers who wishes to be of assistance must be aware of this perception.

The police have generally had their fill of groupies or hangers on. They can ill afford to tolerate frustrated individuals who have always wanted to be police officers or fire fighters, but for one reason or another have never reached that objective. There seems to be an abundance of people, especially during a crisis, who, if given any opportunity to assist in an official capacity, will quickly overstep the limits of their authority and responsibility. In their zest, such persons often inhibit the actions of trained personnel; but worse yet, they make an already dangerous situation even more so by their reckless abandon. With rare exception, amateur radio operators do not fall into this category. The problem is, however, that police officers in the midst of stressful operations may have extreme difficulty in distinguishing between those volunteers who are problem makers. Those very few hams who behave emotionally, are overzealous in offering their services or in describing their abilities, or who abuse the established limits of their authority, are doing the amateur fraternity a real disservice. The typical police officer or fire fighter, like the typical civilian, does not understand the vast differences among various radio services, the types of licensing involved, or the high level of expertise and discipline that is characteristic of the amateur service.

Moreover, keep in mind that state-of-the-art technology, and the capabilities that technology affords us amateurs, are foreign to most police officers and fire fighters.

When an amateur arrives on the scene and jumps out of the vehicle with a handheld in each fist and two more clipped to the belt, all squawking at once, officials simply do not know how to respond. They are either overwhelmed by equipment they do not understand or so awestruck that they try to avoid what they perceive as threatening.

How amateur radio volunteers are accepted depends on establishing a track record of competent performance in important activities. It begins with convincing officials that amateur offer a cost effective (otherwise known as tax free) substitute for functions previously paid for by the taxpayers. To do this, local radio amateurs must first demonstrate that they are organized, disciplined, and reliable, and have a sincere interest in community service. It is very important that we conduct ourselves in a professional manner that is compatible with public safety officials. This includes not only your

professional conduct, but your on the air bearing as well. Keep communications formal, joking and laughing should be kept at a minimum. There is a time and place for everything, and during an incident is not one of them!

7.2 Uniform

At this time, there is no official uniform.

7.3 Identification

At this time, there is no official nationwide identification being issued. Always carry your Amateur Radio license as well as driver's license and ARES ID cards as identification. If you are a member of Buchanan County Amateur Radio Club, please carry that identification for use in Buchanan County.

7.4 Standard Power Connector

The 30 amp Anderson Powerpole® is quickly becoming the standard power connector of preference within emergency communications organizations around the country. First becoming popular in the Pacific Northwest, the Powerpole® allows for quick field installation and interchange of power supplies and radio equipment without having to resort to adapter cables, clip leads and other jury rigged arrangements.

Powerpoles® are both polarized and genderless, so you never have to worry about male vs. female or positive vs. negative. Connections can be quickly made and remade in the dark without any hassles and the 30 amp connector can easily handle 100 watt radios.

Identical connector halves are genderless—making assembly quick and easy and reducing the number of parts stocked. Molded-in dovetails allow for customized harness in a variety of configurations.

The 15-ampere contacts are designed for 16-20 AWG wire and the 30-ampere contacts are designed for 12-16 AWG wire.

More information can be found at <http://www.qsl.net/w6apd/powerpole.html>

Section 8 Operations

8.1 Principles of Repeater Operation

1. Use **minimum power**. Otherwise, especially in heavily populated areas, you may run the risk of keying more than one repeater, thus causing unnecessary QRM. Low power also conserves batteries.
2. Use **simplex, whenever possible**. ARRL recommends 146.52 MHz, but it's a good idea to have at least one other simplex channel available. Use a gain antenna at fixed locations for simplex operation.
3. **Observe the "pause" procedure between exchanges**. When it is your turn to transmit, after the transmitting station stands by, count to two or three before pressing your transmit switch.
4. **Listen much, transmit little**. Announce your presence on a repeater when you are certain of being able to assist in an emergency, and don't tie it up with idle chatter.
5. **Monitor local ARES net frequency**, when otherwise not busy.
6. **Think before you talk**. Anyone with an inexpensive public-service-band receiver can monitor. Stick to facts, control your emotions. Remember, during an emergency is the time when you are most apt to act and speak rashly.
7. **Articulate, don't slur**. Speak close to your mike, but talk across it, not into it. Keep your voice down. In an emergency situation one often gets excited and tends to shout. Talk slowly, calmly--this is the mark of an experienced communicator.

8.2 Principles of Disaster Communication

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.
2. **Monitor established disaster frequencies.** Many ARES localities and some geographical areas have established disaster frequencies where someone is always (or nearly always) monitoring for possible calls.
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.
6. **Select the mode and band to suit the need.** It is a characteristic of all amateurs to believe that their favorite mode and band is superior to all others. However, the merits of a particular band or mode in a communications emergency should be evaluated impartially with a view to the appropriate use of bands and modes. There is, of course, no alternative to using what happens to be available, but there are ways to optimize available communications.
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.
9. **NTS and ARES leadership coordination.** Within the disaster area itself, the ARES is primarily responsible for emergency communications support. The first priority of those NTS operators who live in or near the disaster area is to make their expertise available to their Emergency Coordinator (EC) where and when needed. For timely and effective response, this means that NTS operators should talk to their EC's before the time of need so that they will know how to best respond.

Appendix A Area Repeater Guide

LOCATION	FREQUENCY	ZONE	NOTES
Oelwein	147.345 +		
Independence	145.330 -	103.5	Buchanan Co ARC
Manchester	147.300 +		Delaware Co ARES – Net: Sun 20:30
Vinton	145.230 -	141.3	Benton Co ARES – Net: Sun 18:30
Waterloo	146.820 -	136.5	
Waterloo	146.940 -	136.5	BlackHawk Co ARES – Net: Sun 21:00
Cedar Rapids	146.745 -		Linn Co ARES – Net: Sun 19:00 – Link to NWS Quad-Cities
Cedar Rapids	145.150 -	192.8	Linn Co ARES Backup
Dubuque	147.240 +	114.8	
Anamosa	145.390 -	77.0	Jones Co ARES – Net: Sun 20:00 – Link to NWS Quad-Cities
Cresco	146.925 -	103.5	Link to NWS LaCrosse (WX9ARX)
Cresco	147.075 +	103.5	
Decorah	146.775 -		
Frankville	146.670 -	103.5	Link to NWS-LaCrosse (WX9ARX)
Cedar Falls	444.650 +	136.5	Link to NWS Des Moines (K0DMX)
Oelwein	443.950 +		
Dunkerton	444.850 +	156.7	
Simplex	146.580		Buchanan County Simplex
Simplex	146.505		Linn County Simplex
Simplex	147.100		Fayette County Simplex

Appendix B
Simplex Frequency Guide
2 Meters – 144-148 MHz

146.400	146.415	146.430	146.445	146.460	146.475 (E)
146.490	146.505	146.520 *	146.535 (D)	146.550	146.565 (F)
146.580	146.595 (G)	147.405	147.420	147.435	147.450
147.465	147.480	147.495 (C)	147.510	147.525 (B)	147.540 (AID)
147.555 (H)	147.570	147.585 (A)	144.390 **		

* - National Simplex Calling Frequency

** - National APRS Simplex Frequency

Note: Letters correspond to Tactical Simplex Channels (TAC A-H and ARES AID).

70 cm – 440-450 MHz

445.9125	445.9250	445.9375	445.9500	445.9625	445.9750
445.9875	446.0000*	446.0125	446.0250	446.0375	446.0500
446.0625	446.0750	446.0875	446.1000	446.1125	446.1250
446.1375	446.1500	446.1625	446.1750		

* - National FM Voice Simplex Calling Frequency

HF Frequencies (In KHz)

State EOC	7.250.0		Iowa RACES – Day
State EOC	3.990.5		Iowa RACES – Night
FEMA	5211.0		LSB
	5211.0		USB
	10493.0		LSB
	10493.0		USB
	14567.0		LSB
	14567.0		USB
	13956.0		LSB
	13956.0		USB

Appendix C
Area Scanner Frequencies

Frequency	Use	Frequency	Use
151.250	Jesup PD Link to Sheriff Ops	154.190	Buchanan Co Fire
154.845	Buchanan Co Sheriff	154.235	Buchanan Search & Rescue
155.520	Buchanan Co Info – Base	151.405	Buchanan Co EMA
155.910	Buchanan Co Info – Cars	154.965	Buchanan Co Sheriff Car
151.070	Buchanan Co Roads	155.775	Independence City Channel
155.115	Jesup Police Car	153.740	Fairbank Fire & City Ch
154.055	Fayette Co Sheriff	154.160	Fayette Co Fire
153.905	Oelwein Police	155.880	Fayette Co EMA
154.860	Delaware Co Sheriff	155.730	Oelwein City Government
154.370	BlackHawk Co Fire	154.355	Delaware Co Fire
154.815	Benton Co Sheriff	151.115	Delaware Co EMA
151.985	North Benton EMS	154.400	Benton Co Fire
155.145	Linn Co Sheriff	151.205	Benton Co EMA
154.265	Linn Co Search & Rescue	154.430	Linn Co Fire
155.340	State EMS	158.760	Linn Co EMA
155.475	Nationwide Law Mutual Aid	155.700	ISP L.E.A.
155.565	Iowa State Patrol (ISP)	155.370	Point to Point
151.475	Iowa Channel	154.280	State Fire Mutual Aid

Appendix D

Other Organizations

REACT - Radio Emergency Associated Communications Teams

<http://www.reactintl.org/>

Provides volunteer communication capabilities to organizations and public service groups. Originally CB communications was used, but has since changed to encompass General Mobile Radio Service (GMRS), Multiple Use Radio Service (MURS), Family Radio Service (FRS), Business Band radio, and Amateur Radio.

SKYWARN - National Weather Service (NWS) Severe Weather Spotters

<http://www.skywarn.org>

The NWS puts on training each year to train spotters on what to watch for and what to report. Traditionally, Amateur Radio Operators make up a large group of spotters for the NWS. Most areas have repeater links so operators can report directly to the NWS, a benefit most other spotter groups don't have.

It is suggested to attend a training session at least every two years.

Training Schedule:

Quad-Cities NWS - <http://www.crh.noaa.gov/cgi-bin/dvn/calendar/calendar.pl>

LaCrosse NWS – <http://www.crh.noaa.gov/arx/skywarn.php>

Des Moines NWS - <http://www.crh.noaa.gov/dmx/training.shtml>

CERT - Community Emergency Response Teams

<http://training.fema.gov/EMIWeb/CERT>

The Community Emergency Response Team (CERT) program is an all-risk, all-hazard training. This valuable course is designed to help you protect yourself, your family, your neighbors and your neighborhood in an emergency situation. CERT is a positive and realistic approach to emergency and disaster situations where citizens may initially be on their own and their actions can make a difference. While people will respond to others in need without the training, one goal of the CERT program is to help them do so effectively and efficiently without placing themselves in unnecessary danger. In the CERT training, citizens learn to:

- manage utilities and put out small fires,
- treat the three medical killers by opening airways,
- controlling bleeding, and treating for shock,
- provide basic medical aid,
- search for and rescue victims safely,
- organize themselves and spontaneous volunteers to be effective,
- and collect disaster intelligence to support first responder efforts.

Appendix E

Buchanan County ARES Contacts:

Buchanan County Emergency Coordinator: Eric Grams, N0ZJT
n0zjt@arrl.net
132 4th Ave SE, Oelwein, IA, 50662
Home: (319)283-3369
Cell: (319)480-1376

District 6 West Emergency Coordinator: Steve Jones, WA6GFD
wa6gfd@aol.com
Home: (319) 377-2219

Section Emergency Coordinator: James Snapp NA0R
na0r@arrl.net

Section Manager: Jim Lasely N0JL
n0jl@arrl.org

Appendix F

BUCHANAN COUNTY AMATEUR RADIO EMERGENCY SERVICE TWO-METER A.R.E.S. NET SCRIPT

Frequency: 145.330- (Or 145.330 simplex if repeater is not functioning).

Note: This script is not "set in stone" and the net control station should feel free to deviate from what is listed here; however this general format is suggested).

Script:

* "CQ Northeast Iowa. This is <insert your call sign here> calling the Buchanan County Amateur Radio Club Two-Meter A.R.E.S. net. This net meets on the 145.330 repeater to inform local amateurs of news, events, and promote amateur radio net participation. We ask that you provide your callsign, name, and location when you check in.

* "Is there any emergency or priority traffic? Please call <insert your callsign here>.
(Pause and wait for any emergency or priority traffic. Address as necessary.)

* "Is there any formal written traffic? Please call <insert your callsign here>.
(Pause and wait for any formal written traffic. Address as necessary.)

* "Are there any stations with informal messages or announcements?"
(Pause and wait for any informal messages or announcements. Address as necessary.)

* "Are there any Emergency Coordinators or Assistant Emergency Coordinators that wish to check in?"
(Pause and wait for any emergency coordinators. Acknowledge each check in.)

* "Are there any general checkins for the Buchanan County Two-Meter A.R.E.S. net?
Please call <insert your call sign here>."
(Net control station should now accept check ins from all amateur radio stations.)
(After accepting checkins, the net control station should acknowledge (repeat) each check in station call sign on the air to ensure all participants have been checked in. After acknowledging the initial checkins, the net control station may ask for further checkins.)

* "Are there further checkins or comments for the net?"
(The net control station should then take further check-ins.)
(After all persons have checked in, the net control station may wish to repeat the announcements.)
(Once all have checked in, and no further net traffic is requested, the net control station may secure(close) the net.

* "This is <insert your call sign here> closing the Buchanan County Two-Meter A.R.E.S. net and returning this repeater to normal amateur radio operation."