ARES Net Operations
Version: 1.00

Gregg County Emergency Communications (GCEC)
Longview East Texas Amateur Radio Club (LETARC)

10/05/2011

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1 - Scope

This document provides details for operations of various Gregg County ARES Nets.

2 - Terms Of Use

This document is intended for use by individuals participating in emergency communications within the Gregg County Emergency Communications and the Longview East Texas Amateur Radio Club organizations.

3 - Reporting Defects

Defects in this document should be reported to the document coordinators.

4 - Revision History

Date	Ver	Description	Author
10/05/2011	1.00	Initial version	Gary Lewis - WG5L

5 - General Operations

By definition, in an emergency situation, all nets are **directed nets**, as opposed to **open nets.** An open net is a net with no Net Control Station and no discernible protocol for handling traffic. In an open net, stations may contact other stations at will. A directed net is a net with a Net Control Station and a specific protocol for check-ins and passing traffic. Individual stations within a directed net cannot contact other stations on the net without first asking permission of the Net Control Station. All nets discussed in this document are assumed to be directed nets.

5.1 - Participant Training and Operating Capability Required

Participation in the Gregg County ARES Net requires specific FEMA and ARRL training and specific operating capability.
Please refer to the *Emergency Communications Participant Guide* for specifics.

5.2 - Designated Net Positions

The following positions have been designated by GCEC as regular operational positions for tactical or specialized nets. Depending on the scope of the incident, there may not be an Alternate NCS or Net Liaison.

Position	Purpose
Net Manager	Ensures all regular positions required to staff the net are available.
Net Control Station (NCS)	Has overall control of net operations. Also logs all net activity.
Alternate Net Control Station (Alternate NCS)	Serves as the backup NCS. Location of Alternate NCS is not necessarily co-located with Primary NCS. Also logs all net activity, to be able to assume Primary NCS role. In highly active nets, this position would be primary logger for the Primary NCS.
Other Net or NTS Liaison	Passes relevant traffic to other nets (other tactical, specialized, etc.).
Operators with Traffic	Amateur operators with specific traffic to be passed. Depending on mode of operation, net type, and served agency requirements, the format of the traffic may take a specific form or use specific forms.

5.3 - Nets and Increased Readiness Conditions

The Increased Readiness Conditions described in this section are designed to parallel the standard Increased Readiness Conditions that form a part of the standard Emergency Management Plan used by the majority of cities and counties in the State of Texas. The plans have a common format prescribed by law and are incorporated into the plans of each area. The approval of such plans is under the control of the State Emergency Management Department. The plans for Gregg County and for the City of Longview follow these guidelines. The operations of the ARES nets follow these designations as a way of establishing net discipline and as a way of providing more effective communication with the City or County should the Emergency Management Plans be implemented.

Condition	Description
4	Condition 4 is the lowest level of Increased Readiness. It marks a higher possibility of incidents within the county. It simply exists to provide a presence on the frequencies and serve as a structure for potential elevation of the net into higher levels of readiness and increase net discipline. The net is conducted in a directed fashion but is open to all reports concerning weather in the area or reports of other emergency situations that may exist in a muli-hazard condition. Operations similar to that invoked during Public Service Activities is generally a good comparison for net management during Condition 4.
3	Condition 3 identifies the condition where a greater potential threat exist than Condition 4 to life and/or property. In weather-related situations, Condition 3 is equivalent to a "watch" condition. Open reporting except in the case of emergencies or the existence of extremely dangerous or vary rapidly changing conditions cease in Condition 3. The net is conducted in a limited reporting and more highly directed fashion. The NCS should manage the net in a much more highly restricted fashion with reports being taken under NCS direction only unless a true emergency exists. Instead of acting to control report taking as in Condition 4, the NCS in Condition 3 is truly in control of the development and management of all communications resources that are to be used in the conduct of the net for the duration of Condition 3 or until the net condition is reduced to Condition 4.

2	Condition 2 exists when a very hazardous situation exists that poses a more immediate threat than Condition 3 to life and/or property. In weather-related situations Condition 2 is related to a "warning" condition. No reports are to be taken or given unless the NCS specifically requests them. The only exception to this would be the report of a situation where human life or major injury is in danger. At that time the pro-word Break-Break is to be used and all other net operations will cease until the situation is under control. Upon resolution of such an emergency, net operations at Condition 2 will resume. In Condition 2 the net communication is limited to only responses and requests from the NCS except in the situation described in the proceeding paragraph. The NCS can not allow random and non-requested communications to take place during this condition. The NCS must realize that the actions he or she will take in this condition can in a very real way impact the safety of those involved in the situation and can impact the responsiveness of emergency services to those in need.
1	Condition 1 exists when a major disaster has occurred. The most extreme form of net discipline is required at this time. Only the highest priority traffic or transmissions will occur. Information being handled will fit either immediate, emergency or priority classifications. Generally, the handling of Heath and Welfare will not be handled by the net in this condition. Such traffic must be either delayed in its handling or handled by another net set up for that express purpose. A general request for "what's going on" is not to be handled by a net in Condition 1. Such transmissions must be handled firmly but politely by the NCS and no one else unless the NCS request assistance from another station. The above descriptions are for guidelines purposes. It is possible that certain situations may require the handling of various Net Conditions in a manner that does not exactly fit these descriptions. Such decisions are the responsibility of the NCS.

5.4 - Net Missions

There are several classifications of missions for nets within amateur radio. These include:

Net Mission	Description
Training Net	A net used prior to an incident to train personnel on a variety of EmComm-related topics.
Specialized Net	A net created to serve specific agencies that are served by Amateur Radio emergency communications. These vary from region to region, as not all sections and districts will be serving the same agencies. From a general standpoint, the most common served agencies are The American Red Cross, The Salvation Army, the NWS and other such national organizations who have MOU's with the ARRL and it's ARES program. These nets are customized to fit the needs of an individual served agency.
Tactical Net	A net or group of nets that handle the primary on-site emergency communications. Their mission may be handling communications for a served agency, weather monitoring and reporting, river gauging, or a variety of other tasks that do not require a formal written message. Often a tactical net may be set up as a "sub net" to handle specific types of traffic during high volume emergency situations. In such cases an additional NCS may be assigned for the sub net.
Traffic Net	A net that handles formatted written messages between served agency locations or between other nets, including those on the National Traffic System (NTS). In emergency operations, these nets may handle the majority of message originations and deliveries. Messages to or from outside the immediate area may be handled by a Section-level net, and depending on the distances involved and the degree to which the public telephone network and Internet are impaired, by Region and Area Traffic Nets. Even if it is expected that most traffic will be primarily on VHF/UHF repeaters, understanding how these layers of nets operate will help optimize use of the NTS. During an emergency, ARES and the NTS work together closely, so it's a good idea to understand emergency traffic from the NTS operator's perspective.
Resource Net	A tactical net that is specifically used to direct incoming operators who arrive on scene. This is the net that they would check into to receive assignments, or to be

	reassigned as needs change. A resource net may also be used to locate needed equipment, or operators with specific skills. Several different resource nets may be used in large-scale events.
Health & Welfare (H&W) Net	A traffic net specifically setup for the handling the H&W priority of traffic. The net usually handles messages between concerned friends, families and persons in the disaster area. Most H&W nets will be on HF bands, but local VHF or UHF “feeder” nets may be needed within a disaster area. Band conditions, operator license constraints and specific use needs will most always determine which mode may be the best choice for determining the mode of certain net operations.

However, because our operational capacity is fairly small, within this document, we will focus primarily on these four classifications:

- Training Nets
- Specialized Nets
- Tactical Nets
- Traffic Nets

6 - Training Net

6.1 - Net Specifics

6.1.1 - Mode, Frequency, Times of Operation

- Mode: FM Voice
- Frequency: 444.725 Mhz PL Tone of 136.5 with a positive offset
- Date: 2nd and 4th Tuesdays of each month
- Time: 1900 hours

6.2 - Activation

The main Emergency Communications repeater (444.725Mhz PL Tone of 136.5 with a positive offset) is placed in training net mode by executing the following procedure:

- At 1845 hours, before the start of the net, announce the following:
  This is <*your call sign*>.
  At 7:00PM, the Gregg County ARES Training Net will commence on this frequency. All stations not participating in the training net should hold their traffic at this time until the conclusion of the net.

- At 1900 hours, at the beginning of the net, announce the following:
  This is the Gregg County ARES Training Net. This is <your call sign> *and I will be Net Control for this evening. We will first pause for any stations with emergency or priority traffic. If you have emergency or priority traffic, please come now.*

  This net is open to all amateur radio operators who have registered with Gregg County ARES. For information about the ARES program within Gregg County, the requirements for participation, and how to register, please refer to the Emergency Communications Participants Guide located on the Emergency Communications page of the Longview East Texas Amateur Radio Club web site at www.letarc.org.

  This is a directed net, which means all communications must first be recognized by Net Control. In order to be recognized by Net Control, please give your call sign only.

  If for any reason this repeater loses power, we will move to our backup repeater on 443.900 Mhz with a PL Tone of 136.5 and a positive offset.

  We will now accept check-ins to the Gregg County ARES Training Net. Those wishing to check in, please come now.

- After accepting check-ins, announce the agenda and/or give directions for the training/exercise. If another operator is presenting, they must wait for the NCS to give control.

6.3 - Deactivation

The Gregg County ARES Training Net is deactivated using the following procedure:

- At the conclusion of the exercise/training and all net traffic, the Net Control Station should:
  - Thank everyone for their participation.
  - Announce the next training net.
  - Conclude by saying: *This is* <your call sign>. *I am now returning the repeater to normal use.*

7 - Specialized Nets

7.1 - Net Specifics

7.1.1 - Skywarn Net

For GCEC, the primary example of a specialized net is the Skywarn Net, which is activated at the request of the National Weather Service (NWS).

The specifics of the Skywarn Net are covered in a separate document, *Skywarn Net Operations.* Please refer to that document for specifics.

7.1.2 - Other Specialized Nets

Other served agencies can request specialized nets. However, the mode and frequency of a particular net is determined based of the nature of the incident, the specific needs of the served agency, the nature of the traffic being passed, and will be determined based on the overall communication plan outlined in the *Gregg County Amateur Radio Emergency Communications Plan* document.

7.2 - Activation

Activation of a specialized net is handled through the ARES County Emergency Coordinator (EC) or one of Assistant Emergency Coordinators (AECs), in coordination with Incident Command and/or the served agency liaison and the GCEC ARES Net Manager.

The Net Control Station (NCS) should follow a standard net structure for activation and operation of a directed net, with:

- Preamble
- Check for priority traffic
- Initial request for check-ins
- Periodic request for additional check-ins
- Periodic announcement of the net name and mission

7.3 - Deactivation

Deactivation of a specialized net needs to be part of overall incident planning. At a minimum, deactivation planning needs to start two shifts, but no less than one shift away from actual deactivation. Deactivation is to be coordinated with incident command planning and/or the served agency liaison, the ARES County EC or AECs, and the local ARES Net Manager.

The Net Control Station (NCS) should follow a standard net structure for deactivation of a directed net, with:

- Announcing the conclusion of this particular net and thanking those who have participated.
- Announcing net consolidation, deactivation and debriefing procedures.

If located at a served agency location, as part of deactivation, operators are to make every effort to return their station area to its original condition.

8 - Tactical Nets

8.1 - Net Specifics

8.1.1 - Mode and Frequency

The mode and frequency of a particular net is determined based of the nature of the incident, the specific needs of the served agency, the nature of the traffic being passed, and will be determined based on the overall communication plan outlined in the *Gregg County Amateur Radio Emergency Communications Plan* document.

8.1.2 - Use of Tactical Call Signs

In most tactical nets, tactical call signs are used to reference locations or the incident position being shadowed, such as “EOC”, “Staging”, “Shelter 1”, “POD 2”, etc. However, the use of tactical call signs, does not relieve the operator from the FCC rule to ID with their call sign every 10 minutes. Usually, this is accomplished by adding the amateur call sign onto the tactical call at the end of a net exchange.

8.1.3 - Message Format

The format of messages being passed in a net will be determined by the served agency. As more and more served agencies adopt ICS and NIMS protocol, the ICS-213 form or a variant thereof, is typically used for generic tactical messages that need to be passed in a structured manner.

8.2 - Activation

Activation of a tactical net is handled through the ARES County Emergency Coordinator (EC) or one of Assistant Emergency Coordinators (AECs), in coordination with Incident Command and/or the served agency liaison and the GCEC ARES Net Manager.

There may be several tactical nets in a larger incident that focus on specific areas, as required by incident command. An example of this would be a resource net. The need for, number, and nature of tactical nets may change, depending on the communications objectives of the operational period, as defined by incident command.

The Net Control Station (NCS) should follow a standard net structure for activation and operation of a directed net, with:

- Preamble
- Check for priority traffic
- Initial request for check-ins
- Periodic request for additional check-ins
- Periodic announcement of the net name and mission

8.3 - Deactivation

Deactivation of tactical nets need to be part of overall incident planning. At a minimum, deactivation planning needs to start two shifts, but no less than one shift away from actual deactivation. Deactivation is to be coordinated with incident command planning and/ or the served agency liaison, the ARES County EC or AECs, and the local ARES Net Manager.

Because there may be several tactical nets in a larger incident, the number of the nets required would expect to be incrementally consolidated and eventually deactivated over time.

The Net Control Station (NCS) should follow a standard net structure for deactivation of a directed net, with:

- Announcing the conclusion of this particular net and thanking those who have participated.
- Announcing net consolidation, deactivation and debriefing procedures.

If located at a served agency location, as part of deactivation, operators are to make every effort to return their station area to its original condition.

9 - Traffic Nets

9.1 - Net Specifics

9.1.1 - Mode and Frequency

The mode and frequency of a particular net is determined based of the nature of the incident, the specific needs of the served agency, the nature of the traffic being passed, and will be determined based on the overall communication plan outlined in the *Gregg County Amateur Radio Emergency Communications Plan* document.

Amateur operators have to be careful when operating Health & Welfare (H&W) nets or passing H&W traffic. Often times, H&W traffic has the potential of containing sensitive personal information, such as medical conditions, etc. Usually, served agencies such as the Red Cross, prefer to transmit such data over their own channels. This is because those channels (phone, FAX, etc.), if available, are more secure. Amateur radio operators are prohibited by FCC regulation from encrypting transmissions. However, while not encrypted, there are digital modes of operation (WinLink, APRS, PSK31, etc.) that do make it more difficult for someone to intercept messages. It is incumbent upon the amateur operator to inform the served agency of the restrictions under which amateur radio must operate and obtain permission to transmit messages that contain sensitive personal information. Permission from the served agency must be obtained even if the message transmission is requested by a served agency client (an inhabitant of a shelter, for example).

9.1.2 - Net Layering, Feeder Nets, and the Liaison Station

Traffic nets are often layered. Within an affected area, there may be a local VHF/UHF traffic net that serves as a feeder net to a wider area net on HF. This requires that the VHF/UHF net not only have a Net Control Station, but also a Liaison Station to pass traffic that needs to be passed to the wider area net. This would require the Liaison Station have both VHF/UHF and HF capability.

9.1.3 - Message Format

The format of messages being passed in a net will be determined by the served agency. As more and more served agencies adopt ICS and NIMS protocol, the ICS-213 form or a variant thereof, is typically used for generic messages that need to be passed in a structured manner.

However, if the message needs to be passed into the National Traffic System (NTS), NTS uses the standard Radiogram format. While somewhat similar to ICS-213 or other served agency message formats, the Radiogram format has a specific header. While the amateur operator cannot change the content of the message text, it is incumbent upon the operator to format the message in such a way that it can be handled accurately by NTS operators.

9.2 - Activation

Activation of a traffic net is handled through the ARES County Emergency Coordinator (EC) or one of Assistant Emergency Coordinators (AECs), in coordination with Incident Command and/or the served agency liaison and the GCEC ARES Net Manager.

As indicated in previous sections of this document, there may be several traffic nets in a larger incident that are layered, as required by incident command.

The Net Control Station (NCS) should follow a standard net structure for activation and operation of a directed net, with:

- Preamble
- Check for priority traffic
- Initial request for check-ins
- Periodic request for additional check-ins
- Periodic announcement of the net name and mission

9.3 - Deactivation

Deactivation of traffic nets need to be part of overall incident planning. At a minimum, deactivation planning needs to start two shifts, but no less than one shift away from actual deactivation. Deactivation is to be coordinated with incident command planning and/ or the served agency liaison, the ARES County EC or AECs, and the local ARES Net Manager.

Because there may be several traffic nets in a larger incident, the number of the nets required would expect to be incrementally consolidated and eventually deactivated over time.

The Net Control Station (NCS) should follow a standard net structure for deactivation of a directed net, with:

- Announcing the conclusion of this particular net and thanking those who have participated.
- Announcing net consolidation, deactivation and debriefing procedures.

If located at a served agency location, as part of deactivation, operators are to make every effort to return their station area to its original condition.