**Comanche County**

**Amateur Radio Emergency Services**

**Training Plan**

June 6, 2022



**Amateur Radio Emergency Service® (ARES)**

Comanche County, Oklahoma

**Record of Changes**

|  |  |  |
| --- | --- | --- |
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**Glossary**

|  |  |
| --- | --- |
| AEC | Assistant Emergency Coordinator |
| ARCT | Amateur Radio Communications Team |
| ARES | Amateur Radio Emergency Service |
| ARO | Amateur Radio Operator |
| ARRL | American Radio Relay League |
| CCARES | Comanche County Amateur Radio Emergency Service |
| CERT | Community Emergency Response Team |
| DEC | District Emergency Coordinator |
| EC | Emergency Coordinator |
| EM | Emergency Management |
| EOC | Emergency Operations Center |
| FEMA | Federal Emergency Management Agency |
| HFRO | High Frequency Radio Operator |
| ICS | Incident Command System |
| NCFO | Net Control and Field Radio Operator |
| NCO | Net Control Operator |
| NIMS | National Incident Management System |
| PRRO | Packet RMS Radio Operator |
| RMS | Remote Mail Server (component in the Winlink 2000 system) |
| SEC | Section Emergency Coordinator |
| SM | Section Manager |

**Table of Contents**

[1.0 Executive Summary 4](#_Toc106016758)

[2.0 Amateur Radio Operator (Mandatory) 5](#_Toc106016759)

[2.1 Purpose 5](#_Toc106016760)

[2.2 Goals and Objectives 5](#_Toc106016761)

[2.3 Discussion 5](#_Toc106016762)

[2.4 Knowledge and Task Evaluations 5](#_Toc106016763)

[2.5 Radio Operator Skills-based Task List 6](#_Toc106016764)

[3.0 Net Control Operator (Optional) 8](#_Toc106016765)

[3.1 Goals and Objectives 8](#_Toc106016766)

[3.2 Net Control and Field Operator Task List 8](#_Toc106016767)

[4.0 High-Frequency Radio Operator (Optional) 10](#_Toc106016768)

[4.1 Goals and Objectives 10](#_Toc106016769)

[4.2 High-Frequency Radio Operator Task List 10](#_Toc106016770)

[5.0 Packet RMS Radio Operator (Optional) 11](#_Toc106016771)

[5.1 Goals and Objectives 11](#_Toc106016772)

[5.2 Packet RMS Radio Operator Certification Task List 11](#_Toc106016773)

[6.0 Implementation of Training Program 12](#_Toc106016774)

[7.0 Appendix A – Training Topics 12](#_Toc106016775)

[7.1 Emergency 12](#_Toc106016776)

[7.2 FEMA 12](#_Toc106016777)

[7.3 Forms 12](#_Toc106016778)

[7.4 Knowledge-Based Training 13](#_Toc106016779)

[7.5 Nets 14](#_Toc106016780)

[7.6 Safety 15](#_Toc106016781)

[7.7 Weather 15](#_Toc106016782)

# Executive Summary

The Comanche County Amateur Radio Emergency Service (CCARES) Training Plan identifies the minimum requirements for both knowledge and skills-based training elements for individuals seeking full CCARES membership status. The CCARES Amateur Radio Operator (ARO) Certificate is a requirement for full CCARES membership.

Minimum training standards are required to have reasonable assurances that the individuals selected for assignment have the necessary skills set to accomplish the requirements of the position they are being asked to fill, as do served agencies. A formal training program, regularly reviewed and updated, helps provide those assurances.

This training program is modular and progressive. It includes the basic tasks, skills, and knowledge necessary to meet the challenge of being prepared for a diverse range of operations with a variety of organizations.

The ARO certification is the foundation of this progressive training program. Members can choose to progress, learning additional skills that are central to performing our mission of meeting the emergency communication needs of the region. Three optional certifications are available, Net Control and Field Radio Operator (NCFO), High-Frequency Radio Operator (HFRO), and the Packet RMS Radio Operator (PRRO).

This plan details the required FEMA courses as well as some recommended training. All of which can be taken online for no cost or a minimal cost. Additionally, there is a hands-on section that is typically covered with the member’s team through drills and exercises.

New members have up to one year to complete the ARO requirements and attain the ARO certificate to be eligible for CCARES. Members can stop with just that basic training or can continue to pursue any of the three Radio Operator certifications.

# Amateur Radio Operator (Mandatory)

## Purpose

The purpose of this Training Plan is to build the consistency, effectiveness, and professionalism of technical, task-oriented skills training that is conducted for the benefit of CCARES ARES unit members.

## Goals and Objectives

* Provide a baseline task-based training and qualification program.
* The unique aspects of the CCARES mission seek to develop commonly required core competencies (tasks) that can be counted on when personnel may be requested by other units for mutual aid or augmentation manning.
* Aid in recruiting and retention efforts by providing meaningful training that fulfills the expectations of highly motivated individuals.
* Provide a progressive training regimen that allows individuals to advance to a level of their choosing while still providing for the minimum skill sets necessary for an effective unit-level response.
* Provide a documentation system that captures each individual’s accomplishments and provides documentation for credentialing.

## Discussion

On a priority basis, a successful training program is on a par with the other major goal of the EC’s program – keeping the Local EM satisfied that they are being well-served by the CCARES program. Because it is unlikely that either can be accomplished in the absence of the other, this training plan is overseen by the EC and coordinated by the AEC-Training delegate. The program also leverages the expertise of members with particular knowledge and external resources.

## Knowledge and Task Evaluations

Within one year, new members will:

* Complete the Knowledge-based training courses required by FEMA and ARRL: IS-100, IS-200, IS-700, IS-800, IS-315, IS-317, and EC-001.
* Attend two workshops, ARO Basics, and ARO Traffic.
* Complete the ARO Task List

Once these requirements have been met, CCARES will submit your paperwork and background check authorization to EM for issuance of a Comanche County Volunteer ID card.

## Radio Operator Skills-based Task List

AROs know how to operate their radio as well as serve agency or field go-kit equipment. They know the basic net protocol, and CCARES procedures and forms. ARO certification is required of all active CCARES members within one year after joining.

|  |  |
| --- | --- |
|  **Print Full Name** |  **Call Sign** |
|  |  |
| Obtain and provide certificates indicating completion of the required FEMA courses. |
| EC-001 | IS-100 | IS-200 | IS-700 | IS-800 | IS-315 | IS-317 |

**Equipment:**

\_\_\_\_ Personal portable radio with manual: Make: \_\_\_\_\_\_\_\_\_\_\_\_ Model: \_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ Extra batteries, or other alternative power source: \_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ Personal go-kit with items necessary for all personal needs for 24-hour deployment.

**Knowledge:**

\_\_\_\_\_ Explain what to do if the signal is not being heard.

\_\_\_\_\_ Recite ITU Phonetic Alphabet and spell a word or short phrase on demand.

\_\_\_\_\_ Explain what never to transmit.

\_\_\_\_\_ Explain the differences between informal and formal traffic.

\_\_\_\_\_ Explain what to do when disaster strikes and normal communications are not functioning.

\_\_\_\_\_ Explain what to do upon arrival at the deployment location.

\_\_\_\_\_ Define routine, priority, emergency, health and welfare, and life safety traffic.

\_\_\_\_\_ Explain when and why to listen on reverse.

\_\_\_\_\_ Explain when and why to disable repeater offset.

\_\_\_\_\_ Explain how to break a net for an emergency.

**Demonstration:**

Personal Radio

\_\_\_\_\_ Turn on and off.

\_\_\_\_\_ Set Frequency.

\_\_\_\_\_ Set offset if not automatic.

\_\_\_\_\_ Set PL tone.

\_\_\_\_\_ Save frequency to memory and assign location.

\_\_\_\_\_ Recall memory channel.

\_\_\_\_\_ Change power level.

\_\_\_\_\_ Lock and unlock.

\_\_\_\_\_ Listen on reverse.

\_\_\_\_\_ Disable repeater offset.

\_\_\_\_\_ Have all CCARES frequencies programmed in radio memory.

**Served Agency Equipment:**

\_\_\_\_\_ Fill out the inventory sheet in the kit.

\_\_\_\_\_ Turn on and off.

\_\_\_\_\_ Change power level.

\_\_\_\_\_ Switch between VFO and Memory modes.

\_\_\_\_\_ Find CCARES frequencies in memory.

\_\_\_\_\_ Set frequency and PL tone (OK to use cheat sheet).

\_\_\_\_\_ Listen on reverse.

\_\_\_\_\_ Disable repeater offset (or find simplex repeater frequencies in memory).

**Net Protocols:**

\_\_\_\_\_ Speak clearly.

\_\_\_\_\_ Use personal, tactical and station (club) callsigns correctly.

\_\_\_\_\_ Follow net protocol.

\_\_\_\_\_ Correctly present traffic on a net.

\_\_\_\_\_ Use Roger, Over, Out and Clear appropriately.

**Traffic Handling:**

\_\_\_\_\_ Fill out ICS 309 Communications Log.

\_\_\_\_\_ Fill out ICS 214 Unit Log.

\_\_\_\_\_ Copy an ICS 213 message accurately and legibly.

Items initialed and certified by: (Initialed and Signed)

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Net Control Operator (Optional)

## Goals and Objectives

Net Control and Field: In addition to all ARO requirements, can perform as net control for any net in any event, exercise or incident. We can feel comfortable sending this operator out of the county to assist elsewhere. All Leadership and Team leaders should be at this level.

## Net Control and Field Operator Task List

|  |  |
| --- | --- |
|  **Print Full Name** |  **Call Sign** |
|  |  |
| Obtain and provide certificates indicating completion of the required FEMA and CCARES courses. |
| EC-001 | IS-100 | IS-200 | IS-700 | IS-800 | IS-315 | IS-317 |

**72 Hour Personal Go-Kit: (In addition to 24-hour ARO kit)**

\_\_\_\_ Clothing changes.

\_\_\_\_ Sleeping bag or bedroll.

\_\_\_\_ Portable radio and power supply can operate in the field for up to three days.

**Knowledge:**

\_\_\_\_ Explain how to handle the emergency situation as net control.

\_\_\_\_ State required information to be included in any net preamble and closure.

**Perform Net Control for one CCARES weekly Net:** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ Follow the script.

\_\_\_\_ Identify every ten minutes.

\_\_\_\_ Accurately log and acknowledge check-ins.

\_\_\_\_ Handle doubles.

\_\_\_\_ Request repeats when necessary.

\_\_\_\_ List traffic, assign traffic to AROs, and track progress.

\_\_\_\_ Deal with QSTs, questions, etc.

\_\_\_\_ Send net report to Net Manager.

**Perform Net Control for two public events or drills:**

Date #1: \_\_\_\_\_\_\_\_\_\_\_\_\_

Date #2: \_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_ Have preamble and recite it at reasonable times.

\_\_\_\_\_ Give AROs clear instructions.

\_\_\_\_\_ Accurately log and acknowledge checkins.

\_\_\_\_\_ Track location of AROs.

\_\_\_\_\_ Use tactical and club callsigns appropriately.

\_\_\_\_\_ Keep ICS 214 Station Log and ICS 309 Communications Log and submit copy to

 Training manager. Submit original to EC.

\_\_\_\_\_ Handle traffic appropriately.

\_\_\_\_\_ Work well with EC, and EM staff or event staff.

Items initialed and certified by: (Initialed and Signed)

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# High-Frequency Radio Operator (Optional)

## Goals and Objectives

HF Operator: In addition to ARO certification, HF operators should demonstrate an ability to make local and regional contacts below 30 MHz without causing harmful interference. All leadership and team leaders with HF capabilities should receive this certification.

## High-Frequency Radio Operator Task List

|  |  |
| --- | --- |
|  **Print Full Name** |  **Call Sign** |
|  |  |
| Obtain and provide certificates indicating completion of the required FEMA and CCARES courses. |
| EC-001 | IS-100 | IS-200 | IS-700 | IS-800 | IS-315 | IS-317 |

**Verbal Response**

\_\_\_\_\_ Explain which HF bands to use to make statewide contacts during day/night.

\_\_\_\_\_ Explain when & how to use RIT/Clarifier function.

\_\_\_\_\_ Explain when & how to operate using split transmit/receive.

\_\_\_\_\_ Explain proper station grounding & how to minimize RF exposure.

\_\_\_\_\_ Explain Near Vertical Incident Skywave.

\_\_\_\_\_ Explain how to determine current radio propagation conditions (including A- & K-index).

\_\_\_\_\_ Explain how space weather affects radio signals.

\_\_\_\_\_ Explain how to prevent interference on HF bands (SSB).

\_\_\_\_\_ Explain impedance matching and why it’s important.

\_\_\_\_\_ Know common HF prowords & Q-codes.

**Practicum**

\_\_\_\_\_ Calculate the length for a ¼ wave dipole for 20 and 40 meters.

\_\_\_\_\_ Demonstrate use of antenna tuner or proper antenna tuning.

\_\_\_\_\_ Demonstrate ability to make contacts on HF within and out of Oklahoma.

\_\_\_\_\_ Demonstrate the procedure for changing transmit power.

\_\_\_\_\_ Demonstrate DSP, IF Filter, & gain adjustments.

Items initialed and certified by: (Initialed and Signed)

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Packet RMS Radio Operator (Optional)

## Goals and Objectives

Packet RMS Operator: In addition to all ARO requirements, Packet operators demonstrate an ability to make RMS Gateway and Peer-to-Peer connections on VHF/UHF to send and receive email traffic. All leadership and team leaders with packet RMS capabilities should receive this certification.

## Packet RMS Radio Operator Certification Task List

|  |  |
| --- | --- |
|  **Print Full Name** |  **Call Sign** |
|  |  |
| Obtain and provide certificates indicating completion of the required FEMA and CCARES courses. |
| EC-001 | IS-100 | IS-200 | IS-700 | IS-800 | IS-315 | IS-317 |

**Verbal Response**

\_\_\_\_\_ Explain what software and hardware are needed for RMS packet operations.

\_\_\_\_\_ Explain the difference between Peer-to-Peer and Gateway modes.

\_\_\_\_\_ Explain the key elements of how Winlink spam filters work.

\_\_\_\_\_ Explain how to bypass the Winlink spam filters.

\_\_\_\_\_ Explain how you can get your RMS mail without a radio.

\_\_\_\_\_ Describe the limitations of email attachments with the RMS packet.

\_\_\_\_\_ Provide the primary RMS gateway frequency and callsign for CCARES.

\_\_\_\_\_ Give two examples of gateways in neighboring counties.

\_\_\_\_\_ Explain the difference between simplex and repeater operations and how that impacts

 RMS Packet.

\_\_\_\_\_ Provide examples of how one might improve their packet signal.

**Practicum**

\_\_\_\_\_ Send an email via a local RF RMS gateway to another Winlink account and a non-

 Winlink address.

\_\_\_\_\_ Send an email via telnet.

\_\_\_\_\_ Send an email via a neighboring county RF RMS gateway.

\_\_\_\_\_ Update the station catalog in RMS Express and use it to pick an alternate Gateway.

\_\_\_\_\_ Send an email via Peer-to-Peer to another station.

Items initialed and certified by: (Initialed and Signed)

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Implementation of Training Program

In addition to the training provided at our monthly meetings, workshops, and on our weekly nets, skills and knowledge will be acquired and assessed in team meetings as well as in participation in drills, exercises, SETs, public service events, and ARES and NTS nets, and by one-on-one mentoring when necessary.

# Appendix A – Training Topics

## Emergency

* EME-101 Alert Readiness
* EME-102 Disaster Scene
* EME-103 Emergency vs. Disaster
* EME-105 Evacuation Chart
* EME-106 Evacuations
* EME-107 Legalities Emergency Communication
* EME-108 Ready or Not
* EME-109 Simulated Emergency Test - SET
* EME-110 Emergency / Disaster Com Plan for family
* EME-111 Hazardous Material
* EME-112 Alternative methods of communication
* EME-113 Hospital Emergency Communication
* EME-114 Disaster Communications / General Procedure
* EME-115 Emergency Operations Deployment
* EME-116 How repeaters are used during emergencies

## FEMA

* FMA-101 IS-100.A
* FMA-102 IS-200.A
* FMA-103 IS-700.A
* FMA-104 IS-800
* FMA-105 ICS History
* FMA-106 ICS Org Structure
* FMA-107 ICS Resources & Facilities
* FMA-108 ISC Structure Chart
* FMA-109 Where we fit

## Forms

* FRM-101 After Action Report
* FRM-102 ICS 205 Communication Plan
* FRM-103 ISC-211 Sign In Form
* FRM-104 ICS-213 General Message Form
* FRM-105 ICS-214 Unit/Activity Log
* FRM-106 ICS-309 Radio Log

## Knowledge-Based Training

* KNW-101 Area Repeater Map
* KNW-102 Are you ready?
* KNW-103 Basic Communication
* KNW-104 Coax Comparison 1
* KNW-105 Coax Comparison 2
* KNW-106 Crossband repeat
* KNW-107 Extend HT Range
* KNW-108 Fixed J-pole 1
* KNW-109 Fixed J-pole 2
* KNW-110 Generator
* KNW-111 Go Bag 1
* KNW-112 Go Bag 2
* KNW-113 Inappropriate use
* KNW-114 Know your radio
* KNW-115 Light Duty Tripod
* KNW-116 NVIS 1
* KNW-117 NVIS 2
* KNW-118 NVIS 3
* KNW-119 Power-Pole 101
* KNW-120 Power coax cases
* KNW-121 Power-Pole 2
* KNW-122 Roll up J-pole
* KNW-123 Two Way 101
* KNW-124 Battery Selection & Safety
* KNW-125 Being "In Charge"
* KNW-126 Charging Batteries
* KNW-127 Selecting A Generator
* KNW-128 Protecting from EMP
* KNW-129 Vacation Go-Kits
* KNW-130 Family First
* KNW-131 ITU Phonetics
* KNW-132 Organize Radio Memories
* KNW-133 Amateur Operation In Other Countries
* KNW-134 Winterize / Maintain Gas Powered Equip
* KNW-135 Generic Plan / Widespread - Extended Utility Outages
* KNW-136 Choosing A Radio For EmCom
* KNW-137 Evacuation Grab And Go Kit
* KNW-138 Working In An Incident Command Vehicle
* KNW-139 Operational Stress
* KNW-140 Prepare For Deployment
* KNW-141 Basic Repeater Operation
* KNW-142 NVIS Antenna Test
* KNW-143 Trailer mounted tower
* KNW-144 Communicating effectively 1
* KNW-145 Communicating effectively 2
* KNW-146 Water storage and purification
* KNW-147 Third-party communication
* KNW-148 Gasoline storage and generator maintenance
* KNW-149 Major emergency event preparedness
* KNW-150 Is amateur radio becoming obsolete for emergency communications
* KNW-151 Disaster / major emergency - What can be expected
* KNW-152 ARES as a group
* KNW-153 Amber alert
* KNW-154 Ice storms
* KNW-155 Pandemic influenza
* KNW-156 How to sound like an experienced operator
* KNW-157 Antenna polarization
* KNW-158 Hospital Radio Teams
* KNW-159 Basics of ICS
* KNW-160 ICS Organizational Structure
* KNW-161 ICS Resources and Facilities
* KNW-162 Organization of an ICS Structure
* KNW-163 Where do we fit in an ICS Structure
* KNW-164 Repeater Etiquette And Insights
* KNW-165 Emergency Deployments - It’s not just talking on the radio
* KNW-167 Water Warnings & Purification
* KNW-168 Conduct Threat - Needs Assessment
* KNW-169 Whey We Train

## Nets

* NET-101 ARES Nets
* NET-102 Net Control
* NET-103 Tactical nets
* NET-104 Operating tactical nets
* NET-105 Tactical calls
* NET-106 Operating in emergency nets
* NET-107 Operating in an emergency
* NET-108 WAN after-action report
* NET-109 WAN communication outage
* NET-110 Break Tags
* NET-111 Prowords I
* NET-112 Prowords II
* NET-113 The Net Control Station
* NET-114 Net Control Tips
* NET-115 Field Day
* NET-116 Indecision Can Kill
* NET-117 Communications Guidelines
* NET-118 ARES net operations tidbits
* NET-119 Logging and record-keeping
* NET-120 Communication training review

## Safety

* SAF-101 Generator safety
* SAF-102 Heat advisory
* SAF-103 Heat-related illness
* SAF-104 Safety tips, recovery operations
* SAF-105 How to store Gasoline for an emergency.
* SAF-106 Hide and run
* SAF-107 Hazardous Materials Incidents
* SAF-108 Carbon Monoxide Poisoning
* SAF-109 Amateur Radio And Electrical Safety
* SAF-110 Why lives are lost
* SAF-111 Lightning safety
* SAF-112 Personal safety
* SAF-113 Preparing to shelter in place - radiation emergency
* SAF-114 Disaster driving ARES style

## Weather

* WEA-101 Lightning protection 1
* WEA-102 Lightning protection 2
* WEA-103 Lightning protection 3
* WEA-104 Lightning protection 4
* WEA-105 Storm spotter
* WEA-106 Turn around
* WEA-107 Tornado guide
* WEA-108 Tornado ready
* WEA-109 Oklahoma NWS