The EC Academy

A one-day workshop
for new and prospective leaders
of amateur radio
auxiliary communications units

ARRL NW Division Conference

Seaside, Oregon

June 5, 2015

Housekeeping!

- Breaks---a few minutes each hour, if you can get us to stop talking.
- Take notes!---You'll need them for the final exam.
- Potties---yes, we do have them. And, they are inside the building!
- Fire Exits---clearly marked. If you could get here, you can get out.
- Lunch---should have ordered ahead of time......but....well...maybe.
- Earthquake and Tsunami---surprise! You are in an bad, bad, place.
- Ask questions! Lots of questions!

Organization

- Please write your name, call sign, county/state on the place card.
- Please sign-in on the clip board sign in sheet.
- Go to www.oregonaresraces.org, then Admin Documents, and download ARES Manual
- A limited supply of paper and pencils are available.
- Ask questions! This is a discussion group, not a lecture hall.
- There are no 'sacred cows'.
- You ARE part of an experiment.

Ev Curry, W6ABM
Oregon Section Manager

Why Emergency Communications

- FCC Part 97.1 (a.) "Recognition and enhancement of the value of the amateur radio service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications."

- Government and other systems may fail or become over-loaded. Amateur radio is the back-up.

- We are there. FEMA, the National Guard, the state, are not there.

- We know how. We build. We fix. We operate.

- It's YOUR community. Your family, your neighbors, your town.

- The American tradition of volunteerism and self-help.

The Structure of Auxiliary Communications and Emergency Communications Units

- ARRL's Amateur Radio Emergency Service (ARES)

- Radio Amateur Civil Emergency Services (RACES)

- Military Auxiliary Radio System (MARS)

- Auxiliary Communications Units under the Incident Command System

- Agency Special Communications Units

Amateur Radio Emergency Services: Organization

# Amateur Radio Emergency Services: Oregon
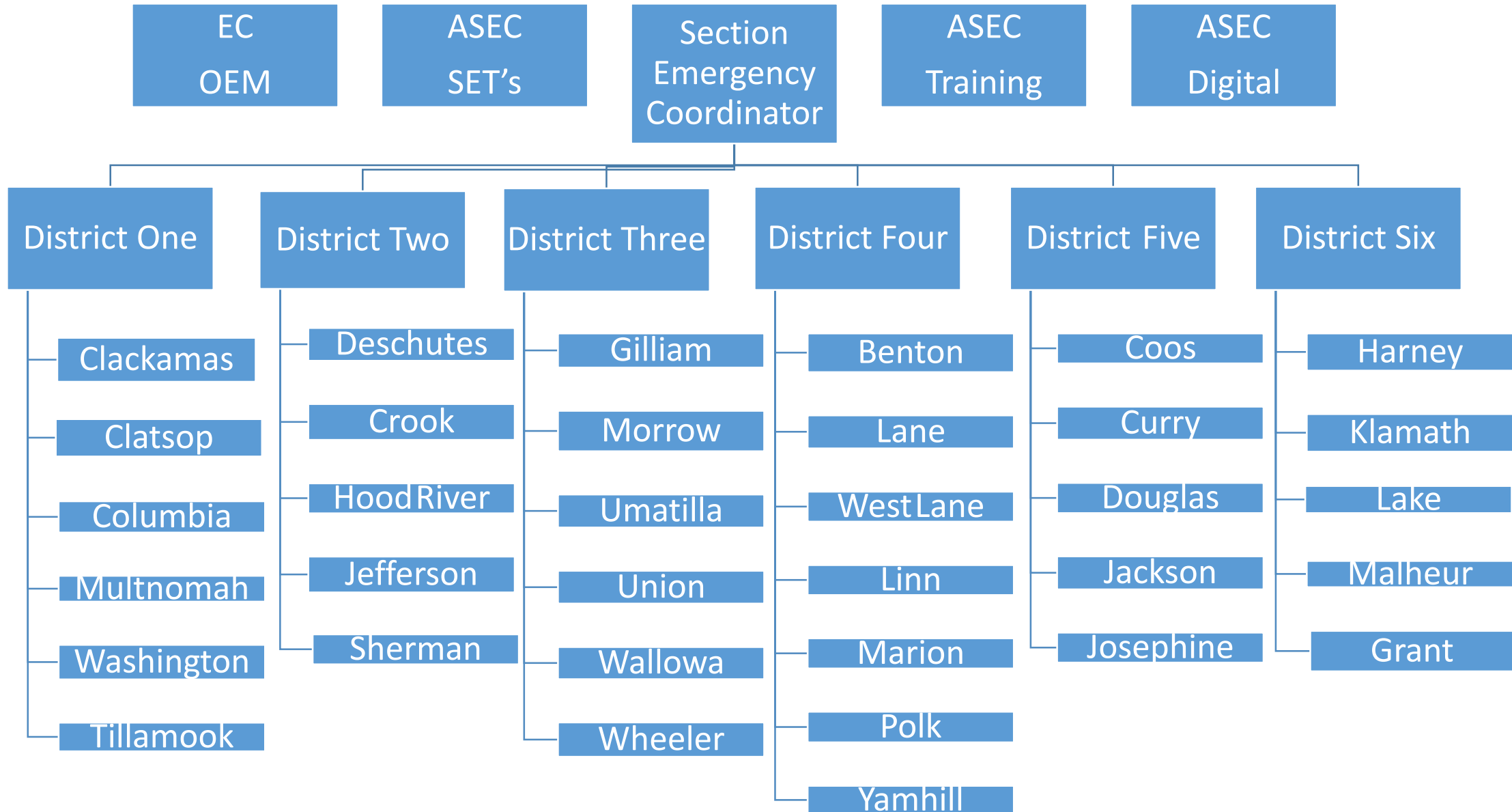
Radio Amateur Civil Emergency Service (RACES)

- RACES is a radio 'service' created by FCC 97.407.

- There is no RACES 'organization', as such.

- Amateur radio operators may not transmit in RACES unless they are authorized by and registered with a 'civil defense organization'.

- When so authorized they may ONLY communicate with:
  - Other RACES stations.
  - Other stations in an FCC regulated service, when authorized by the FCC.

- All communications must be authorized by the 'civil defense organization'

Military Auxiliary Radio System (MARS)

- MARS is a DOD sponsored program including USAF, USA, USN-USMC.
- Provide auxiliary communications for military, civil, and/or disaster officials during periods of emergency.
- In some states MARS is a major EMCOMM player, especially digital.
- Operates on military, not amateur, frequencies.
- MARS has a station at Oregon Emergency Management

Auxiliary Communications Units under the ICS
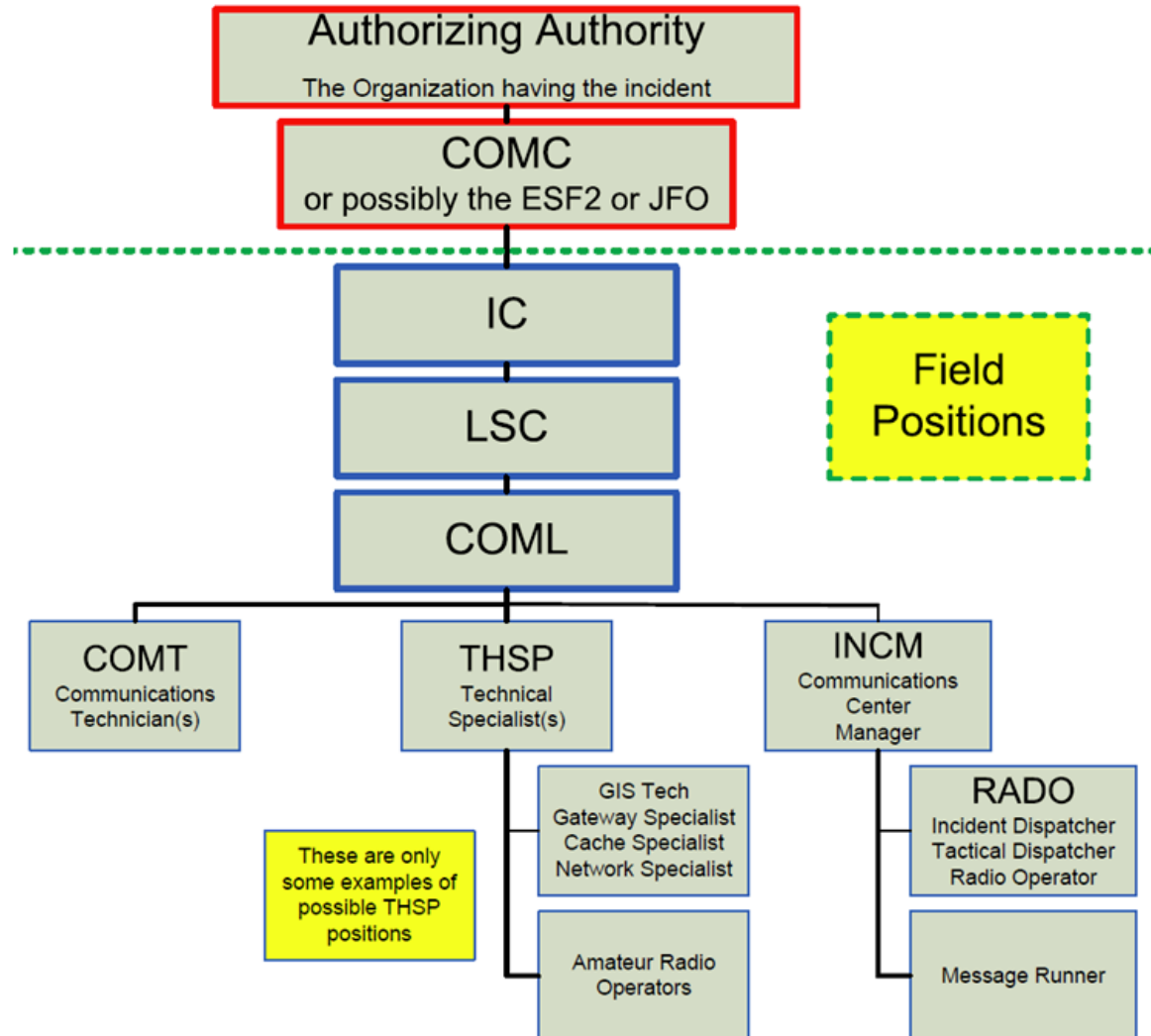
Agency Special Communications Units

- Oregon Department of Transportation
- Portland Gas and Electric
- Bonneville Power
- Bureau of Reclamation
- Community Emergency Response Teams (CERT)
- Search and Rescue Units (SAR)
- U.S. Coast Guard Auxiliary
- National Weather Service

- Hospital systems, such as HEART
- Oregon Disaster Medical Teams (ODMT)
- SATERN
- Auxiliary Communications Service (ACS)
- Red Cross
- Civil Air Patrol

Communications Unit Staff

- What staff does a EMCOMM unit need?
  - Unit leader
  - Operations
  - Training
  - Public Information
  - Recruiting
  - Exercises
  - Members

Terry Pietras, W7JOC
Oregon Office of Emergency Management

John Core, KX7YT
OR. ASEC-SETs

Frank Gruber, KB7NJV
Or. Section Youth Coordinator

Recruitment

- Local radio clubs.
- Middle schools and High Schools
- Scouting groups
- On-the-Air
- Hamfests
- License Classes
- Direct Mail

Retention of Volunteers

- Who are the volunteers?

- Why do they volunteer?

- What do volunteers expect from us?

- How do we keep our volunteers?

Where is the next generation of leaders?

Succession planning is a process for identifying and developing [internal people](#) with the potential to fill key business leadership positions in the [company](#). Succession planning increases the availability of experienced and capable employees that are prepared to assume these roles as they become available. Taken narrowly, "replacement planning" for key roles is the heart of succession planning.   (from Wikipedia)

Oregon ARES/RACES 'Red Card'

- Based on a hand-shake agreement several years old.
- Involving ARES/RACES, Oregon Emergency Management Association and Oregon Office of Emergency Management.
- Some items are based on meeting FEMA NIMS requirements.
- Some items came from OR county Emergency Managers.
- Some items came from the OR ARES/RACES training program.
- Probably should negotiate a formal agreement.

Red Card Requirements

- Law enforcement background check.
- Completion of three FEMA Incident Command System courses:
  - ICS-100 Introduction to the Incident Command System
  - ICS-200 ICS for Single Resources and Initial Action Incidents
  - ICS-700 An Introduction to the National Incident Management System (NIMS)
- Registration by the county Emergency Manager as a Volunteer as defined in ORS 401.358
- Completion of the ARES/RACES Amateur Radio Operator (ARO) Training Requirements (Being Revised, New Requirement).

OREGON EMERGENCY MANAGEMENT
Request for RACES Identification Card

Forward request to:

Oregon Emergency Management
ATTN: Communications Officer
PO Box 14370, Salem, OR 97309-5062
or fax to: 503-373-7833

I, the undersigned, hereby certify that the volunteers listed below have met the background check requirements set forth by Local and State Emergency Management Officials (appendix 5 in State of Oregon Amateur Radio Communications Plan).

Requested by:
Check one: ☐ Emergency Manager ☐ Director ☐ Coordinator ☐ Assistant
County:
Return Address:
Address line 2
Address line 3
City, State, Zip
Phone:
Certificates: ☐ ICS 100, 200 & 700
Signature:

[The following information will be required to obtain identification cards]

VOLUNTEER NAME (last, first, mi)	CALLSIGN	DOB (mm/dd/yy)	ODL#	DPSST#

The following volunteers are no longer affiliated with the RACES program for my county.

Please remove the following volunteers from the State database:

VOLUNTEER NAME (last, first, mi)	CALLSIGN	IDENTIFICATION CARD #

ARES/RACES Unit Activation Policy

- Members are not 'self-activating'.
- There is no such thing as a 'partial activation'.
- Unit usually activated by the county Emergency Manager.
- Might be activated by the SM, the SEC, the DEC or the EC under very unusual circumstances. If so, immediately notify the county EM and the SEC.
- However, common sense should prevail. If the ground shakes, the volcano erupts, the dam breaks or a comet comes down in your yard…   The EC should do what needs to be done, and notify the EM!!

The Emergency Coordinator-Emergency Manager Relationship

- This is a delicate, sometimes contentious, relationship.
- ARES/RACES members are 'registered county volunteers' (ORS 401.358).
- ARES/RACES members are also members of a corporate entity, ARES, which is sponsored by the American Radio Relay League (ARRL).
- The working relationship is generally that:
  - ARES does the recruitment, sets Unit policies, and does the training.
  - The county EM, as the 'served agency' is responsible for deployment in an emergency.
- The need for an agreed upon disaster communications plan.

Paul Guthrie, KE7OLU
Marion County Emergency Coordinator

Training? Who needs training!

- I've been a ham for sixty years. I don't need no training!
- Of course I'll help. When there's an emergency……
- I don't wanna take those silly ICS courses.
- Background check! No way is the govmint checking up on me!
- I've got an Extra Class license, I don't need training.

What are we training for?

- Train for the most likely event.

- Train for the worst event that could happen.

Oregon ARES/RACES Training Program

- Training to the County Emergency Communications Plan
- Simulated Emergency Tests (SETs)
- Oregon ARES Digital Network (OADN) Quarterly Testing & Reporting
- Unit Certification
- Individual Certification

Training to the County Emergency Communications Plan

- Chapter 401 of ORS: Emergency Management and Services
- Covers OOEM, county Emergency Management Agencies
- Provides for Federal grants to state and counties (EMPG's)
- Counties must have a county disaster plan
- Part of which should include a Communications Annex
- The ARES/RACES Emergency Coordinator works with the county Emergency Manager to determine amateur radios role in providing back-up/emergency communications
- Then the ARES/RACES EC trains the Unit to that plan
- The ARES/RACES EC submits an annual training plan to the SEC
- Every county is different and has different needs

Digital Network Quarterly Testing & Reporting

- Required by ARES and OOEM by agreement with counties and Units
- Test the operational capability of grant equipment at least quarterly
- File using template provided and installed in Winlink RMS Express
- Instructions in 'OADN Quarterly Connectivity Test & Report'
- Requires:
  - Connect to and use an Oregon Pactor Gateway
  - Connect to and use at least one out-of-state Pactor Gateway
  - Connect to and use at least one out-of-county VHF RMS Gateway
  - Send report to SEC, ASEC-Digital and ASEC-Training

Unit Certification

- Basic Unit Certification

- A local or area repeater is available and operational

- The Winlink client & VHF Gateway stations are installed & operational

- The last four Quarterly OADN Connectivity Reports have been filed

- The county EOC can be operational within 4 hours.

- Able to staff the EOC in 12 hour shifts for at least 72 hours

- Unit meeting solely for training are held at least 6 times a year

- Annual total of at least 12 hours of unit training help in a year

- Individual attendance and training records are kept

- Up to date annual training plan approved and on file

Basic Unit Certification-Continued

- Members must have completed:
  - ICS courses 100, 200 and 700.
  - A criminal background check
  - Amateur Radio Operator Individual Training Requirements
- The Emergency Coordinator and/or the AEC-Operations has attended the ARES/RACES Annual Leadership Conference
- The Unit has participated in at least one of the two annual section Simulated Emergency Tests (SETs) and submitted an After Action Report
- The Unit has participated in any other exercise(s) required by the county Emergency Manager.

Intermediate Unit Certification

- All requirements for Basic Certification

- Emergency power available at the repeater site, or readily available to be taken to the site.

- RMS Packet connectivity to a neighboring counties VHF Gateway, or, if that is not possible, to at least two HF Pactor Gateways

- The county EOC can be operational within 2 hours

- In counties where a mobile, transportable or Continuation of Operations (COOP) facility is available, all Intermediate Unit Certification requirements shall also apply to that location

- The Emergency Coordinator is not a shift worker.

- Monthly Unit meetings are held solely for training purposes.

Intermediate Unit Certification-Continued

- The Unit works and trains with other served agencies as requested by the county Emergency Manager and includes them in exercises.

- Annual total of at least 24 hours of training, including exercises and actual events.

- Lesson plans are prepared before training, including handouts, guides, overhead and/or power point presentations

- The Unit has a process for training of AEC's for Operations, Training, Records, COOP Operations and Public Information Officer.

- The Unit has participated in both semi-annual section SETs and submitted After Action Reports. A significant local, multi-county or regional exercise may substitute for one of the SET's.

Advanced Unit Certification

- Have an operational antenna for operation on 1.978 MHz

- HF Antennas at the EOC are Near Vertical Incidence Skywave (NVIS)

- There is adequate emergency power for all amateur equipment, including OADN, at the EOC and COOP sites.

- At least one unit member is an Official Emergency Station (OES).

- The Unit has a dedicated phone number or extension at the EOC

- The Unit has an 'electronic' means of delivering traffic within the EOC; that is, a 'paperless' method of delivering traffic.

- The Unit has a 'transportable' equipment station capable of VHF and HF voice and VHF and HF Winlink for use at an incident scene.

Advanced Certification-Continued

- The Unit has sufficient membership to provide 24/7 coverage of the EOC for a minimum of 72 hours and to support communications with a minimum of 10 other served agencies as the Emergency Manager may direct.

- The Unit works with and trains other served agencies in the county in field operations as requested by the county Emergency Manager

- The Unit training plan includes reasonable opportunity for members to participate in training courses and attend programs related to their duties.

- The Unit participates in both semi-annual section Simulated Emergency Tests (SETs) and assists the ASEC-SET in the development of at least one of those activities in a 3 year period.

Individual Certification

- Amateur Radio Operator
- Assistant Emergency Coordinator—Operations
- Assistant Emergency Coordinator—Communications Technician
- Emergency Coordinator

Amateur Radio Operator—Knowledge Based

- What are the three Oregon ARES/RACES net frequencies on 160, 80 and 40 meters?

- On what website can all Oregon counties basic frequency plans be found?

- What is the call sign of the Amateur Radio Unit at Oregon Emergency Management?

- What is the call sign of your county EOC used for both voice and digital traffic?

- What is the ICS-309 form used for and how is it filled out.

- What is the ICS-213 form used for and where would you find one?

- Who should be notified as soon as possible when your ARES/RACES unit is activated by the Emergency Manager for a real incident?

- What is the fastest and most reliable way of sending a message to Oregon Emergency Management when requested to do so by your county Emergency Manager, assuming the internet is down and no phones are available?

- After checking into a voice net, when is it permitted to leave the net frequency?

- What does the term 'directed net' mean?

Amateur Radio Operator—Knowledge Based

- What is meant by the term NVIS antenna, and why are they used?
- What organization is responsible for Health and Welfare traffic out of and into a disaster area?
- On a directed net, with a Net Control Stations (NCS) directing the net, what frequency would most of the message traffic be passed on?
- When you are done passing traffic on a directed net, what should you next do?
- The contents of your 'Bug Out Bag' should allow you to be deployed for a minimum of how long?
- What time is used on all Oregon radio messages: GMT, UTC, local time, military time or PDST?
- What is the state-wide ARES/RACES calling frequency on 2-meters?

Amateur Radio Operator—Knowledge Based

- When should the names of victims be included in a voice message?

- Where should radio amateur who checking the county ARES/RACES net be directed to take Health and Welfare traffic?

- What are the three basic methods or modes of sending message traffic via the digital Winlink system?

- Where will you find the standard format for the ARES/RACES message formats in RMS Express?

- What is the first message that should be sent out when your ARES/RACES unit is activated, and to what addressees?

Amateur Radio Operator—Skill Based

- Recite the Standard Phonetic Alphabet.

- Set up an EOC transceiver, correctly tuned and to the correct antenna, on one of the Oregon state ARES/RACES net frequencies.

- Set up a VHF transceiver on the repeater that your county ARES/RACES emergency net would use in the event of an incident.

- Fill out a ICS-213 for addressed to the correct person at OEM asking if they have received your unit activation message.

- With the EC or AEC-OPS acting as Net Control, check into a simulated VHF net and pass the results of (4) above.

- Layout the contents of your 'Bug out Bag' that y ou would use for a minimum 72 hour deployment out of the county EOC.

- Using the digital system, connect to two out of county VHF or HF Gateways.

Amateur Radio Operator—Skill Based

- Write an Activation message for your Unit using the correct Template from the RMS Express software.

- Program and EOC VHF/UHF radio to a frequency not now in memory.

- Program a personal radio with the VHF/UHF frequencies, including off-sets and repeater tones, that are used in your county.

Assistant Emergency Coordinator—Operations (AEC-O) Knowledge Based

- Complete all requirements for Amateur Radio Operator.
- Certificate of completion for ICS-800-National Response Framework
- Show how the ICS-214 Unit Log form is used.
- Show how the ICS-205 Incident Radio Communications Plan is used.
- Show how the ICS-205A Communications List is used.
- Show how the ICS-217A Communications Availability Worksheet is used.

Assistant Emergency Coordinator—Operations (AEC-O) Skills Based

- Complete all requirements for Amateur Radio Operator.

- Act as Net Control Station (NCS) for a directed VHF or HF net.

- Demonstrate use of radio and telephone communications logs.

- Demonstrate use of ICS forms in voice communications.

- Able to process incoming and outgoing radio traffic for the Emergency Manager into the standard ICS-213 format.

- Develop an inventory of Unit equipment.

- Work with the EC to develop an annual Unit Training Program.

- Work the EC and the EM in developing the county Emergency Communications Annex to the County Disaster Plan.

Assistant Emergency Coordinator—Operations (AEC-O) Skills Based

- Coordinate a state-level ARES/RACES SET plan to include the participation of local served agencies.

- Be able to respond to e-mails or telephone calls within 72 hours.

- Demonstrate the correct use of all message Templates in the RMS Express software.

Assistant Emergency Coordinator—Comm. Technician (AEC-CT) Knowledge Based

- Describe appropriate grounding techniques in electrical and RF systems.

- Explain how the Winlink digital radio system operates state-wide.

- Describe the Units operations in the county Continuation of Operations (COOP) plan.

- Explain what an NVIS antenna is and why it is used.

- Explain how absorption in the D and E layer effect HF communications in the 160, 80 and 40 meter bands.

- Describe what emergency power sources are available at the EOC.

- Explain the difference between an RMS Gateway and a digipeter.

Assistant Emergency Coordinator—Comm. Technician (AEC-CT) Skills Based

- Be able to locate antennas in suitable locations and heights.

- Supervise an antenna erection project for safety issues.

- Measure and explain the concept of Standing Wave Ratios.

- Use an Antenna Analyzer to determine impedance and frequency.

- Install and test an HF radio transceiver in the EOC, taking care to follow proper safety procedures.

- Install, program and test RMS Express on a Unit computer.

- Install and test a complete Winlink digital system, including computer, modem and radio

- Assemble and test emergency communications equipment that is used at a Continuation of Operations Plan (COOP) site.

Assistant Emergency Coordinator—Comm. Technician (AEC-CT) Skills Based

- Develop a preventive maintenance plan for all radios and radio related equipment in the EOC, COOP locations and transportable equipment.

- Set up one of the EOC's dual band VHF/UHF transceivers as a cross-band repeater.

- Demonstrate the use and describe the purpose of the RMS propagation selection program for Winlink pactor use.

- Be able to install, setup and use communications programs on the Unit's computer systems.

Emergency Coordinator (EC)
Knowledge Based

- Complete all the Knowledge Based requirements for both the Amateur Radio Operator and the Assistant Emergency Coordinator—Operations.

- Complete the following within one year of appointment:
  - ICS-800 Introduction to the National Response Framework
  - ICS-802 Emergency Support Function-2: Emergency Communications
  - ICS-288 The Role of Voluntary Organizations in Emergency Management
  - ICS-775 EOC Management and Operations
  - ICS-300 Intermediate ICS for Expanding Incidents and ICS-400 Advanced ICS

  Or

  - E-969 ICS All Hazards Communications Unit Leader

  Or

  - Office of Emergency Communications Auxiliary Emergency Communications (AEC)

Emergency Coordinator (EC)
Skills Based

- Complete all the Skills Based requirements for both the Amateur Radio Operator and the Assistant Emergency Coordinator—Operations

- Develop and Annual Training Plan approved by the county Emergency Manager, the SEC, the DEC and ASEC-Training

- Have an equipment acquisition plan to continuously improve the communications capabilities of the Unit

- Evaluate the safety requirements of the Unit personnel operating in the EOC and at any assigned outlying posts.

- Arrange regular meetings with the county Emergency Manager or staff member for planning and information sharing.

The Oregon Auxiliary Communications System

Remember!

- Amateur radio is a 'back-up' system.
- There are other communications options:
  - Shared Resources High Frequency Radio Program (SHARES)
  - Military Auxiliary Radio System (MARS)
  - Project SECURE
  - Oregon Military Department (National Guard)
  - Normal state/county/local radio: OSP, SO's PD's, Fire, 9-1-1 Dispatch
- When the normal means of communication become overloaded.
- When the normal communications systems fail.
- When the power is out.
- When the internet is down.

Oregon Auxiliary Communications Network

FEMA/Homeland Security

Oregon Office of Emergency Management

County Level Emergency Management Departments

City Level Emergency Management Departments

Declarations of Emergency

- **401.165 Declaration of state of emergency; procedures.** (1) The Governor may declare a state of emergency by proclamation at the request of a county governing body or after determining that an emergency has occurred or is imminent.

- (2) All requests by a county governing body that the Governor declare an emergency shall be sent to the Office of Emergency Management. Cities must submit requests through the governing body of the county in which the majority of the city's property is located. Requests from counties shall be in writing and include the following:

- (a) A certification signed by the county governing body that all local resources have been expended; and

- (b) A preliminary assessment of property damage or loss, injuries and deaths.

Traffic Flow at the City/Local Level

- Most traffic by voice radio.
- Most traffic on local repeaters and VHF/UHF simplex.
- Some traffic by digital radio—
  - Confidential
  - Accuracy
  - Long
  - High volume
- Most traffic probably tactical in nature, not formal.
- Traffic from:
  - Local government agencies (Police, Fire, SO, Public Works, Parks)
  - Local service agencies (Red Cross, Salvation Army, CERT)
  - Citizens, from Emergent Volunteers

Traffic Flow at the County Level

- Counties have the biggest mix of voice and digital traffic.

- Most traffic within the county by voice radio.

- Most traffic within the county on repeaters and VHF/UHF simplex.

- Much of that traffic will be on county VHF nets.

- Most of traffic will be tactical, but some will be written formal.

- Some local traffic on digital systems, especially from hospitals.

- Almost all traffic to the state—OEM—will be digital.

- ALL of that traffic will be formal traffic on a ICS-213 form.

- (Question: Should the counties ask for an acknowledgement, or should OOEM automatically receipt for all traffic received?)

Traffic Flow at the State Level

- Traffic to and from the state EOC will involve county governments, other state governments, and the Federal Government (FEMA).

- The OOEM ARU does NOT handle:
  - Private messages.
  - Traffic from or to 'emergent volunteers'
  - Health and Welfare traffic, that goes via the National Traffic System (NTS)

- Almost all traffic to and from the state EOC will be digital.

- The OOEM ARU will monitor two of the state ARES/RACES voice net frequencies for traffic from counties whose digital systems have failed.

- The OOEM ARU will NOT be the HF Net Control Station (NCS). That should be done by out-of-effected-area Official Emergency Stations (OES).

Traffic Flow at the State Level – continued

- Depending on circumstances, the OOEM ARU will:
    - Monitor the Oregon state-wide ARES/RACES Simplex frequency.
    - Monitor the District-1 and District 4 net frequencies.
    - Monitor the coastal repeaters in Astoria, Mt. Hebo, Waldsport and, if possible, Florence.
    - Other frequencies can be monitored by request.
    - What frequencies are being monitored will be listed in the OOEM ARU Activation message or amendments thereto.
- Traffic volume expectations:
    - Hard to predict, and depends on incident location and severity.
    - Local traffic volume grows rapidly in the first few hours.
    - Traffic volume to OOEM is slow at first from the disaster area, growing as local government organizes its response.
    - Traffic volume to other states and FEMA is low.

What is the Purpose of the OADN?

- Provide backup/emergency communications between the County government and the State

- Provide hard-copy, error-free, rapid, relatively secure and traceable communications to both parties

- Basically, an 'E-mail by radio' system, with the ability to do attachments

VHF Radio Mail Servers (RMS) Gateways

- The name of the game is 'chase the internet'
- Each Winlink VHF RMS Gateway is a stand-alone portal to the internet
- Each county has at least one Gateway, two would be better.
- If two or more, try and use different ISP's
- Many Gateways are provided by ARES, but some are provided by individuals or groups
- All are open to general amateur use, not just ARES

Most Common Forms of Messages

- ARES/RACES Unit Activation Message
- County Declaration of Emergency
- County Request for Services/Assistance
- Situation Reports
- General Message Form
- Also get Weather Reports, Quarterly Reports and do Attachments
- All messages are in ICS-213 format, often with 'prompts' to help the originator.

OADN RMS Packet Sites
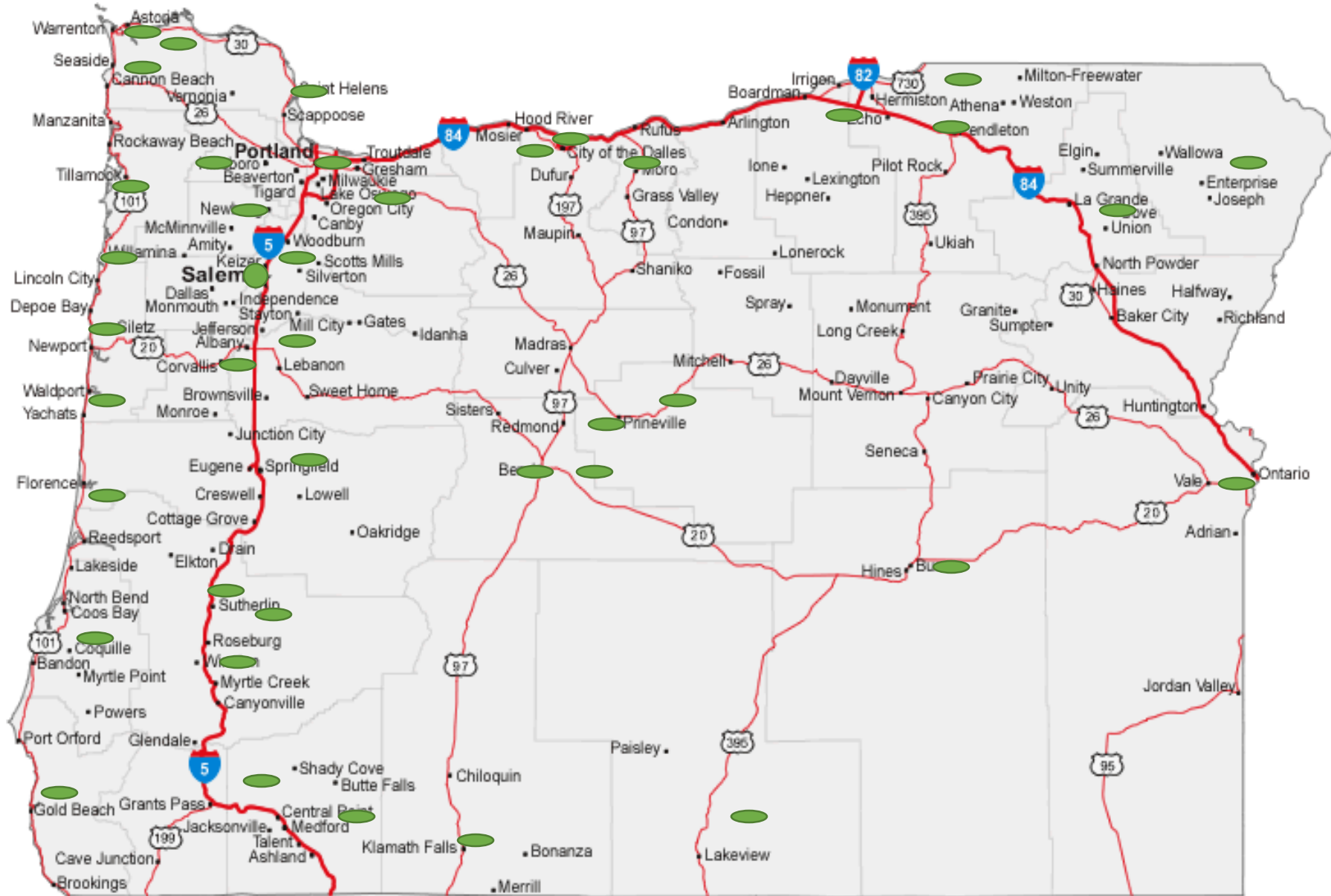
Operational Concept

- Your County's Gateway is NOT for your use! If it has the internet, you probably do too!

- Your county's Gateway is for your neighboring counties! When they lose the internet, they use your Gateway.

- Your neighboring counties Gateways are for your use when YOU lose the internet.

- If the regional internet is down, you go to HF Pactor.

- Gateways should be on 24/7

The Role of RMS Pactor Gateways

- Used when internet outages are area-wide or regional
- Over 50 RMS Pactor Gateways world-wide
- Three in Oregon. One at OEM in Salem (W7ODN) and one in NE Oregon (K7ODN)
- A Third in SW Oregon (WA7ODN) using Winmore
- All on 80, 40 and 30 meter frequencies
- All stations and HF Gateways use NVIS antennas
- RMS Express does propagation prediction

The Final Exam—'What Ya Gunna Do?'

- 0207 Tomorrow morning.
- 0208
  - Small earthquake on the coast and in the valley—3.5R
  - What ya gunna do?
- 0218
  - Check the West Coast and Alaska Tsunami Warning Center
- 0219
  - A 9.2R off Honsu Island
  - Clearly, the two can't be related. (can they!?)
  - What ya gunna do?
- 0235
  - Hey, how about the Pacific Earthquake and Tsunami Warning Center!

'What Ya Gunna Do?

- 0236
  - A 10 foot Tsunami is predicted for Hawaii on western beaches at 0345.
  - What Ya Gunna Do?

- 0355
  - The wave that hits Hawaii turns out to be 30 to 40 feet high!
  - What Ya Gunna Do?

- 0515
  - Now have predictions from Pacific Earthquake and Warning Center at Hilo and from Alaska and West Coast Warning Center at Palmer with tsunami warning times for Oregons coast for a 10 to 15 foot tsunami between 0815 and 0830.
  - What Ya Gunna Do?

- 0630
  - A second earthquake occurs in the Cascadia Subduction Zone. 7.2R on the coast. 4.3 in the Valley.
  - Power goes, cell phones go, phones lines go, internet goes.
  - If the common wisdom is correct, the coast gets a Tsunami at about 0645 AND at 0815!
  - What Ya Gunna Do?

- Questions?

- Comments?

- Contact:
  - Vince Van Der Hyde, K7VV
  - Section Emergency Coordinator
  - Oregon ARES/RACES
  - k7vv@msn.com