

# Net Control in Disaster Operations



MARION COUNTY  
AMATEUR RADIO EMERGENCY SERVICE



# Housekeeping



- Pen/pencil & paper
- Cell phones & pagers
- Side conversations
- Questions
- Refreshments
- Breaks
- Restrooms
- In case of emergency



# Introductions



- Name
- Call sign
- First year licensed
- Did you attend the “Introduction to Emergency Communications” class?
- What part of the county  
do you live in?



# Learning Objectives



At the end of this class, you should be able to:

- Describe the purpose and usage of each Marion County net
- Describe the proper attributes and techniques of a net control operator
- Perform proper record keeping and logging
- Properly start up a net
- Properly operate a net
- Properly hand off report summaries



# Learning Objectives



- Describe how to deal with net control challenges
- Properly work with a scribe
- Describe the equipment options for net control
- Properly perform resource tracking
- Properly manage a resource net for an event
- Properly hand off a net
- Properly close a net



# Marion County Nets



# What is an Amateur Radio Net?



- An Amateur Radio Net exists whenever 3 or more operators are in simultaneous contact with each other for the purpose of exchanging information or passing informal or official traffic.
- Open Net
  - ✦ Stations call each other directly to pass traffic
- Directed Net
  - ✦ Station call only net control directly, go direct to other stations only with net control permission

# Resource Net



- Usually the first net activated in the county
- Directed net
- Activation Levels
  - ✦ Level 5 – normal operations
  - ✦ Level 4 – prepare to mobilize
  - ✦ Level 3 – prepare to respond immediately
  - ✦ Level 2 – volunteers have been mobilized
  - ✦ Level 1 – national level disaster declared
- Frequencies
  - ✦ Primary: 147.120 (-)
  - ✦ Alternate: 443.850 (+) PL 88.5
  - ✦ These frequencies are pre-planned and may change depending on resource availability



# Message Net



- Usually the second net activated in the county
- Directed net
- Official message traffic for served agencies
  - ✦ Typically: agency to agency
- Formal messages
  - ✦ Official Message Form (ICS 213)
  - ✦ All message and responses numbered and tracked
- Information messages
  - ✦ “MEDMACC is checking in...”
- Frequencies
  - ✦ Primary: 443.000 (+) PL 100
  - ✦ Alternate: 146.700 (-)
  - ✦ These frequencies are pre-planned and may change depending on resource availability.



# Tactical Net



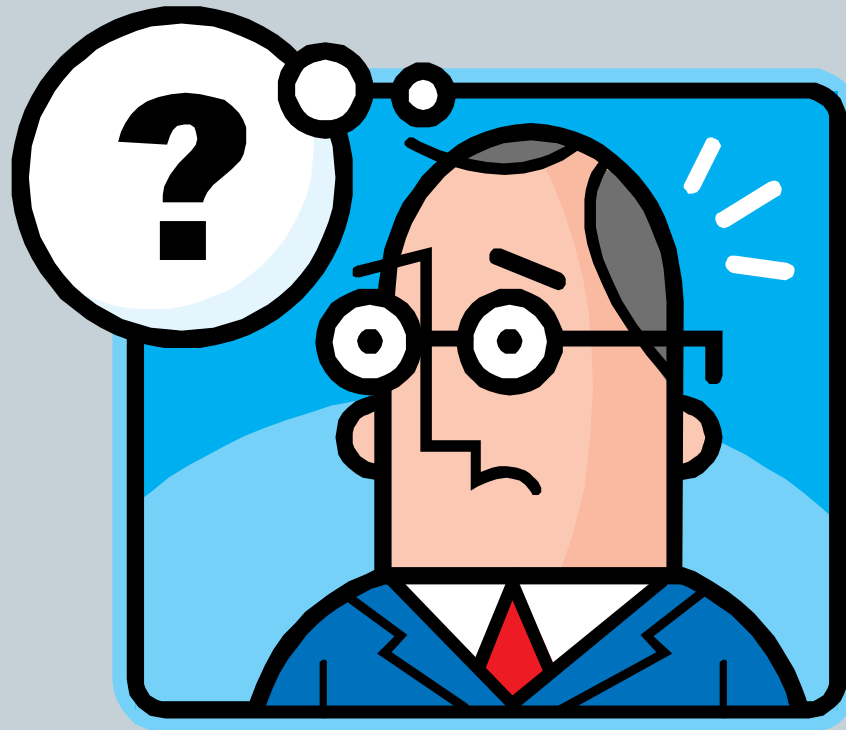
- Maybe a directed or informal net
- Established when and where needed
  - ✦ Staging areas, checkpoints, rovers, shadows
- Localized, often informal messages
  - ✦ “Checkpoint 3 reports Bryant’s creek at 1 foot above flood stage”
  - ✦ “Rover 2 reports all runners have now passed rest stop 4...”
- May also include formal message
  - ✦ Resource request from shelter, hospital, or school
- Frequencies
  - ✦ Assigned as needed at the time of net activation

# Other Net Types



- **Command Net**
  - ✦ Official traffic between Operational Area command staff and EOC's
  - ✦ Not intended for field use
  - ✦ Primary: 147.210 (+)
- **Hospital Net**
  - ✦ Official Traffic between hospitals and health department
- **Resource Net for a drill or event**
  - ✦ Used for pre-planned drills and public service events
- **HF Net**
  - ✦ Interface with National Traffic System (NTS)

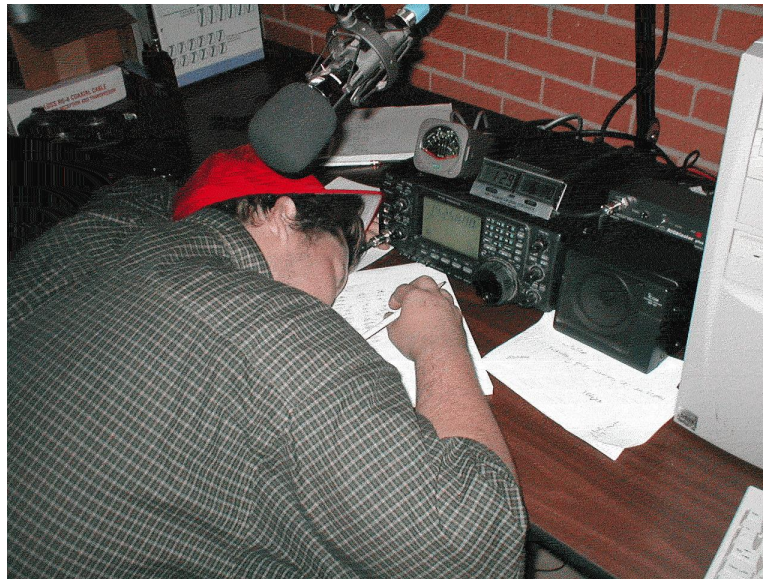
# QUESTIONS ???



# KEY ATTRIBUTES AND TECHNIQUES OF A NCO



**GOOD OPERATORS ARE MADE, NOT BORN!**



# The Net Control Operator



- The most essential part of any emergency net is the character and skill of the net control operator (NCO)
- The NCO coordinates all net activity and shapes the efficiency (or inefficiency) of the net operation
- The NCO sets the standard for all others on the net
  - ✦ Other operators will pattern their behavior after you
- Who is the NCO?
  - ✦ The role may be assigned in advance
  - ✦ For spontaneous incidents, often the first station on the air
  - ✦ The role may be handed off from one station to another

# Personal and Mental Fitness



- Can handle physical and mental stress for long periods
  - ✦ Physical and mental fitness are essential
  - ✦ Self manages stress and fatigue – takes frequent breaks
- Can listen and respond in a noisy/chaotic environment
  - ✦ Net in one ear, other discussions in the other ear
  - ✦ Different net in each ear
  - ✦ Frequent interruptions, distractions
- Must have good hearing
  - ✦ Copy message traffic in difficult or noisy situations
  - ✦ Copy call signs quickly and accurately

# Station Quality & Preparation



- **Must have a clean and command signal**
  - ✦ Antenna height & gain, RF power, audio quality
- **Must have reliable power**
  - ✦ AC, battery, generator, station grounding, emergency lighting, fuses
- **Properly equipped**
  - ✦ Radio manuals
  - ✦ Headset, footswitch, forms, maps, procedures, frequency lists, telephone numbers, notepads, pens, etc.
- **Prior planning and configuration**
  - ✦ Radio memories, modes, menus, configurations, cabling, labels
- **Solid radio operations knowledge**
  - ✦ Frequency changes, multiple frequencies, duplex/simplex/tones



# Operating Technique



- Verbal communications

- ✦ Maintain a clear speaking voice
- ✦ Control tone of voice, even under stress
- ✦ Have a good command of the English language
- ✦ Use plain English, no 10-codes, no Q-codes, etc

- Radio technique

- ✦ Make only necessary transmissions
- ✦ Use procedures and techniques to reduce number of transmissions
- ✦ Use a minimum of words to convey the message
- ✦ Pause before speaking; allow repeater to key up
- ✦ Leave gaps between transmissions for other to break in
- ✦ If repeaters are linked, leave longer pauses
- ✦ Drop PTT when not speaking; avoid open mic or dead air

# What is wrong with this picture?



## Resource Net Example

- NCO: AA9AA, net control ... (no response)
- NCO: AA9AA (phonetically), this is net control
- AA9AA: This is AA9AA, sorry, I have my volume down
- NCO: AA9AA, it's been 15 minutes, uh, just checking on you progress
- AA9AA: oh, well, I'm still en route, almost there
- NCO: Could you tell me your odometer reading please?
- AA9AA: oh, ok, uh, odometer is um, let me see, .... , odometer is 23.4
- NCO: No decimal points please
- AA9AA: oh, ok, uh, odometer is 23
- NCO: I need the last three digits of your odometer, in whole miles, no decimal points
- AA9AA: oh, ok, uh, odometer is 123

# What is wrong with this picture?



- NCO: and your location please?
- AA9AA: oh, uh, I'm on 31 S and ... (keeps mic keyed) .. Coming up on (keeps mic keyed).... Uh ... (keeps mic keyed) ... I-465
- NCO: AA9AA cool, thanks dude!  
(Net Control moves on to other things)  
(but ooops! .. AA9AA forgot to ID)
- AA9AA: AA9AA
- NCO: AA9AA go ahead

Is this “Clear and Concise” Communication?

**NEGATIVE !**

# How about this instead?



- NCO: AA9AA, health and welfare check
- AA9AA: odometer 123, 31 S at I-465, AA9AA
- NCO: AA9AA roger ...

Is this “Clear and Concise” communication?

**AFFIRMATIVE**

# Standard Phonetics



A - alfa (AL-fa)  
B - bravo (BRAH-voh)  
C - charlie (CHAR-lee)  
D - delta (DELL-tah)  
E - echo (ECK-oh)  
F - foxtrot (FOKS-trot)  
G - golf (GOLF)  
H - hotel (hoh-TELL)  
I - india (IN-dee-ah)  
J - juliet (JU-lee-ETT)  
K - kilo (KEY-loh)  
L - lima (LEE-mah)  
M - mike (MIKE)

N - november (no-VEM-ber)  
O - oscar (OSS-cah)  
P - papa (pah-PAH)  
Q - quebec (keh-BECK)  
R - romeo (ROW-me-oh)  
S - sierra (see-AIR-rah)  
T - tango (TANG-go)  
U - uniform (YOU-ni-form)  
V - victor (VIK-tah)  
W - whiskey (WISS-key)  
X - x-ray (ECKS-RAY)  
Y - yankee (YANG-key)  
Z - zulu (ZOO-loo)

- If there is a chance of misunderstanding, spell it out with “I spell”:
  - “go to Kay Street” → “go to Kay, I spell kilo alpha yankee, Street”

# Pronouncing Numerals



0 – zero (ZEE-row)

1 – one (WUN)

2 – two (TOOO)

3 – three (THUH-ree)

4 – four (FOH-wer)

5 – five (FY-ive)

6 – six (Sicks)

7 – seven (SEV-vin)

8 – eight (Ate)

9 – nine (NINE-er)

- Zero is always “zero”; never “oh”
- Decimal point is “decimal” or “point”; never “dot”
- Larger numbers are spoken as a string of single digits:
  - ✦ 600 = “six zero zero”
- Often preceded by the word “figures”
  - ✦ Please copy 109 = “Please copy figures one zero niner”
  - ✦ Request 16 blankets = “Requesting figures one six blankets”

# Message Handling Prowords



- SAY AGAIN ... Repeat – usually used with other prowords
- WORD AFTER “Say again word after...”
- WORD BEFORE “Say again word before ...”
- BETWEEN “Say again between ... and ...”
- ALL AFTER “Say again all after ...”
- ALL BEFORE “Say again all before ...”
- I SPELL “ I spell Alpha, Bravo ... “
- FIGURES “Figures Wun, ZEE-row, NINE-er” (109)
- INITIALS “Initials Echo Oscar Charlie” (EOC)
- ROGER Received and understood
- AFFIRMATIVE “Yes”
- NEGATIVE “No”

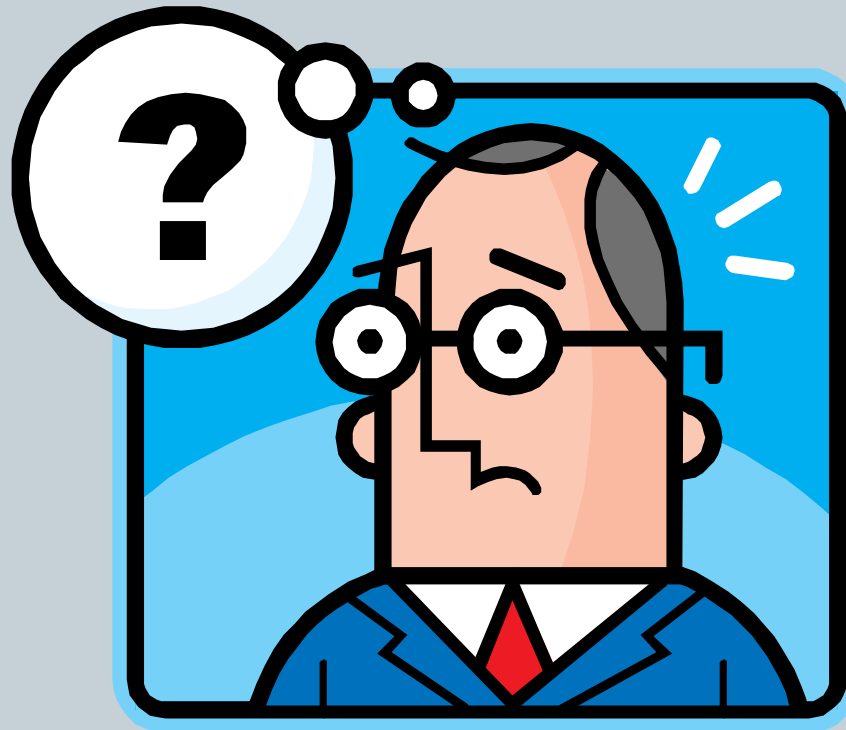
# Develop & Maintain Proficiency



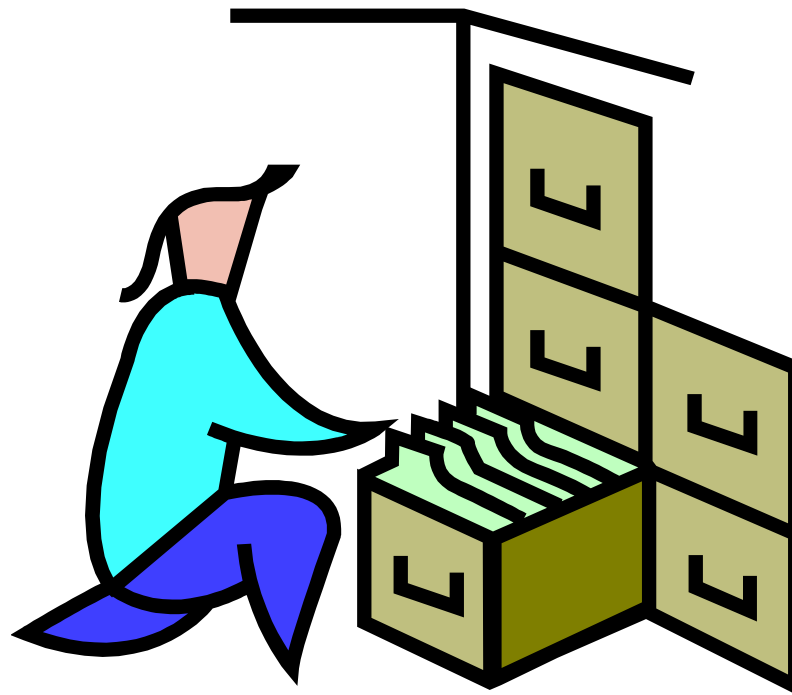
- Being a high quality operator isn't hard, but it takes practice
- Developing and maintaining proficiency is a personal responsibility
- Recommended activities:
  - ✦ Practice logging on any/all nets you listen to
  - ✦ Listen to the pros – public safety agencies
  - ✦ And practice, practice, practice
    - Alt NCO for weekly ARES Net
    - NCO for public service events



# QUESTIONS ???



# Record Keeping and Logging



# Form 1 - Notepad



- Main point is good documentation
- A simple writing tablet works
- Lost of uses
  - ✦ When you run out of the correct form
- Turn in at the end of your shift

# “Phone” Message Pad



- Two part, non-carbon is best
- Top of page usually sticky
- Brief tactical messages between staff members
  - ✦ Message net NCO to packet net NCO
  - ✦ Any NCO to Com L
- Tactical message between field and staff
  - ✦ Request for contact on phone or alternate net

# ICS 211A – Communications Check-In



- Everyone signs in/out on a 211
- If one doesn't exist, start one!

ICS 211A CHECK IN LIST (COMMUNICATIONS)	1. INCIDENT NAME: <i>M. H. Mummy Race</i>	2. DATE: <i>10/31/09</i>	3. INCIDENT NUMBER: <i>RIP-13-13T</i>	4. CHECK IN LOCATION <i>ICP – Funeral Home</i>		
5. INFORMATION						
PERSONNEL NAME	CALL SIGN	AGENCY	TIME IN	TIME OUT	HOURS	REMARKS
<i>Herman Munster</i>	<i>W6XRL4</i>	<i>CARES</i>	<i>23:30</i>			

# ISC 214 – Unit Activity Log



- A record of all major activities and events
- **EVERYONE** fills out a 214
  - ✦ Individuals: a unit of one
  - ✦ Teams: team leader
  - ✦ Start when you get assignment (at home)
- Occasional message traffic?
  - ✦ Just log it right on the 214
- Use multiple pages if necessary
- Turn in at the end of your shift

# ICS 214 Example



<b>UNIT LOG</b> ICS 214 ARES/RACES	1. Incident Name and Activation Number <i>Mockingbird Heights Mummy Race</i> <i>RIP-13-13T</i>		2. Operational Period (Date/Time) <i>10/31/09</i> <i>11/1/09</i> From: <i>20:00</i> To: <i>04:00</i>	
	3. Unit Name / Tactical Call / Designators <i>Tactical Net Control</i>		4. Unit Leader (Name, Call Sign, ICS Position) <i>Herman Munster, W6XRL4</i>	
<b>5. Personnel Roster Assigned</b>				
Name		Call Sign	ICS Position	Home Base/City
<b>6. ACTIVITY LOG</b>				
Time (24:00)	Major Activities & Events / Occasional Messages (From / To / Msg# / Msg Text)			
<i>23:00</i>	<i>Departing home</i>			
<i>23:30</i>	<i>Arrive at event ICP- Gateman, Goodbury &amp; Graves funeral home</i>			
<i>23:45</i>	<i>Net control briefing</i>			
<i>00:00</i>	<i>Begin tactical net for race – see ICS 309</i>			

# Exercise: Start an ICS-214 Activity Log



- Create an activity log for your activities today for this training session.



# ICS 309 – Communications Log



- Net control operators and stations with high message traffic
- Columns help organize key message tracking info
- Does not replace 214
  - ✦ EVERYONE fills out a 214
- Turn in at end of your shift

# ICS 309 Example



<b>COMM Log</b> ICS 309- ARES/RACES	1. Incident Name and Activation Number <i>Mockingbird Heights Mummy Race</i> <i>RIP-13-13T</i>		2. Operational Period (Date/Time) From: <i>10/31/09 20:00</i> To: <i>11/1/09 04:00</i>		
	3. Radio Net Name (for NCOs) or Position/Tactical Call <i>Resource Net</i>		4. Radio Operator (Name, Call Sign) <i>Wolf Man, W6WOOF</i>		
5. COMMUNICATIONS LOG					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
...	...				...
2300	<i>W6XRL4</i>				<i>Leaving home - 1313 Mockingbird Lane ODO 123</i>
2315			<i>W6XRL4</i>		<i>H&amp;W - Highway 13 - ODO 141</i>
2330	<i>W6XRL4</i>				<i>Arrived ICP ODO 150; Check-Out</i>

- Recommended – instead “NC” or “NCO” for yourself, leave the call sign field blank
  - ✦ Makes it easier to see which message were from/to field operators

# Exercise: ICS-309 Communications Log



- Create an ICS-309 log for the following scenario in the City of Xanadu (XND)
  - ✦ Incident is “Training Class Exercise”, activate code XND-12-TCE
  - ✦ You take over as NCO for the existing tactical net at 2:00 PM
  - ✦ Your scribe is Herman Munster, W6XRL4
  - ✦ You receive a message from Shelter 2 at 2:05 PM
    - Their message # S2-013, your # XND106; subject = “Bed Count”
  - ✦ Joe Hamm, KJ9HAM, checks in at 2:10 PM; assigned tactical call “Rover 1”
  - ✦ Betty Ham, KG9HAM, checks in at 2:15 PM; assigned tactical call “Shelter 3”
  - ✦ 2:20 PM Rover 1 report en route to Disaster Drive
    - Odometer 123, North Ave and 1<sup>st</sup> Street
  - ✦ You send a message to Shelter 3 at 2:30 PM
    - Your # XND107; their msg # S3-004; subject = “inventory checklist”
  - ✦ 2:40 PM Rover 1 reports arrived at Disaster Drive; conducting damage survey
  - ✦ You send to All Shelters at 2:50 PM, your # XND110, “Exercise Complete”
    - Their message #'s: S1-022; S2-014; S3-005
  - ✦ You close the net at 3:00 PM

# Exercise: ICS-309 Communications Log



<b>COMM Log</b> ICS 309- ARES/RACES		1. Incident Name and Activation Number <i>Training Class Exercise</i> <i>XSC-12-TCE</i>		2. Operational Period (Date/Time) <i>09/08/2012</i> <i>09/08/2012</i> From: <i>1400</i> To: <i>1500</i>	
3. Radio Net Name (for NCOs) or Position/Tactical Call <i>Xanadu Tactical Net</i>			4. Radio Operator (Name, Call Sign) <i>Your Name, Your Call Sign</i>		
<b>5. COMMUNICATIONS LOG</b>					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
1400	---	---	---	---	<i>Net Control = &lt;call sign&gt;; Scribe = W6XLR4</i>
1405	<i>Shelter 2</i>	<i>S2-013</i>		<i>XND106</i>	<i>Bed count</i>
1410	<i>KJ6HAM</i>				<i>check-in – assigned tactical = Rover 1</i>
1415	<i>KB6HAM</i>				<i>check-in – assigned tactical = Shelter 3</i>
1420	<i>Rover 1</i>				<i>en route to Disaster Drive; ODO 123;</i> <i>@ North Ave &amp; 1<sup>st</sup> St.</i>
1430		<i>XND107</i>	<i>Shelter 3</i>	<i>S3-004</i>	<i>Inventory checklist</i>
1440	<i>Rover 1</i>				<i>Arrived Disaster Drive; conducting damage survey</i>
1450		<i>XND110</i>	<i>All Shelters</i>		<i>Exercise complete — Confirmation #s follow</i>
----			<i>Shelter 1</i>	<i>S1-022</i>	
----			<i>Shelter 2</i>	<i>S2-014</i>	
----			<i>Shelter 3</i>	<i>S3-005</i>	
1500	---	---	---	---	<i>Net closed</i>

# Exercise: ICS-309 Communications Log



- Don't forget the bottom of the form!

6. Prepared By (Name, Call Sign) <i>Your Name, Your Call Sign</i>			7. Date & Time Prepared <i>09/08/2012; 1500</i>			8. Page <u>1</u> of <u>1</u>		
--	--	--	--	--	--	------------------------------	--	--

- What about your ICS-214 Activity Log?

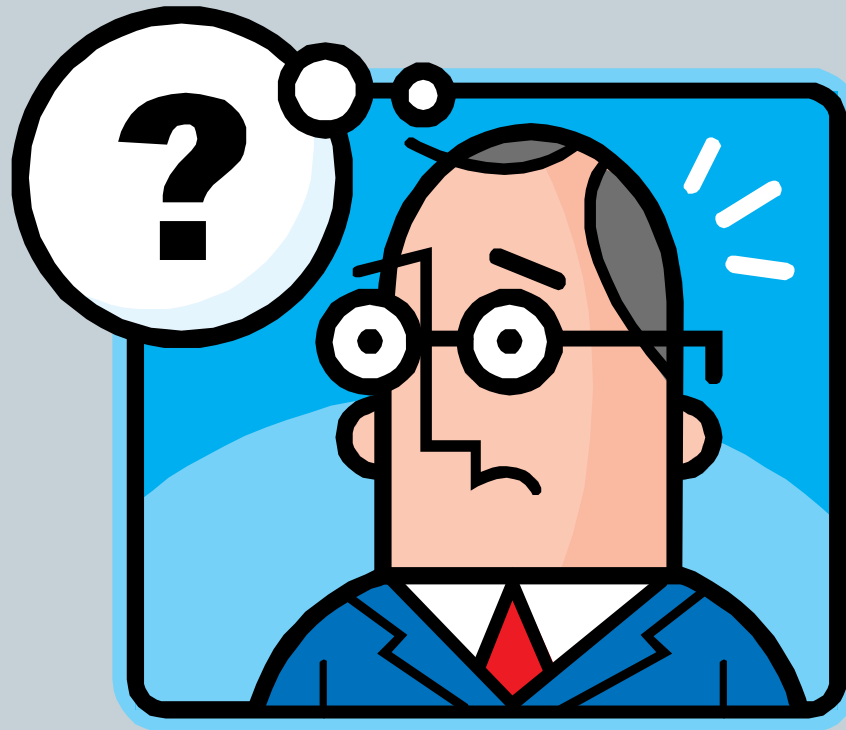
6. ACTIVITY LOG	
Time (24:00)	Major Activities & Events / Occasional Messages (indicate From / To / Msg# / Msg Text)
...	
1400	<i>Took over as NCO for Tactical Net – see ICS-309</i>
1500	<i>Closed Tactical Net</i>

# Summary of Logging and Record Keeping



- Everyone signs in/out on a 211A Communications Check-In
- Everyone fills out a 214 Unit Activity Log
  - ✦ Start it when you get your assignment (before you leave home)
- Net control operators fill out 309 Communications Log
  - ✦ Does not replace the need to maintain a 214 Unit Activity Log
- Must be legible or it's useless!

# QUESTIONS ???



# Starting A Net



**IT'S ALL ABOUT PREPARATION**



# Preparing to start a net



- Prepare your station
  - Prepare your script
  - Prepare yourself
  - GO !!!
- 
- The amount of preparation depends on the situation
  - Think about the impact of any potential problems and plan accordingly; common sense should prevail
  - In the real world, county-wide incidents, failure to adequately prepare can result in delays and disruptions to our response

# Prepare your station



- Prepare your work space. Be NEAT !
  - ✦ Pen, pencil, paper
  - ✦ Visible clock (24 hour clock is ideal)
  - ✦ Frequency lists, contact numbers/info
  - ✦ Forms (form 1, phone message, ICS 214, 309, 213, etc)
  - ✦ Maps
  - ✦ Water / liquids for drinking
  - ✦ Place regularly accessed items within easy reach
  
- Prepare your radio and know how to use it
  - ✦ Oriented in a comfortable position
  - ✦ Check all connections, settings – especially for shared stations
  - ✦ Skim the manual or check sheet and keep it handy
  - ✦ Perform a radio check

# Prepare the script



- Main county nets should have prepared scripts
  - ✦ Consult the Emergency Communications Plan
  
- If no prepared script, take the time to write one:
  - ✦ Introduction
    - Your call sign, purpose of the net, open or directed, net control tactical call sign, you can not dispatch help – call 911, how you will take check ins
  - ✦ Regular updates
    - Purpose of net, open or directed
  - ✦ Closing
    - Closing net, thank the participants and the owners/operators of the repeater, returning frequency to normal use

# Prepare yourself and GO !



- Make sure you get a briefing
- Learn / know the procedures, traffic flow of the net
- Prepare your log sheet, note paper
- Don't start until you are ready; never let yourself get "behind"
- Take a deep breath; relax
- Check that the frequency is clear
- Key up, breathe, read the introduction

# Basic template for net control script



- Opening
  - ✦ “Is the frequency clear?”
  - ✦ “This is <call sign> setting up a directed net for <purpose>.”
  - ✦ “The tactical call sign of net control is <tactical call sign>.”
  - ✦ State whether or not you have ability to dispatch resources.
  - ✦ State what to do if immediate help is needed. (call 911 or city tactical)
  - ✦ “Are there any stations with emergency traffic?”
  - ✦ “Does any station have traffic for net control?”
  - ✦ “Net control will now take check-ins according to <method>”
- Regular intervals
  - ✦ ID with FCC call sign every 10 minutes
  - ✦ Purpose of net and operating mode (directed/open) as appropriate
- Closing
  - ✦ Thank owners and operators of repeater(s); announce that frequency is returned to normal use

# Example: Resource Net



- “This is \_\_\_\_\_, acting as Net Control operator for the Marion County ARES Resource Net. I will be gather a snapshot of information regarding the <incident type> that just occurred. I have no ability to dispatch resources at this time. If you need immediate help, use 9-1-1 to contact your local emergency response center.
- “I am ready to receive brief reports from any operator who has pertinent information. We want observations only from your current location – DO NOT GO LOOKING FOR PROBLEMS!
- “I will ask for reports by location. <Describe reporting criteria>. I’ll take call signs in groups of five. When you hear your call sign, report using the following format: your call sign, your exact location, <report format>.

# Exercise: Resource Net Start Up



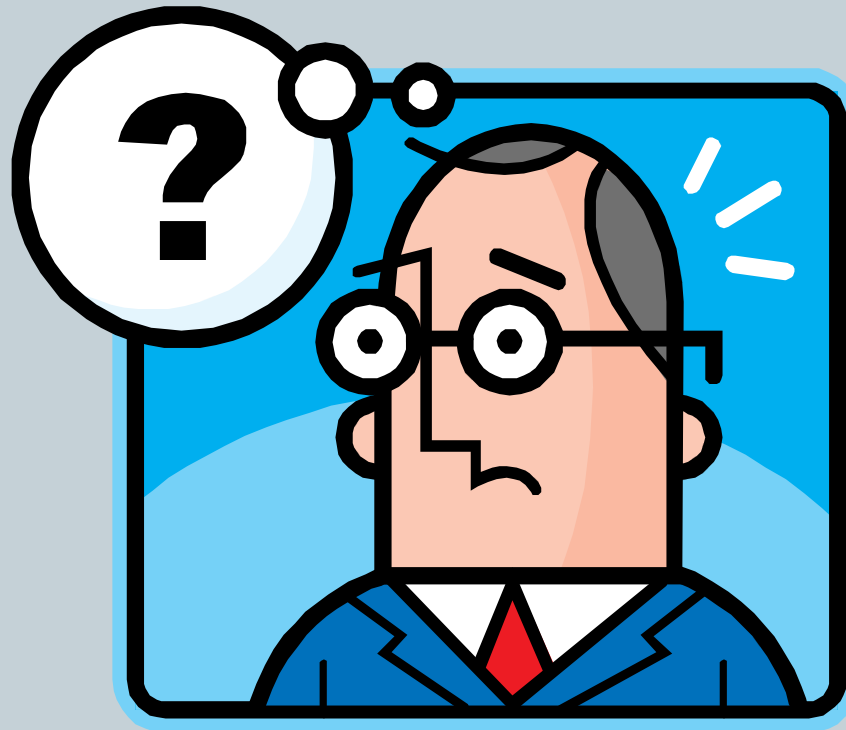
- Situation (pick one):

- ✦ You are watching TV when you learn that hackers have reportedly attacked the telephone network. Central Indiana and parts of the Chicago area are reported to be affected. You pick up your phone and have no dial tone.
- ✦ A dam near you ruptures and you observe flash flooding in your area.
- ✦ You walk outside and smell a strong chemical odor (such as ammonia) but you don't notice any nearby activity that would account for the smell.

- Exercise:

- ✦ Prepare an intro script for a Resource Net
- ✦ Conduct a Resource Net to gather reports

# QUESTIONS ???

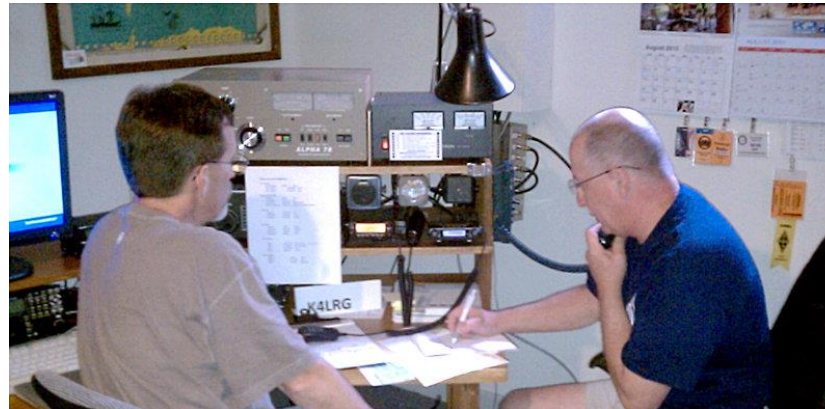




# Operating A Net



## PUTTING IT ALL TOGETHER



# Directing Traffic



- Enforce net discipline (professionally)
  - ✧ <call sign> go direct and turn it back to me when you are done
- Direct traffic in an effective manner for all net participants
  - ✧ Control tempo and pace
  - ✧ Watch for and help less experienced operators
- Prioritize traffic according to precedence
  - ✧ Emergency, priority, routine, health & welfare
- Control traffic flow
  - ✧ “All stations standby” or “All stations hold your traffic”
- Give instruction in a way which avoids “doubles”
  - ✧ “Station ending with Zulu, go ahead”
- Allow non-net related traffic during breaks in net traffic

# ID Regularly



- Lots of stuff to remember to do regularly
  - ✦ Announce your tactical call
  - ✦ Announce the purpose of the net
  - ✦ ID with your FCC call sign every 10 minutes
- Hint: Put it all together every 10 min
  - ✦ “This is <call sign>, net control for the Marion County ARES Resource Net. This is a directed net.”
- Make sure all station are identifying regularly
  - ✦ “Roger checkpoint 1, I’ll turn it back to you for ID”

# Track / Update Field Resources



- Perform regular health & welfare check of field stations
  - ✦ “We will now do a health & welfare roll call by tactical call sign. When called, answer with your tactical call, identify any help or resources you may need, and finish with your FCC call sign”
  - ✦ Usually every 30 min or so, depending on situation & traffic volume
  
- Provide information to field stations regularly
  - ✦ Warning and advisories (weather, road closure, etc.)
  - ✦ Event status (first bib number in race, location of parade, etc)
  - ✦ Be sure to indicate “drill traffic” when appropriate
  - ✦ Other announcements received
    - Remember, the media is listening
    - Supervisor or ComL will coordinate with the PIO

# Busy Nets



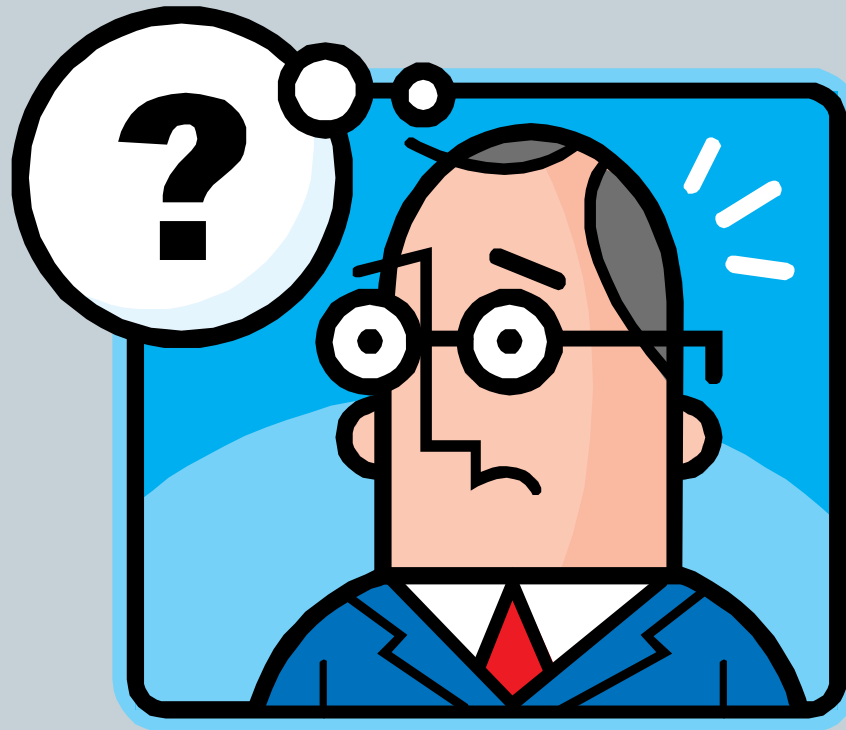
- Make sure to leave space regularly
  - ✦ Allow all repeaters to drop plus a few additional seconds
  - ✦ If stations are too persistent, you may need to force the space:
    - “Are there any stations with emergency or priority traffic?”
    - Are there any stations that been unable to reach net control?
- When multiple stations standing by, regularly announce list
  - ✦ Reduces stress for net members
- Maintain calm at all times, help field ops remain calm
  - ✦ Field operators will follow the leave of the NCO

# Dealing with Stress and Fatigue



- Don't start until you are ready
- Control the pace of the net according to your ability
  - ✦ Work at your speed
  - ✦ If you need to, put the net on hold
- Take periodic breaks
  - ✦ As coordinated with teammates and supervisor
- Maintain proper hydration and nutrition
- Rotate positions/duties with team members
  - ✦ Start as scribe → net control → take a break → scribe → net control
- Exercise patience and understanding with other operators
  - ✦ They are likely fatigued and/or stressed, too
  - ✦ They will follow your lead if you show a calm and deliberate approach

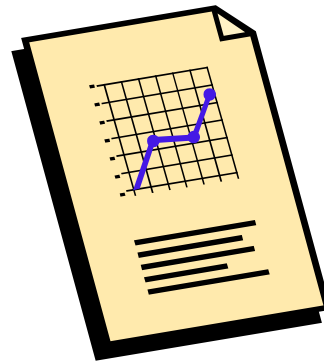
# QUESTIONS ???



# Passing Report Summaries



**MAINTAINING CONTINUITY**





# Handing off Report Summaries



- Resource Net is usually started at a remote location
  - ✦ Whoever is the first on the net, wherever they are
- At some point net control may be asked to summarize the report so far or hand off totals to another net control
  - ✦ Think about how to summarize your report before you get started
- Be prepared to hand-off a summary at any time

# Dealing with Challenges



# Loss of Repeater



- **Situation**
  - ✦ Loss of repeater
- **How to recognize**
  - ✦ No courtesy tone (and there used to be)
  - ✦ No squelch tail
  - ✦ Not receiving responses
  - ✦ Pick one or more station and call them specifically
  - ✦ You can hear people on the input but not the output

# Loss of Repeater



- **Action**

- ✦ Switch to simplex on repeater output
  - Switch to high power; include tone, in case others are using tone squelch
  - Program into your radio memory for fast recovery
- ✦ If linked repeaters, you may be able to get by with the remaining ones
- ✦ Inform the net of the situation; have them switch to simplex
  - Advise them to NOT use tone squelch
- ✦ Some people will not hear you
  - Accept the fact that you will lose people (especially the untrained)
    - Trained operators will be switching to repeater output too
  - Listen on repeater INPUT for anyone having problems
  - Ask for relays
- ✦ Contact EC/AEC; request he/she contact repeater owner
- ✦ Switch to alternate repeater (if available) – you will lose a few more

# Loss of Power



- **Situation**

- ✦ You are working net control when the lights go out and the radio goes dead

- **Action**

- ✦ Use your HT to inform net of the situation
- ✦ Hook HT up to station antenna if you need better range
  - Keep those coaxial adapters handy!
- ✦ Seek help in restoring power while you work the net
  - It could just be a popped breaker or fuse
- ✦ You may also need your flashlight!
- ✦ Pass net control duties to another operator
- ✦ Prevent the problem with 12 hours of better backup in station design
  - Minimum: 300 mAH for HTs, 24-26 AH for mobile stations
  - Net control stations will need much more than the minimum

# Field Operator with Poor Skills



- **Situation**

- ✦ Field operator with poor skills disrupting or slowing down the net

- **Action**

- ✦ Polite reminder to all station of proper protocol
  - Better than singling out an individual
  - They may simply be unaware
- ✦ Specific corrective action request to specific operator
  - See if he's distracted by monitoring another frequency; if so, he should stop
- ✦ Switch to “requester” role instead of “receiver” role
  - Your message number? Your date and time? Your severity? ...
- ✦ Move him to another frequency with less traffic, if possible
- ✦ Ask EC/AEC to request replacement
  - Use phone (if possible) or command net to contact responsible EC/AEC

# Open MIC Condition



- Situation

- ✦ Someone unknowingly has an open mic on the net frequency

- Action

- ✦ Everyone

- Listen for and check their own radio if heard; watch radio xmit light; clicking in earphone/headphones (loose connection); no traffic heard for a while
- Deploy field communicators in pairs; have teams check each other

- ✦ Repeater

- Increase your power to try to capture the repeater
- Switch to simplex on repeater output and increase power to capture local receivers

- ✦ Simplex

- Increase power to capture local receivers

- ✦ Roll call check to determine who can receive; dispatch to check others

- ✦ Designate secondary frequency to monitor for open mic announcements

# Well-meaning but disruptive operator



- Situation

- ✦ Field operator trying to be helpful, taking and acknowledging check-ins as a relay, not going through net control

- Action

- ✦ We don't want to discourage people who want to help
- ✦ Remind all stations that this is a directed net and that all traffic must go through net control
- ✦ Announce that you are not taking relays right now but will be soon
- ✦ Ask for relays by call signs only
  - Are there any relays? I'll take call signs only at this time.



# High volume check-ins/reports



- **Situation**

- ✦ You are net control taking check-ins or reports. Reports are coming in faster than you can record them.

- **Action**

- ✦ Request 5 call signs at a time
- ✦ Request by severity (and first 5 call signs)
- ✦ Request by location (city, area of city)
- ✦ Ask for a scribe
- ✦ Periodically : “Is there any emergency or priority traffic?”
- ✦ Periodically: “Are there any stations that have not been able to reach net control?”

# Emergency Message



- **Situation**

- ✦ You are taking a message on a low to medium traffic net with no scribe and no runner. An EMERGENCY (life threatening) message comes to you from the field and must go to Incident Command immediately.

- **Action**

- ✦ Prioritize Emergency traffic over all other
- ✦ Ask if there is any other Emergency traffic
- ✦ Put the net on hold: “All stations stand by for 2 minutes while I deliver this emergency message, this is AA9AA, net control”
- ✦ Ask for an alternate net control to fill-in while you’re gone
- ✦ Deliver it to your supervisor or appropriate authority

# High Temperature



- **Situation**

- ✦ You are net control in the middle of the summer in an area with very high temperatures which could affect equipment performance.

- **Action**

- ✦ Use a pop-up or other means to create shade for yourself and radio
- ✦ Use lower power
- ✦ Switch radios
- ✦ Switch off net control duty for a while – give the radio time to cool
- ✦ Position radio for sufficient air flow
- ✦ Use a 12v DC fan

# Exhaustion



- **Situation**

- ✦ You have been net control for 6 hours of your 8 hour shift and, because of exhaustion, you cannot complete your assignment

- **Action**

- ✦ Drink fluids with electrolytes – may temporarily restore balance
- ✦ Notify supervisor and request replacement
- ✦ Request a replacement on the air
- ✦ If you need to stop, then stop

# Intentional Interference



- **Situation**

- ✦ Your net is being disrupted by intentional harmful interference

- **Action**

- ✦ **IGNORE THEM**

- Often they will go away if they get a reaction from you

- ✦ **Explain purpose of net; ask politely they switch frequencies**

- Sometimes interference is caused by people who think you are monopolizing “their” frequency and interfering with them
- Once they understand the legitimate nature, they may go away

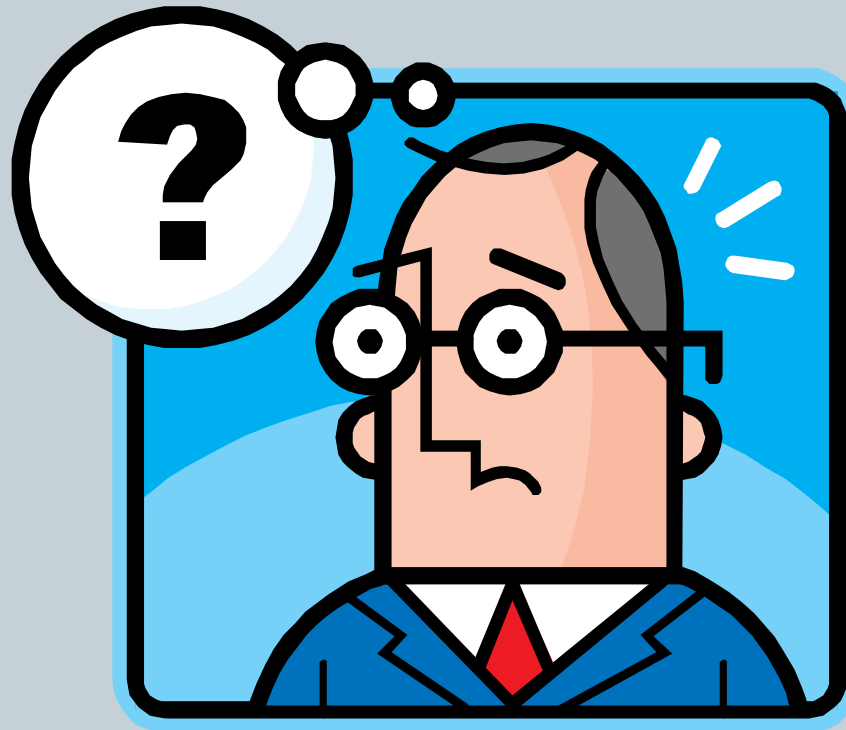
- ✦ **Switch to alternate frequency**

- Should be planned in advance
- Know what it is so the frequency doesn’t need to be announced

- ✦ **Shift supervisor can report to Official Observer**

- If possible, record event for use later by the official observer

# QUESTIONS ???



# Working with a scribe



**THE CO-PILOT OF THE NET**

# What is a “Scribe”?



- A second set of ears (no mic) for the NCO
- Primarily used on heavy traffic nets
- Can offload some record keeping so NCO can operate faster
- Can keep outgoing message queue in priority order
- Can allow for more detailed status tracking
- Can watch the clock and prompt the NCO to make announcements, health and welfare checks, etc.
- Can handle questions and messages from others
- Can serve as “runner” when needed



# Recommended NCO / Scribe Duties



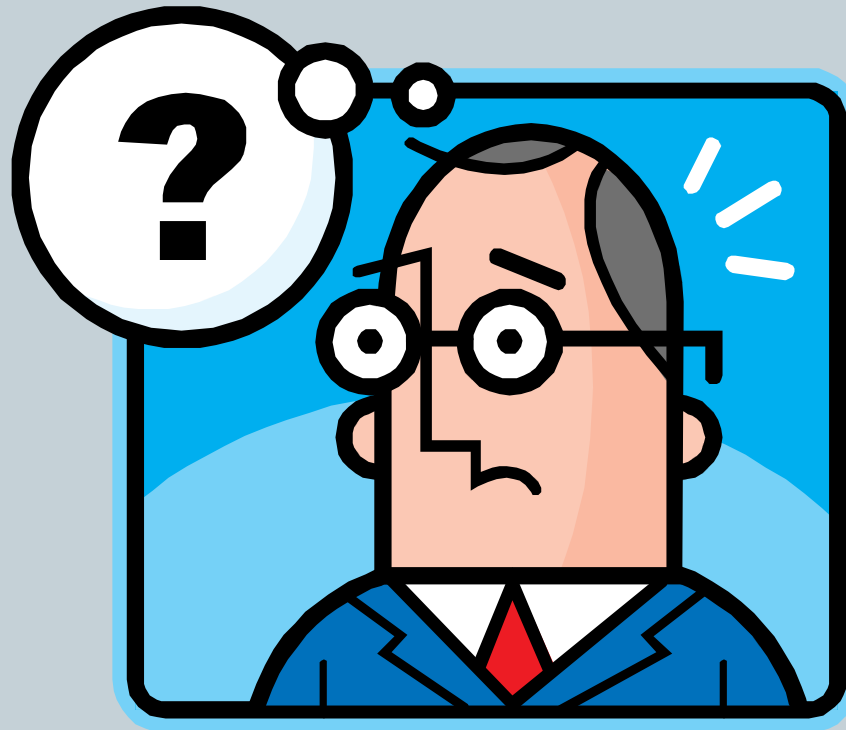
- Assumptions
  - ✦ NCO has microphone; scribe does not
  - ✦ NCO and scribe both hear the same thing
    - Headphone splitter on same radio is ideal; HT listening to repeater is o.k.
    - Scribe's ability to hear NCO speak is critical; may be difficult in noisy location
- Resource Net
  - ✦ NCO: manages net; maintains ISC 309
  - ✦ Scribe: manage tracking forms; prompts when H&W checks due
- Message Net
  - ✦ NCO: manages net; sends and receives messages, possibly ICS 309
  - ✦ Scribe: Probably ICS 309, prioritizes outgoing messages
- Packet Net
  - ✦ Packet Operator: sends and receives messages
  - ✦ Scribe: prioritizes outgoing messages; manages printer

# Hand-off / Relief with a scribe



- Trade jobs to reduce stress
  - ✦ Time frame depends on traffic and stress level
- Take a break
  - ✦ When one needs to take a break, net can continue
- Recommended relief rotation
  - ✦ Replacement → Scribe → Net Control → Break → Scribe

# QUESTIONS ???



# Net Control Equipment



# Required Equipment



- Typical situation
  - ✦ Most nets are managed from a central location (eventually)
  - ✦ If from an EOC, most are equipped but not always
  
- Be prepared with your own equipment anyway
  - ✦ 2 hour carry kit & 12 hour go kit
  - ✦ Go Kit Checklists
  - ✦ Itemized as: required, recommended, optional
  - ✦ Minimum required means you can't do your job without it
    - May not be the most efficient or comfortable way to operate
  - ✦ Recommendation: consider the “recommended” items, too; go with what works for you

# NCO still needs a go kit



- Even if you're going to be a fully equipment net control station, you still need your go kit. Some examples:
  - ✦ HT and coax adapters
    - Monitor tactical frequency, monitor for doubles, back up radio
  - ✦ County frequency list
    - Direct check-ins to proper net
  - ✦ Emergency contact numbers
    - Direct dial for police and/or fire
    - EC/AEC contact info
  - ✦ Maps
    - Minimum = Marion County map
    - Surrounding counties map, event specific map
  - ✦ Clock and/or watch
    - Set to 24 hour time for logging



# Headsets for Net Control



- Use a headset whenever possible
  - ✦ Reduces noise and distractions
  - ✦ Keeps microphone positioned consistently
  - ✦ Frees hand from holding microphone
  - ✦ Use a headset even with an HT!
- Be aware
  - ✦ Most HT's and mobile radios have mono headphone outputs
  - ✦ Most dual ear headsets are stereo
  - ✦ Many headsets have different adapter cables per radio type
- Recommendations
  - ✦ Use stereo headphones with proper stereo / mono adapters
  - ✦ Use over the ear / full ear cup – except when driving



# Headset for Scribes



- Simplest option is a splitter
  - ✦ Available from most electronics stores
  - ✦ Add single or dual volume control
- Better option – headphone amp
  - ✦ Set sound level for each pair of headphones
- Even better options?
  - ✦ Add intercom functionality between NCO and scribe

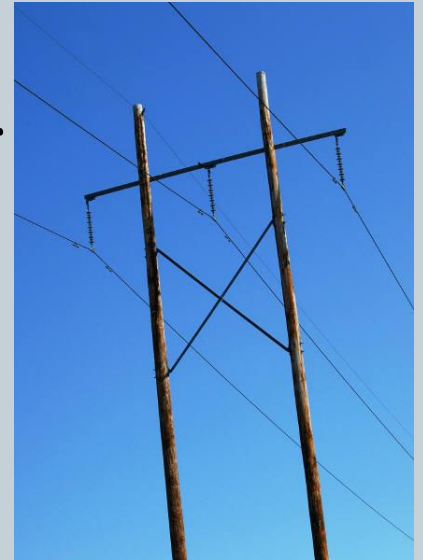




# Power Requirements



- Worst cast
  - ✦ 100% net utilization (someone talking all the time)
  - ✦ 50% net control (every message is between net control and someone)
- Example radio: Kenwood TM-D710A
  - ✦ Receive current: “Less than 1.2A (at 2W audio output)
  - ✦ VHF Transmit (for 50/10/5W): Less than 13/5.5/4A
  - ✦ UHF Transmit (for 50/10/5W): Less than 13/6.5/5A
- Example calculation for 8 hours at 50W Xmit power
  - ✦ Rec:  $(1.2A) * (4 \text{ hours}) = 4.8AH$
  - ✦ Xmit:  $(13A \text{ high power}) * (4 \text{ hours}) = 52 \text{ AH}$
  - ✦ Total = Rec + Xmit =  $4.8 + 52 = 56.8 \text{ AH}$ ; Ave 7.1A
- Same calculation for 8 hours at 10W Xmit power
  - ✦ Total = Rec + Xmit =  $4.8 + 22 = 26.8 \text{ AH}$ ; 3.4 A
- Same calculation for 8 hours at 5W Xmit power
  - ✦ 20.8 AH; Avg. 2.6A
- So, what size of better do we need?



# Protection From the Elements



- Protect yourself and your equipment from the elements
  - ✦ Heat, sun, wind, rain, cold
- Consider a pop up type shelter if outdoors
  - ✦ Side panels important for rain, shade, cold, night (bugs)
  - ✦ Tent stakes or ballast important for wind
- Consider airflow
  - ✦ Personal clip on fan (12 volts)
  - ✦ Equipment fan (12 volts)
- Consider lighting
  - ✦ Logging, reading maps, reports, manuals
  - ✦ Consider an LED light stick or wind up lantern

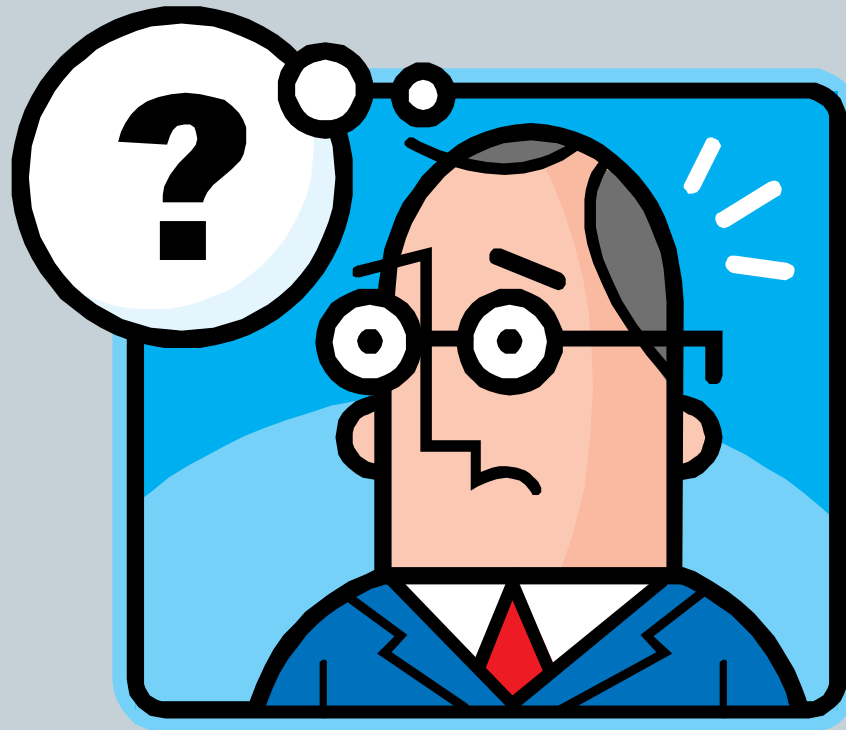


# Know/Learn the radio and equipment



- Before you start the net
  - ✦ Familiarize yourself with all of the equipment
  - ✦ Know how to set frequency, offset, tone , power level
  - ✦ Know how to listen on repeater input
  - ✦ Know how to lock/unlock the keypad
  - ✦ Know how to use headsets and remote PTT
  - ✦ Program all expected frequencies into memory
  - ✦ Program in “simplex mode on repeater output’ for all repeaters
  - ✦ Know where backup lights, fans, etc and how to use them
- Get there early enough to ask to take care of these tasks and to ask questions if you need help

# QUESTIONS ???



# Resource Tracking



# Resource Tracking



- Resource assignment performed by authorized person
  - ✦ Supervisor, EC, AEC, DEC, etc...
- The NCO is responsible for tracking field resources
  - ✦ NCO must always know who is on the net and where they are
- Always be aware of safety, help field ops focus on safety
  - ✦ In stressful situations, people often overlook safety and/or get a “hero” mentality
  - ✦ Listen for and recognize this behavior in yourself and field resources

# Resource Net Logging



- Typical tracking from home to event/incident and back
- Key items logged are:
  - ✦ Call sign, time, last three digits of odometer, and street location
- En route health and welfare checks every 15 – 20 minutes
  - ✦ Depends on net traffic
- Each contact recorded in ICS 309 Communication Log

# Example Resource Net 309 Comm Log



<b>COMM Log</b> ICS 309-SCCo ARES/RACES		1. Incident Name and Activation Number Santa Clara County Drill XSC-10-01T		2. Operational Period (Date/Time) From: 10/1/10 06:00 To: 10/1/10 14:00	
3. Radio Net Name (for NCOs) or Position/Tactical Call Resource Net			4. Radio Operator (Name, Call Sign) Herman Munster, W6XRL4		
<b>5. COMMUNICATIONS LOG</b>					
Time (24:00)	FROM		TO		Message
	Call Sign/ID	Msg #	Call Sign/ID	Msg #	
0645	KE6AGJ				check-in / depart First St. odo 112
0650	KG6RLR				check-in / not ready
0700			KE6AGJ		odo 123 Second St.
0700	KG6RLR				depart Mercury st. odo 101
0715			KE6AGJ		odo 134 Third St.
0715	KG6RLR				odo 201 Venus St.
0730	KV6U				check-in / not ready
0730	KE6AGJ				Fourth st. odo 145
0730			KG6RLR		Mars St. odo 301
0735	KE6AGJ				arrived / checkout



# Keeping Track of Status



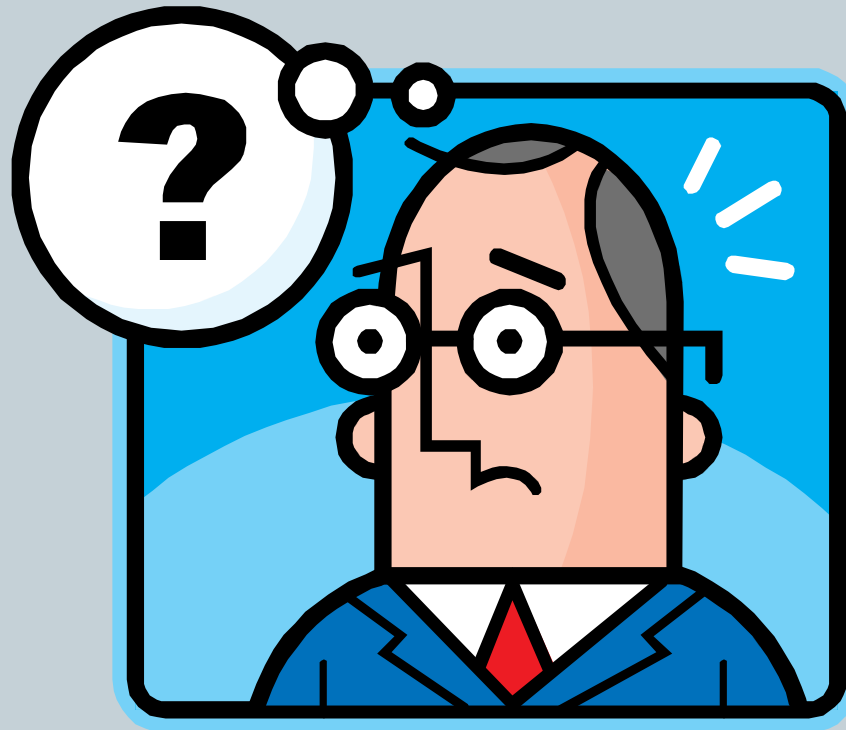
- Need to be able to quickly answer status-related questions
  - ✦ Who is en route? Who has arrived? Who needs a H&W check?
  - ✦ This is hard to do by scanning the 309, especially multiple pages
- It is usually helpful to track status separately
  - ✦ Especially with a larger number of travelers
- Lots of options
  - ✦ Index cards, t-cards, white board, computer, forms, plain paper, ...
  - ✦ Choose whatever method works for you
  - ✦ Must be accurate and efficient

# Other Tracking Methods

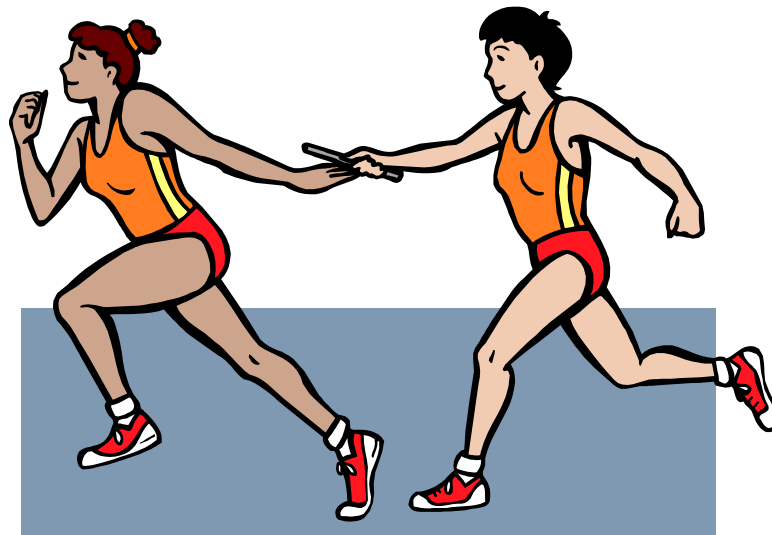


- Pre-printed forms
  - ✦ Convenient to carry
  - ✦ Can only organize info one way; may not work best for all situations
- Computer
  - ✦ Good for high traffic volumes
  - ✦ Easy to transfer to a remote operator by e-mail (if available)
  - ✦ Requires power, hard to move in a hurry
  - ✦ Remember to print out often in case of power or device failure
  - ✦ Pick a simple, common format; need to hand off data at shift change
- Form 1 – a plain writing tablet is better than nothing
- Whatever approach you take, remember:
  - ✦ You must be able to hand off to the next net control operator
  - ✦ Turn it in at end of shift (someone else must be able to understand it)

# QUESTIONS ???



# Handing-off a net



# Relief Briefings



- Assignment, activation number
- Served agency, person in charge, how recognized
- Frequencies, tactical calls, locations, contact numbers
- Who to contact regularly
- Radio, power supply, antenna information
- Nearest telephone: location and number; how to dial out
- Location of toilet, water, food, first aid, and other supplies
- Summary of previous operational period
- Current status of: people, resources, incident
- Pending issues for next operational period
- Introduce replacement to rest of team

# Local Net Transfer



- For local hand off, single operator
  - ✦ Relief operator can work as scribe briefly just prior to hand off
- For local hand off, net control & scribe
  - ✦ Replacement arrives early, familiarizes self with location
  - ✦ Replacement receives briefing from supervisor
  - ✦ Net Control runs net solo while scribe briefs replacement with details
  - ✦ Scribe catches up on anything missed
  - ✦ Net Control announces shift change; stand by for 30 seconds
  - ✦ Scribe slides into net control seat; replacement slides into scribe seat
  - ✦ Announce the net is resumed

# Remote Net Transfer



- You may need to transfer a net to a remote net control
  - ✦ Initial resource net control transfer to EOC or other location
  - ✦ Hand off to a more experienced net control operator
  - ✦ Evacuation of net control location
- Information to transfer
  - ✦ Current status of all who are checked into net
  - ✦ Resource Net transfer involves current en route state information
  - ✦ Any other instructions as may be necessary; see relief briefing list
- Key points
  - ✦ Priority one: Maximize accuracy; losing someone is not an option!
  - ✦ Priority two: Minimize time
  - ✦ Always use good communications techniques; 5 words at a time; proper pro-words; pause before speaking; eliminate need for repeats

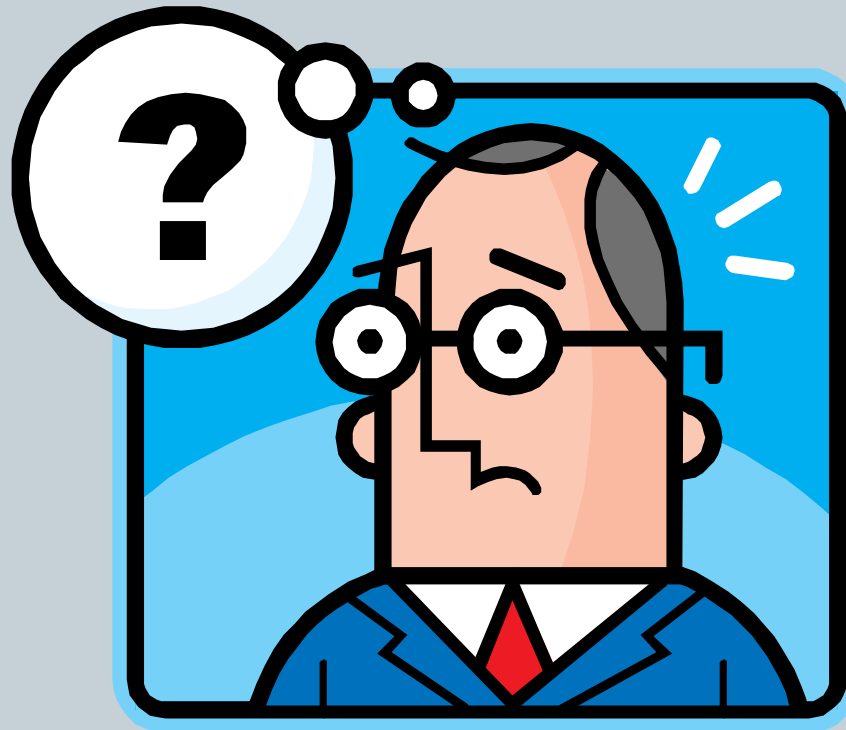
# Procedure for Transfer (most nets)



Who	What
NC2	Announces presence; ready for net control transfer
NC1	Acknowledges Identifies all stations current checked in (5 at a time)
NC2	Acknowledges
NC1	Fills in NC 2 on any other pending issues
NC2	Acknowledges all information
NC1	Asks if NC2 is ready to take the net
NC2	Affirmative
NC1	Announces the transfer of the net
NC2	Announces self as net control



# QUESTIONS ???



# Closing a Net



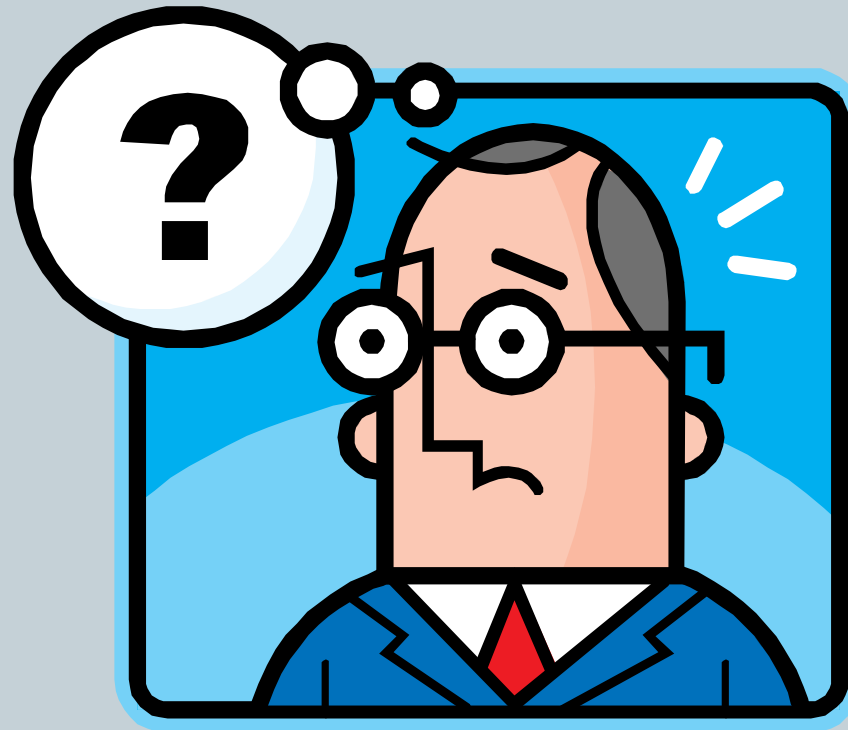
# Closing a Net



- Verify purpose / function has been completed
  - ✦ All messages passed; all personnel account for
- Any final requests?
- Closing script
  - ✦ Thank the owners/operators of repeater
  - ✦ Return frequency to normal use
- Unlink any repeaters
  - ✦ For resource net repeaters, request a control operator over the air or ask for help from one of the EC/AEC's
- Complete and turn in all paperwork



# QUESTIONS ???



# THANK YOU !!



Questions, Comments, Suggestions?

