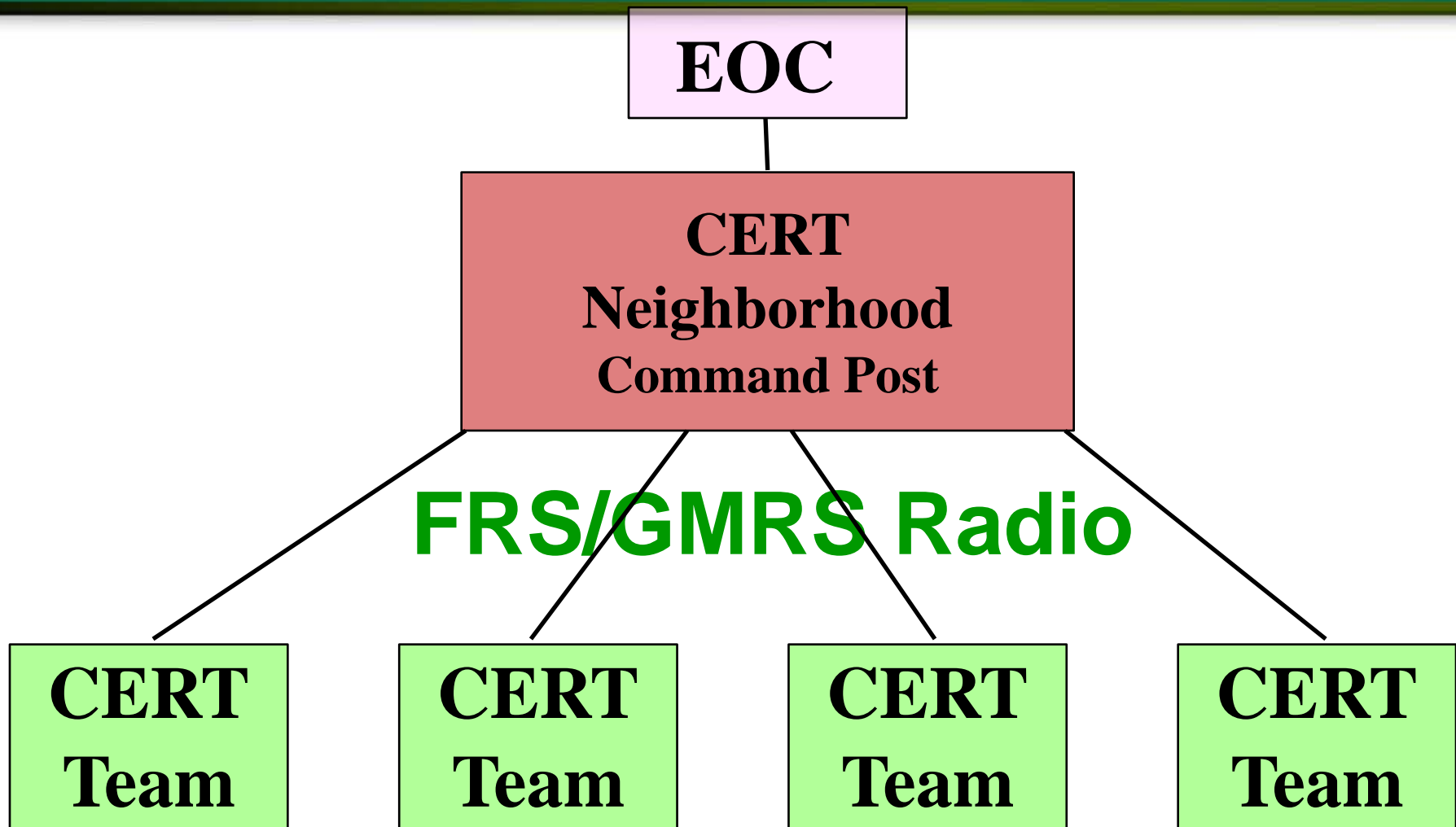


CERT Neighborhood Communications



CERT Basic Training Radio Communications

The CERT team's view: Basic Disaster Communications



Communications

- Command Post must maintain communications with all teams during an incident.
- Use what ever works: phone, cell, pen and paper, smoke signals
- But when all else fails radio still works.
- To be effective, we need to learn
Emergency Radio Communications!

Unit Objectives

- Understand the operating characteristics of FRS/GMRS radios
- Learn to operate a radio effectively
- Use correct operational procedures
- Learn to create well formed messages

About FRS Radios

- No license required
- 14 FRS channels available
- Shares channels 1-7 with GMRS
- Channels 8-14 are FRS only
- Channels 15-22 are GMRS only (ok to listen)
- Typical 0.5 - 1 mile communication
- Very low power, 1/2 watt ERP
- Low cost



About GMRS Radios

- FCC License required, no test (\$85 for 5 years)
- License covers all family members
- GMRS channels 1 - 7 are shared with FRS
- External antennas for portable radios OK *
- Can cover hundreds of square miles by repeater *
- 5 watts allowed on shared FRS channels
- Moderate to very high cost



Field Radios

	Family Radio Service (FRS)	General Mobile Radio Service (GMRS)	Dual Radio Service	
Channels	14	15	22	
License Required	No	Yes	Maybe	
Power (Maximum)	.5 Watts	50 Watts	5 Watts	
Range	Line of Sight	Line of Sight	Line of Sight	
Antenna	Fixed	Varies	Fixed	



Field Radios

	Family Radio Service (FRS)	General Mobile Radio Service (GMRS)	Dual Radio Service	Amateur Radio Service [HAM]
Channels	14	15	22	Infinite
License Required	No	Yes	Maybe	Yes
Power (Maximum)	.5 Watts	50 Watts	5 Watts	1500 Watts
Range	Line of Sight	Line of Sight	Line of Sight	The Moon
Antenna	Fixed	Varies	Fixed	Assorted



Unit Objectives

- Understand the operating characteristics of FRS/GMRS radios
- **Learn to operate a radio effectively**
- Use correct operational procedures
- Learn to create well formed messages

Learning to use your radio

- Read the instructions for YOUR radio.



Radio Controls (midland)

Off-On/Volume Control

Channel

Push To Talk Switch

Call Tone

Menu Key

Function Down Key

Antenna

Ear Phone Jack

Private Line (PL) Code

Monitor/Scan Key

Function Up Key

Speaker/Microphone



Radio Controls (Motorola)



Batteries



FEMA

CERT Basic Training
Radio Communications

RC-12



Selecting & Maintaining FRS Radios

● Radio Controls

- On-Off (International Symbol), Volume Control
- Channel Selector
- Interference Eliminator / 'Private' Line (PL) Codes.
- Call Rings, "Talk Confirmation" chirp and auto TURN OFF

● Other

- Store radios in your car with extra batteries & instruction Manual
- When radios are not in use, remove batteries as they may discharge accidentally
- Use the radios frequently for fun and practice

The “Complete” FRS Kit



FRS Channels

Channel	Frequency (MHz)	Notes
1.	462.5625	FRS/GMRS Shared
2.	462.5875	FRS/GMRS Shared
3.	462.6120	FRS/GMRS Shared
4.	462.6375	FRS/GMRS Shared
5.	462.6625	FRS/GMRS Shared
6.	462.6875	FRS/GMRS Shared
7.	462.7125	FRS/GMRS Shared
8.	467.5625	FRS Only
9.	467.5875	FRS Only
10.	467.6125	FRS Only
11.	467.6375	FRS Only
12.	467.6625	FRS Only
13.	467.6875	FRS Only
14.	467.7125	FRS Only

No License Required

Max ½ Watt low power

What to Expect (or why can't you hear me now ?)

- You are too far away from each other
- Obstructions
- Wrong channel and/or PL Code selected
- Other responders may not hear you, too weak, poor location
- Channels may be crowded causing interference or noise (move to alternate channel if required)
- Feedback from other channels (too close)

Learning to use your radio

- Selecting channel and PL
- Hold the microphone away from your face
- Talk across the microphone, not into it
- Speak in a normal voice
- Don't raise your voice
- Use clear pronunciation
- If adjacent noises obscure your speech shift your location. Don't talk louder

Additional Radio details

- PTT = Push to talk
- Lock the channel. Don't accidentally switch channel
- Spare batteries – You run longer
- Earphones – Listen hands free
- Do NOT use VOX

Unit Objectives

- Understand the operating characteristics of FRS/GMRS radios
- Learn to operate a radio effectively
- **Use correct operational procedures**
- Learn to create well formed messages

Best Practices

- Organize your thoughts & follow the protocol
- Pass accurate & timely information from the sender to the receiver
- Transmit only when necessary
- Limit your transmission time
- Avoid use of sensitive information over the air; personal names, addresses only when necessary
- Use plain English, no “10 or 11 codes”

Best Practices

- Speak slowly and clearly
- Avoid pauses on the air
- Know what you are going to say **BEFORE** you key the mike
- Check for proper channel & PL code

Note* Use PL Code “0” (none) or “Off” for emergency communications.

Best Practices

- Hold radio 2” - 3” from mouth
- Use a function or geographical identification for emergencies such as team name, tactical call, i.e. “Neighborhood Captain, Triage, Team 1”
- Acknowledge the receipt of information
- Avoid arguments over the air
- Always know the assignment of your channels
- Stay calm & courteous if chaos occurs

Best Practices

- Communicate triage results:
 - “Red Tag” (Immediate)
 - “Yellow Tag” (Delayed)
 - “Black tag” (Dead)
 - “Green Tag” (Walking Wounded)

i.e. “We have 3 RED TAG, 12 YELLOW TAG, 6 BLACK TAG, 25 GREEN TAG”
- Avoid "stepping" on each other
- Always say, OVER when you complete your transmission
- Avoid interrupting unless they call you
- Practice frequently

What are Prowords

- Prowords are Procedural Words that were originally developed by the Military to:
 - ❖ convey maximum information with a minimum of confusion
 - ❖ keep voice transmission as short and clear as possible. Radio operators use procedure words (Prowords) to take the place of long sentences

Some Common Prowords

- **Affirmative** – “Yes” (in answer to a specific question)
- **Break** – “I have priority traffic.”
- **Break-Break** – “I have emergency traffic.”
- **Clear** – “I am finished with this communication.”
- **Copy** – “I acknowledge receipt of message.”
- **Negative** – “No”
- **Out** – see Clear
- **Over** – end of transmission, waiting for response
- **Roger** - "I have received and understand your transmission." It does not mean yes, affirmative, I agree, or I will comply.
- **Wilco** – “I will comply”

The Phonetic Alphabet

(optional – for reference)

<u>Letter</u>	<u>Phonetic</u>	<u>Letter</u>	<u>Phonetic</u>
A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Unit Objectives

- Understand the operating characteristics of FRS/GMRS radios
- Learn to operate a radio effectively
- Use correct operational procedures
- **Learn to create well formed messages**

Compose the message first

- Write the message on the message form
- Be brief, 20 words or less.
- **DO NOT TRANSMITT UNTIL IT IS WRITTEN DOWN!**

Just the Facts!

- Give your location
- In general keep the information to 20 words or less. Just the facts!
- Stick to CERT terms: Immediate, Delayed, Minor, Light, Moderate, Heavy, and so on

780034 Andover



USGS Photo

Message Traffic

- “ICP, Team 4: 78034 Andover Street. Heavy Damage, Over”

Unit Information

UNIT LOG	1. Incident Name Night Sky Exercise	2. Date Prepared Jan 1, 2007	3. Time Prepared 1850 hrs
4. Unit Name/Designators Division A Team 4	5. Unit Leader (Name and Position) James T Kirk		6. Operational Period
7. Personnel Roster Assigned			
Name	ICS Position	Home Base	
James T. Kirk	Team leader		
Mr Spock	Science Officer		
Nyota Uhura	Communications		

Try this



- Today: 7:50 PM. Your team discovers a fire in an apartment building. There are people screaming inside. One woman is begging you to help save her baby and her mother in apartment 8. The apartment is at 7452 Iberville. The unmistakable smell of gas is in the air. Your team has discovered seven people with first degree burns.

Try this



- Today: 7:50 PM. Your team discovers a fire in an apartment building. There are people screaming inside. One woman is begging you to help save her baby and her mother in apartment 8. The apartment is at 7452 Iberville. The unmistakable smell of gas is in the air. Your team has discovered seven people with first degree burns.



Activity Log



8. Activity Log	
Time	Major Events
1855	321 Main St. 4 immediate, 2 minor, Heavy damage
1940	7800340 Andover St. Heavy damage ~~~~~
1950	7452 Iberville. Apartment fire. Victims trapped inside. 7 Minor.
	Possible gas leak

Why a log?



- When you use the radio, you need to log all messages.
- Use the ICS-214
- “If it isn’t written down, it did not happen.”

Passing Message Traffic

1. Compose your message before you speak.
2. Start by listening - Is the channel clear?
3. If clear, press the transmit button
4. Then speak, giving call sign of who you are calling, then your call sign.
5. Then let go of the transmit button
6. Wait for an acknowledgement.

Passing Message Traffic

7. Once acknowledged, wait a second then press the PTT button
8. Speak, give your call sign, then your message. Slowly.
9. Then let go of the transmit button
10. Wait for a confirmation.
11. If confirmed. Acknowledge. You are done.
12. If not confirmed. Resend message

2005 Porteous Street



USGS Photo

Example: Message Passing

- On the radio you say: “ICP, Team 4”
- You hear: “Team 4 Go Ahead.”
- You say: “Team 4. 2005 Porteous Street Heavy Damage. Team 4 Over”



Example: Message Passing

- You hear: “Copy 205 Porteous Street Heavy Damage. ICP Over”
- You say: “ICP. Negative. I repeat. Two Zero Zero Five Porteous Street Heavy Damage. Team 4 Over”
- You hear: “Team 4 Copy 2005 Porteous Street Heavy Damage ICP Over”

Example: Message Passing

- You say: “ICP. Affirmative. Team 4 Over”
 <At this point the message is passed.>
- You hear: “Team 4 proceed to...”

Speak Slowly... No, Even Slower.

- Say no more than five words without a pause.
- As you speak trace the letters on the log with your fingers.
- Use phonetics if necessary. (alpha, bravo, charlie, delta, ...)
- Your goal: Pass your message in one try.

But why speak slowly?

- Everything you say to the command post is being legibly written down.
- Records tell the story.



The most common mistakes

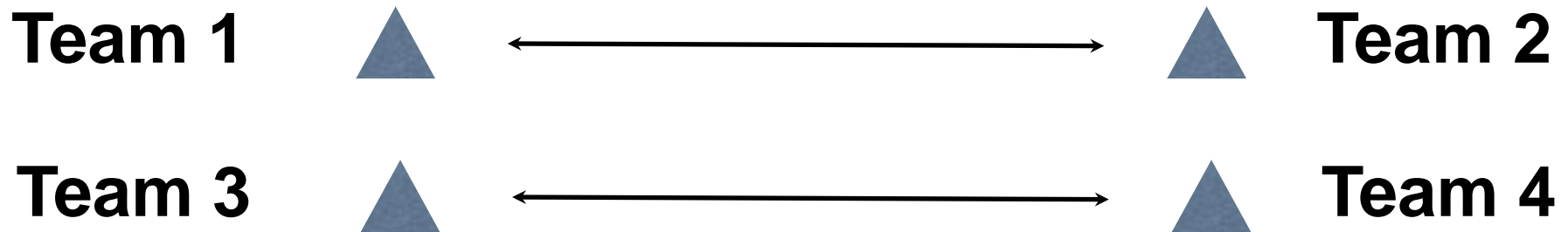
1. Speaking without listening first.
2. Message poorly formed, not brief.
3. Speaking too fast.
4. Bad microphone technique.

Exercise Wrap-up

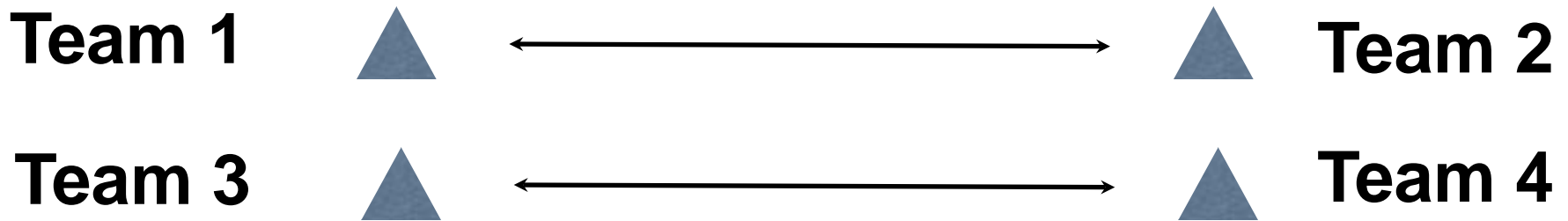
- What did you encounter?
- Challenges?

Exercise: Team to Team

Division A

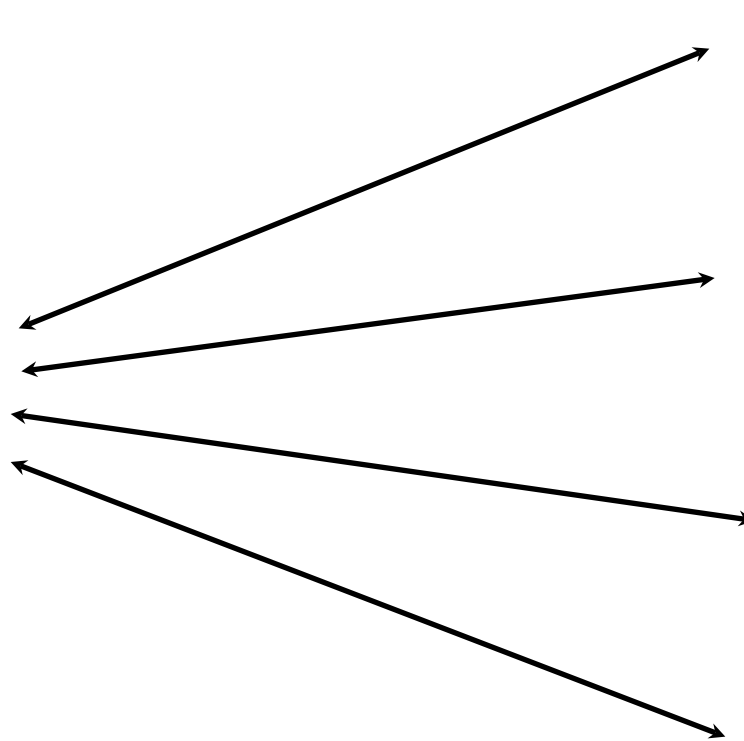


Division B



Reality: One to Many

**Command
Post**



Team 1



Team 2

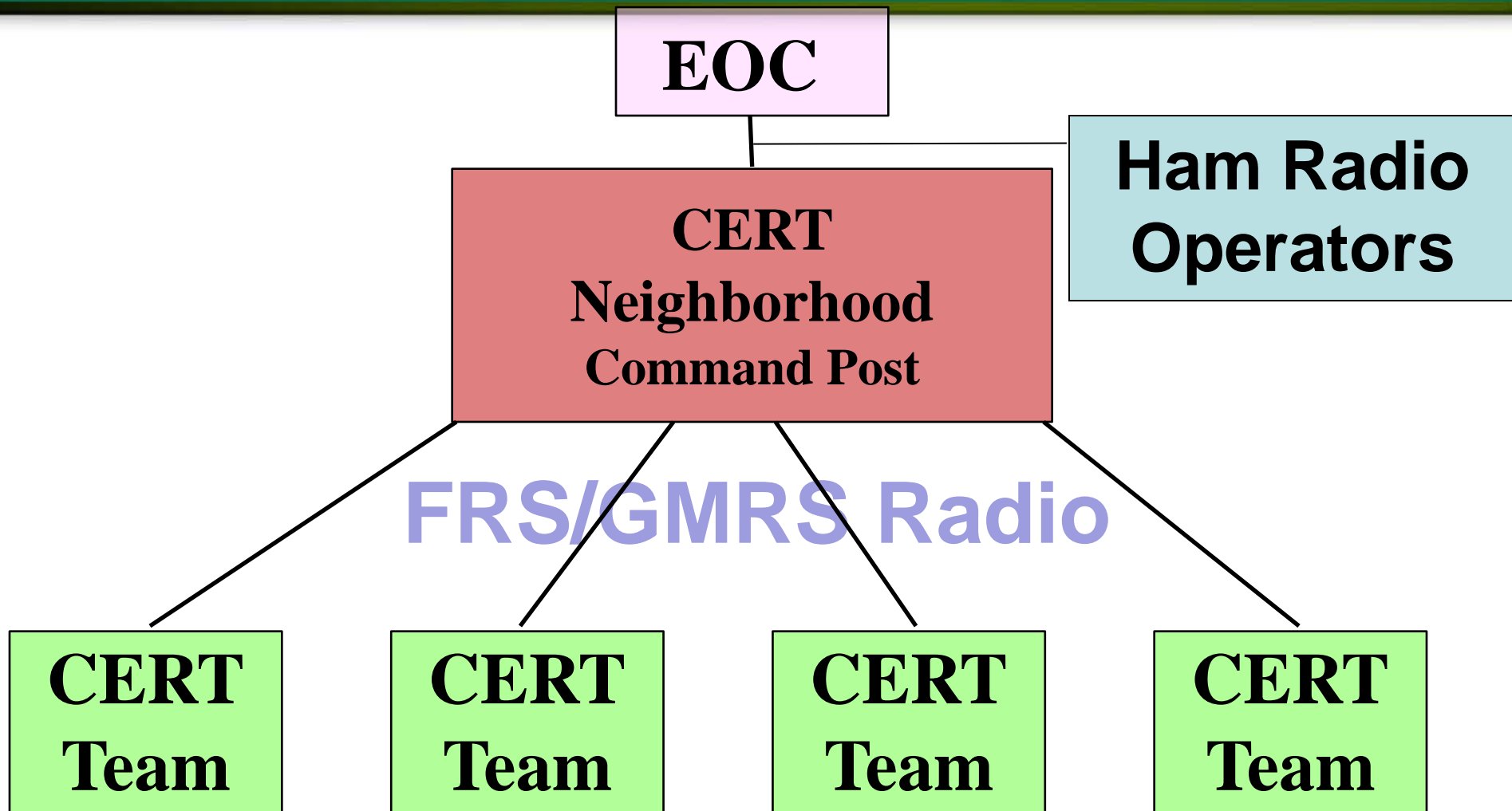


Team 3



Team 4

The CERT team's view: Basic Disaster Communications



Where do we go if there is an incident?

- Ask your Neighborhood team leader for the activation plan for your neighborhood.

Questions for you

- Never leave the frequency without letting Command Post know. Why?
- Always monitor your radio, leave it turned on! Why?
- What distance will your radio cover?
- What is your neighborhood's FRS Channel?

Unit Summary

- You should know:
 - The difference between FRS, GMRS, & Ham Radio
 - Basic operation of your radio
 - Correct Operational Procedures
 - How to create and pass a message
 - Why Radio communication is important

Always follow the safety rules established for CERTs – personal safety comes first!

Links

- Berkeley CERT
<http://www.cityofberkeley.info/ContentDisplay.aspx?id=3920>
- FCC <http://wireless.fcc.gov/services/index.htm>,
Search for FRS, GMRS, Amateur
- Wikipedia http://en.wikipedia.org/wiki/Main_Page,
Search for Family Radio Service, etc.
- NALCO <http://nalco-ares-races.org>
- ARRL <http://www.arrl.org>