

Basic Radio Communications


Community Emergency Response Team



Department of Homeland Security
Emergency Preparedness and Response Directorate
FEMA

January 17, 2023 citizen corps

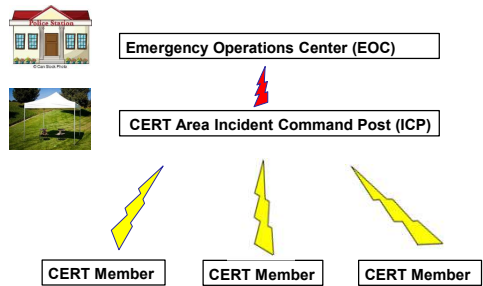
What We Will Learn



- Selecting and using FRS Radios
- Communications in the field environment
- Determine essential information to transmit
- How to compose messages
- Table-top exercise

Visual 1.2

CERT Communication Flow



```
graph TD; EOC[Emergency Operations Center (EOC)] --> ICP[CERT Area Incident Command Post (ICP)]; ICP --> CM1[CERT Member]; ICP --> CM2[CERT Member]; ICP --> CM3[CERT Member];
```

Visual 1.3

Communications During a Disaster


- **Individuals** and **teams** in the **field** will communicate with their **Incident Command Post (ICP)** via **FRS** radios.
- Each **ICP** will communicate with the **Emergency Operations Center (EOC)**, located at the Pleasant Hill Police Department, via **ham** radio.
- In the absence of a ham radio, communications with the EOC will be in person.

Visual 1.4

ABOUT FRS RADIOS

Very low power: 0.5 - 2 watts ERP (effective radiated power)


- Very low cost: \$25 - \$100 per pair
- Types of radio services:
FRS: Family Radio Service - max ERP = 2 watts
GMRS: General Mobile Radio Service - max ERP = 5 watts
- No license required for FRS (not greater than 2 watts ERP)
- Personal and business use OK
- Channels 1-7 max power: FRS = 2 watts; GMRS = 5 watts
- Channels 8-14 max power: FRS and GMRS = 0.5 watts
- Channels 15-22 max power: FRS = 2 watts; GMRS = 50 watts
- No external antennas allowed
- Typical 0.5 - 1 mile communication
- Effective September 30, 2019, combination FRS/GMRS radio sales prohibited




Visual 1.5

Selecting FRS Radios

- FRS / GMRS compatible with at least 22 channels
- Accepts AA alkaline batteries, not AAA
- Ignore "mileage" claims
Battery life is more important than transmit power



Motorola
FRS/GMRS
Model: MT-350R
Approx \$? / pair

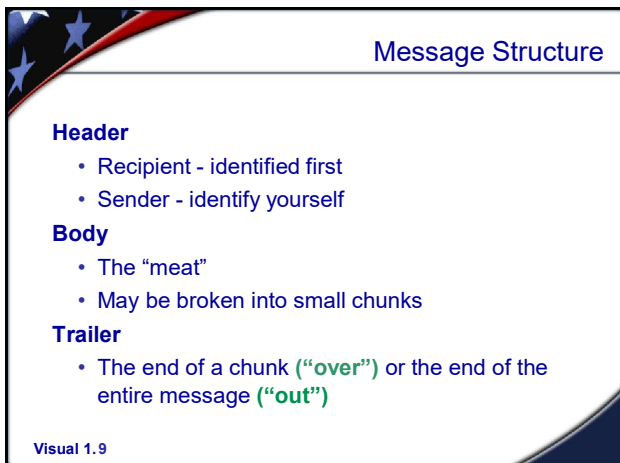


Midland
FRS/GMRS
Model: LXT-600VP3
Approx \$50 / pair

Visual 1.6







Message Header Example

1. **This is a test.**
2. To the ICP at the PH CERT Area:
 - Before you have checked in/as you are arriving:
 “PH CERT NW ICP, this is <first name> ...”
 - When you are in the field:
 “PH CERT NW ICP, this is NW Search and Rescue Team 1...”
3. To other CERT members in your area:
 “PH CERT NW area, this is <first name>; if you can hear me, please respond...”

Visual 1.10

Message Body

When to send a message

- There is **danger** to **life** or property
- You need something (e.g., medical transport, fire department) from the ICP or EOC
- You need to warn first responders of road closures that will impede their ability to respond (e.g., power lines across the road)
- You are reporting status (e.g., check in every 30 minutes)
- Other specific requests

Visual 1.11

Message Body: Preparing to Send

- Know your radio channel and tune to it
- Formulate your message ahead of time
 - Write it down, using a minimum of words
 - Use 5-6 word “chunks”
- The **PTT button**
 - Depress the **PTT button** to talk
 - **You now have control of the channel**
 - Take a deep breath before speaking

Visual 1.12

Message Body: Sending

- Speak slowly and clearly
- Identify the recipient; identify yourself
- Give your location
 - Give street numbers as **single digits** (1-2-3)
 - **Spell** street names, if necessary (e.g., Kathryn, Kathleen; Carol, Karol, Carolyn; Allen, Alan; Jean, Jeanne; Boies); give the street suffix (e.g., Street, Lane, Drive, Court)
- Pause between message "chunks" using a **(pause)** or **("over")** as the trailer for this chunk

Visual 1.13

Message Body: Ending

- Give control to the recipient and wait for a response
 - Release the **PTT button**
 - Wait for the recipient to repeat the message back to you
- Confirm or correct the message
 - **("Affirmative")** or **("Negative" + corrections)**
- End the message with **("out")** as the trailer for the entire message

Visual 1.14

Calling Another Station (1)

1. Formulate your transmission. Keep it short and to the point.
2. Listen to make sure the channel is clear.
3. Press **Push to Talk** button, take a breath, and then speak slowly and distinctly.
 - **This is a test.**
 - Pleasant Hill Northwest ICP, this is Search Team One; **("over")**
 - Search Team One, this is Pleasant Hill Northwest ICP; go ahead; **("over")**

Visual 1.15

Calling Another Station (2)

- Pleasant Hill Northwest ICP, this is Search Team One; (**pause**); we are at the intersection of Taylor Boulevard and Apollo Way; (**pause**); there is a water main break; (**pause**); the intersection is flooded; (**“over”**)
- Search Team One, this is Pleasant Hill Northwest ICP; (**“understand”**) *repeat transmission to confirm*
- Pleasant Hill Northwest ICP, this is Search Team One; affirmative; (**“over”**) - or - (**“out”**)
- Search Team One, this is Pleasant Hill Northwest ICP; (**“out”**)

Visual 1.16

CAUTION

THE GENERAL PUBLIC AND THE NEWS MEDIA CAN HEAR WHAT YOU ARE SAYING ON THESE FREQUENCIES.

THINK ABOUT **WHAT** YOU WANT TO SAY AND **HOW** TO SAY IT!

Visual 1.17

Scenario: What Happened?

There has been a simulated earthquake of magnitude 6.9 on Monday February 6, 2017, at 7:23 AM along the Hayward Fault.


At approximately 7:52 AM, an aftershock of magnitude 6.5 subsequently triggered a magnitude 6.0 earthquake along the Concord-Green Valley fault.

Visual 1.18

Scenario: Compose your message


You have checked your house and everything is OK.
You are now checking your neighborhood.

At 381 Apollo Way, you discover a house fire. It appears all occupants have made it out safely. The occupants state that they tried to call 911 but couldn't get through. They said the fire started when a gas pipe broke.




Visual 1.19

PRACTICE



PRACTICE



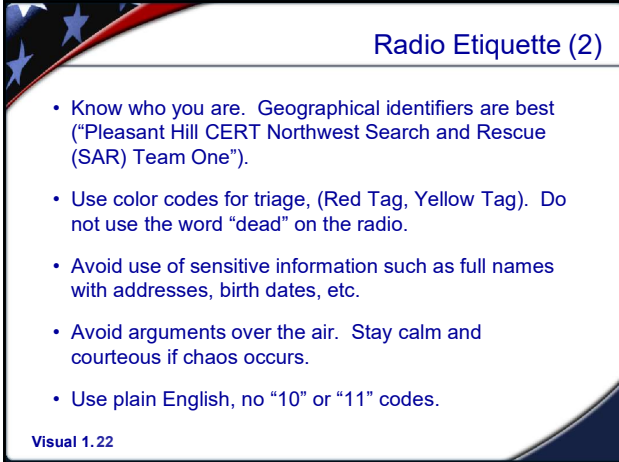
PRACTICE

Visual 1.20

Radio Etiquette (1)

- Speak slowly and clearly, avoiding long pauses. Know what you are going to say before transmitting.
- Limit your transmissions to no more than 10 seconds each.
- Hold the radio 2-3" from your mouth or use a headset for best clarity.
- Avoid interrupting transmissions already in progress, and always say "over" when you are done speaking.
- Repeat and acknowledge received messages.

Visual 1.21



Radio Etiquette (2)

- Know who you are. Geographical identifiers are best ("Pleasant Hill CERT Northwest Search and Rescue (SAR) Team One").
- Use color codes for triage, (Red Tag, Yellow Tag). Do not use the word "dead" on the radio.
- Avoid use of sensitive information such as full names with addresses, birth dates, etc.
- Avoid arguments over the air. Stay calm and courteous if chaos occurs.
- Use plain English, no "10" or "11" codes.

Visual 1.22
