

Communications Systems for Public Health Contingencies

May 2004



FEMA

AUTHORITY

- **EO-12472**
 - **FEMA shall plan for & provide, operate & maintain telecommunications services & facilities, as part of its national emergency management system**
- **PDD 62 – Combating Terrorism**
- **PDD 63 – Infrastructure Protection**
 - **Sets a goal of a reliable, interconnected, and secure information system infrastructure by the year 2003**
- **PDD – 67 – Enduring Constitutional Government and Continuity of Government Operations**



AUTHORITY (Cont.)

- **MOU/MOA**
 - **FEMA Maintains MOUs and MOAs with many departments and agencies**
 - **Provides for interface capabilities when required for the coordination of disaster response or national security emergency action**
 - **Provides support for disaster preparedness exercises and emergency warning notification**
 - **The MOA between FEMA and the Department of Health and Human Services should be updated**



FEMA

FNARS FUNCTIONALITY

- **FEMA has a capital investment of \$80M in an HF radio system (FNARS – FEMA National Radio System) that provides back-up links between the President & Governors and provides interoperable communications for COOP and COG**
- **Provides an interoperable voice & data, command & control link between FEMA and other agencies supporting the National Response Plan**
- **Supports national security programs**



FNARS FUNCTIONALITY (Cont.)

- **Emergency Presidential links into the EAS**
- **Future capabilities:**
 - **HF e-mail with internet access**
 - **Interface with the Air Force High Frequency Global Communication System**
 - **Interface with Integrated Wireless Network (IWN)**
 - *“The IWN will implement solutions to provide federal agency interoperability with appropriate links to state, local, and tribal public safety, and homeland security entities.”*



FEMA

CURRENT CAPABILITIES

- **Non-Secure voice**
- **Secure data**
- **Non-Secure data**
- **Backup to FEMA Switched Network**
- **Phone patches**
- **Communications with aircraft and ships at sea**
- **Adheres to FED-STD 1045A & MIL-STD-188-141A**



CURRENT OPERATIONS

- **National Network**
 - **Net Control Station at the Mount Weather Emergency Operations Center**
 - **Communications with FEMA Regions, MERS and MATTS when deployed**
 - **Provides Primary Entry Point service to the Emergency Alert System**
 - **Direct connectivity to State EOCs during emergencies**
 - **National Security support**



CURRENT OPERATIONS (Cont.)

- **Nets (General Support)**
 - **Regional Communications between the FEMA Regions and State EOCs**
 - **Support to special programs, i.e. Chemical Stockpile Emergency Preparedness Program, American Red Cross**
 - **National Security support**
- **Participation in Established Nets**
 - **FNARS weekly tests**
 - **Quarterly NECN tests**
 - **Monthly National Security exercises**
 - **COOP and COG HF radio nets**



FEMA

CURRENT OPERATIONS (Cont.)

- **National Emergency Coordination Net (NECN)**
 - Support to federal departments and agencies
 - Provides direct support between federal departments and agencies
 - Staffed by government employees
 - Provides secure voice and data communications
- **SHARES (Shared Resources) exercises and activities**
 - Operated primarily by volunteer personnel
 - Includes communication service to commercial communications carriers
 - Operates in the “plain” mode only. No secure capability



FEMA

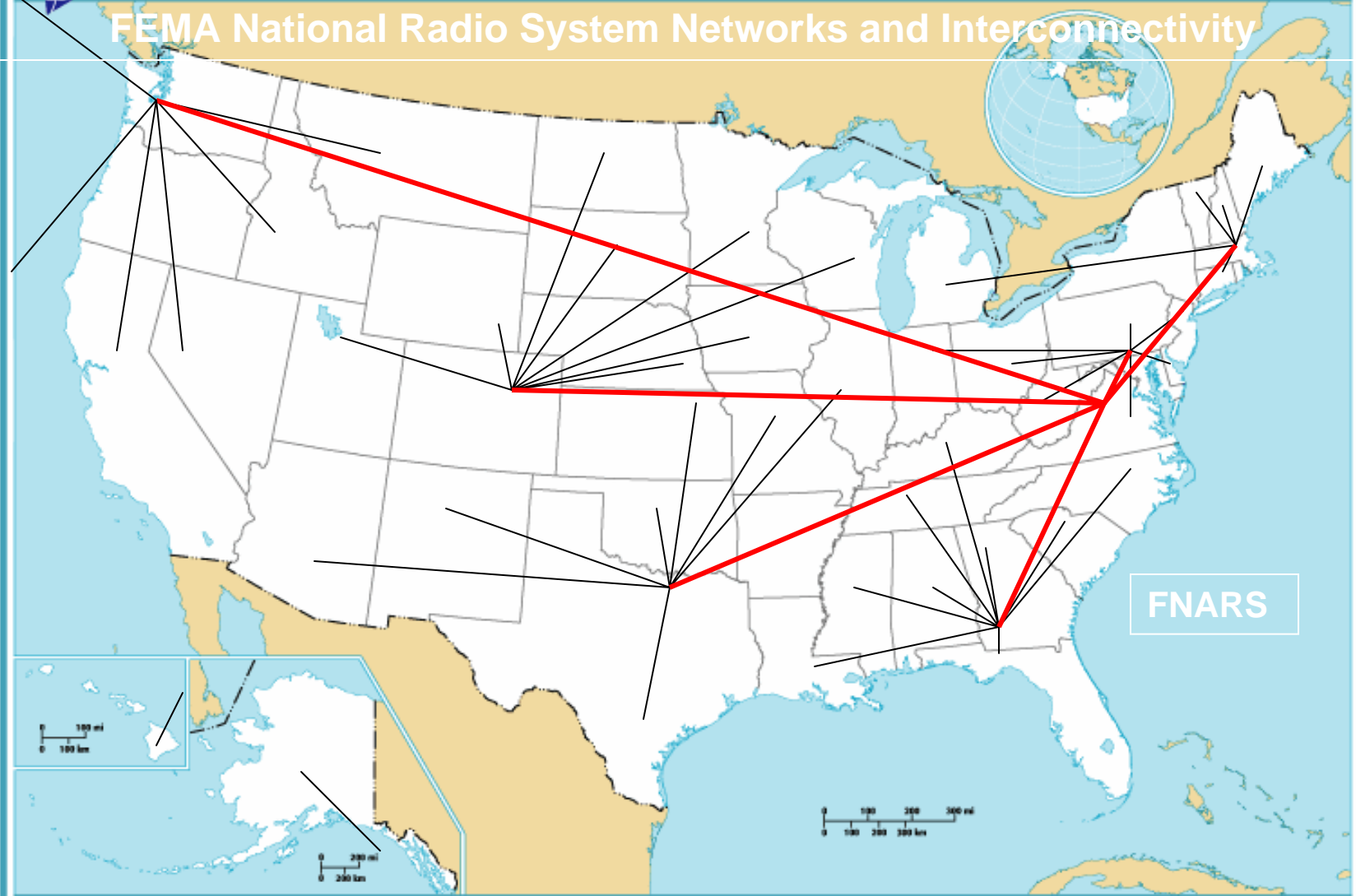
DIRECT SUPPORT TO THE PHIN

- **Provide Back Up Communications**
 - Telephones are vulnerable to manmade and natural disasters
 - Satellite communications depend on landline circuits
 - Cell phones are useless in disaster situations. Overloads of the systems historically occur in “stress” situations.
- **Broadcast Services**
 - Dissemination of Public Health Information Bulletins via HF radio to all state Emergency Operations Centers (voice and data)
 - Voice and data communications can be secure
 - Communications security can be at both “voice privacy” and “Type 1” COMSEC levels, depending on requirements.





FEMA National Radio System Networks and Interconnectivity



FNARS Station List

STATE EOCs

AK EOC, Anchorage, AK

AL EOC, Clanton, AL

AR EOC, Conway, AR

AZ EOC, Phoenix, AZ

CA EOC, Sacramento, CA

CO EOC, Golden, CO

CT EOC, Hartford, CT

DC EOC, Washington, DC

DE EOC, Delaware City, DE

FL EOC, Tallahassee, FL

GA EOC, Atlanta, GA

HI EOC, Honolulu, HI

IA EOC, Des Moines, IA

ID EOC, Boise, ID

IL EOC, Springfield, IL

IN EOC, Indianapolis, IN

KS EOC, Kansas City, KS

KY EOC, Frankfort, KY

LA EOC, Baton Rouge, LA

MA EOC, Framingham, MA

MD EOC, Reisterstown, MD

ME EOC, Augusta, ME

MI EOC, Lansing, MI

MN EOC, St. Paul, MN

MO EOC, Jefferson City, MO

MS EOC, Jackson, MS

MT EOC, Helena, MT

NC EOC, Raleigh, NC

ND EOC, Bismarck, ND

NE EOC, Lincoln, NE

NH EOC, Concord, NH

NJ EOC, Trenton, NJ

NM EOC, Santa FE, NM

NV EOC, Carson City, NV

NY EOC, Albany, NY

OH EOC, Worthington, OH

OK EOC, Oklahoma City, OK

OR EOC, Salem, OR

PA EOC, Harrisburg, PA

RI EOC, Providence, RI

SC EOC, Columbia, SC

SD EOC, Pierre, SD

TN EOC, Nashville, TN

TX EOC, Austin, TX

UT EOC, Salt Lake City, UT

VA EOC, Richmond, VA

VT EOC, Waterbury, VT

WA EOC, Olympia, WA

WI EOC, Madison, WI

WV EOC, Charleston, WV

WY EOC, Cheyenne, WY



FEMA

FNARS Station List

ROs (Not with an FRC)

R-I, Boston, MA

R-II, New York City, NY

R-III, Philadelphia, PA

R-IV, Atlanta, GA

R-V, Chicago, IL

R-IX, Oakland, CA

FRCs

R-I, Maynard, MA

R-III (FSC), Olney, MD

R-IV, Thomasville, GA

R-VI, Denton, TX

R-VIII, Denver, CO

R-X, Bothell, WA

TERRITORIES

CAO EOC, San Juan, PR

PR EOC, San Juan, PR

St. Croix EOC, St. Croix, USVI

St. John EOC, St. John, USVI

St. Thomas EOC, St. Thomas, USVI



HF RADIO VS. SATELLITE

- HF is free; satellite air time is very expensive
- Satellites can be jammed or destroyed
- Electro Magnetic Pulse phenomena can destroy satellites. The ionosphere recovers quickly after such an event.
- HF radio has no “common mode failure”. Satellites depend on landline communications which are vulnerable.
- HF radio provides long distance service in the event of landline or satellite non-availability



FEMA

HF RADIO VS. CELL PHONES

- **Common mode vulnerability and failure**
 - Cell Phones depend on landline connectivity
- **Inaccessibility problems (overload)**
 - System denial during the million family march
 - System denial during Mothers' day
 - System denial during major hurricanes
- **HF radio provides long distance service in the event of telephone system non-availability**



Satellite Communications Options

- Iridium – **hand held**, portable, voice and 9600 bps data, global coverage (except poles), monthly fee + per-minute charges, 66 low earth orbit satellites (LEOs) w/satellite to satellite relay, USG calls on US network, **Type 1 encryption** possible.
- Globalstar – **hand held**, portable, voice and 9600 bps data, limited coverage areas (middle east and Asia restricted coverage), monthly fee + per-minute charges, 48 LEOs with foreign country gateways, USG calls can be handled outside of US network.



Satellite Communications Options

- Mobile Satellite Ventures (AMSAT) – briefcase portable, voice and 4800 bps data, **Push-to-talk radio feature**, coverage area is North and Central America only, monthly fee + higher per-minute charges, 2 geo-stationary satellites with Canadian gateway, USG calls handled via Canada.
- INMARSAT - **briefcase portable** and larger, digital or analog voice and **up to 64kbps data**, 4 coverage areas, monthly fee + higher per-minute charges, 9 geo-stationary satellites with international gateways, high per-minute cost, USG calls may be handled via foreign country gateway.



FEMA

HF Radio vs. Satellite - Summary

- HF has no monthly or per-minute charge for service
- HF is not vulnerable to infrastructure failures (telco, satellite or gateway)
- HF can have dedicated channels and networks (no competition with other users)



“PACE”

- Primary
- Alternate
- Contingency
- Emergency



FNARS & PHIN

- FEMA can help with radio communications.
- Let us know how to assist you.





FEMA

Ross Z. Merlin, DHS/FEMA
Wireless Program Management Team
(540) 542-2192 Ross.Merlin@DHS.GOV