ANNEX B
COMMUNICATIONS

I. SITUATION AND ASSUMPTIONS

A. The Commonwealth of Kentucky is vulnerable to emergencies and disasters such as earthquakes, tornadoes, flash and riverine flooding, droughts, fires, hazardous materials, mud/rock slides, extreme heat/cold, dam failures, power failure, national security threats and terrorism.

B. Kentucky Disaster and Emergency Services (Ky DES) is responsible for the State Emergency Operations Center (EOC) and the attached Emergency Communications Center (ECC). The Ky DES Telecommunications Manager is responsible for the operation of the ECC.

C. Current communications systems are capable of supporting emergency and disaster operations within the state.

D. State government agencies shall utilize their normal communications systems during emergency or disaster operations. Support facilities and equipment shall be provided through coordination with the state EOC and ECC.

E. Disaster areas may experience serious disruption of normal communications and an overloading of communications systems is anticipated.

F. A catastrophic or significant disaster or emergency as specified in the Federal Response Plan shall result in federal government response assistance.

G. Following a nuclear attack upon Kentucky, it is estimated that only 15% of all telephone circuits shall be operational. Also following a nuclear attack, radio communications shall be severely damaged by electromagnetic pulse (EMP).

II. MISSION

The mission of communications is to provide statewide communications support prior to, during and following emergency and disaster operations.

III. DIRECTION AND CONTROL

A. The ECC which is attached to the State EOC shall serve as Kentucky's emergency and disaster communications center prior to, during and after emer-

gency and disaster operations.

B. The Telecommunications Manager, under the supervision of the Assistant Director for Operations, is responsible for the administrative and operational control of the Ky DES communications system.

C. Communications personnel from other state government agencies when operating their equipment from the EOC or ECC shall remain under the direct control of their agency, but shall:

1. Follow the guidance of the Telecommunications Branch Manager for coordination of systems and operations.

2. Follow the procedures established in this Annex, the remaining Annexes to this plan, and EOC SOPs.

IV. CONCEPT OF OPERATIONS

A. The Ky DES Telecommunications Branch Manager shall be responsible for the following to maintain the communications network.

1. Assisting in the gathering of communications damage assessment from government and private resources.

2. Making estimates of the amount of federal, state and private telecommunications equipment and personnel required to maintain disaster and emergency operations.

3. Maintaining an inventory of state and private telecommunications assets available to Ky DES.

4. Physical security of forms and equipment.

5. Maintaining the flow of information and documents in the ECC and to the EOC.

6. Assigning personnel to duty stations in the ECC.

7. Day-to-day and emergency maintenance of the Ky DES communications system.

8. Obtaining additional communications equipment and personnel as required by the situation.

9. Supervision and direction of the ECC.

B. Emergency Communications Center (ECC)

1. Location: EOC Building
Boone Center
Frankfort, Kentucky 40601

2. Protection Factor: 100+

3. Emergency Power: Three 205 KW generators with a 15,000 gallon reserve fuel capacity.

4. DES Area Offices (See Appendix B-1 for locations)

Ky DES Area Offices are extensions of the state EOC and ECC and have radio and telephone capabilities. Area offices are not EMP protected.

C. Emergency Communications Resources in the ECC

1. DES Radio System (See Appendix B-3 for map)

a. The Ky DES radio system consists of 21 base stations located throughout the state at KET transmitter sites, KEWS sites, Kentucky National Guard Armories and State EOC. The system also includes 15 mobile repeaters which provide each of the operators the capability to talk to the Duty Officer when they are away from their vehicle.

b. The system also includes 35 DES mobile radios, State Fire Marshal's radios and the CNR-EPA radios. There are also three haz-mat van radios on the system.

c. The State Government Warning System which has 102 strategic locations in Frankfort to provide warning for state government employees.

d. The complete radio system is operated from two consoles in the ECC which is staffed 24-hours a day. The base stations are also controlled from the Area Offices. Each Area Office may control from one to six base stations.

2. DES Telephone System

a. The Boone Center telephone system consists of an electronic switch with trunk lines

between it and the centrex switch at South Central Bell; and individual extensions to all users. There are 4 centrex lines into the ECC, two of which are also used as phone patch lines. One line for the DES Emergency Number and one for the Government Warning System Number.

b. The phone system includes 32 extension lines in the EOC for use by the agency coordinators during operations.

c. There are six tie lines between the telephone switch in the ECC and the telephone switch at KEWS headquarters. The tie lines provide the capability to use six additional outgoing trunk lines and access the microwave phone system to all State Police Posts, KET facilities, National Weather Service offices and other state agencies in the system.

d. The ECC has a pre-wired capability for KEWS to provide the EOC with up to 32 direct lines connecting various cities throughout the state. This capability can be used anytime there is a Boone Center or Centrex switch failure.

e. Support includes the maintenance of the DES phone directory and operation of the Boone Center Switch Board. It also includes installation and repair of the various phone systems that provides service for DES staff, centrex in Frankfort, ESSEX in some of the major cities and KEWS for the EOC's.

4. DES Electronic Mail System

This system is a software program on a computer in the ECC. The mail system provides a secure electronic capability to send messages to any mail box on the system.

5. DES Bulletin Board System (BBS)

This software program is limited to one logon at a time. It provides the capability to electronically transfer any DOS base file between any DOS base computers. Area Office Coordinators can transfer Word Star 2000, Dbase, Lotus, or any other other files to the BBS then other Area Office Coordinators and central staff may download them for use. The BBS also

has a mail system so that messages may be sent to individuals (private) or to everyone (general).

6. 2-Meter Packet Station and Digipeater

   This system is an amateur radio setup which can provide operators the capability to practice and/or send actual hard copy messages concerning emergency and/or disaster situations and operations. The system consists of a 2-meter radio connected to a terminal node controller (TNC) that has the capability to store messages in a mail box. It is operational 24 hours a day so that amateur radio operators can determine the best time to send messages.

7. Emergency Broadcast System (EBS) (See Appendix B-4 for map)

   EBS consists of a transmitter located on the tower in back of the EOC building and a remote control unit in the ECC. When the microphone is keyed in the ECC, a receiver remoted into the WAMZ news room in Louisville will unsquelch, a light on the alert panel will flash, a printer at the Station Engineer's desk will print out that the State EOC has activated the system, and a recorder will be activated to record the message. After contact with the station, a message can be broadcast immediately.

8. NOAA Weather Radio System (See Appendix B-6 for map)

   This system is operated by the National Weather Service offices in and surrounding Kentucky. Each radio system consists of a broadcast booth in the weather office, a KEWS micro wave link to the transmitter, and a continuous broadcast transmitter. The micro wave link from the weather office goes through the Ky DES radio console and then out to the transmitter site. This network gives Ky DES the capability to interrupt the weather broadcast, transmit the receiver activation alert tone, and broadcast a warning message.

9. Amateur Radio

   a. Amateur radio operators volunteer time and equipment during emergency and disaster operations to provide communications for government services. Portable equipment can

provide communication from the disaster site back to the EOC. Some operators have generators and the capability to communicate directly with the state EOC.

b. Several amateur radio groups have purchased radios and generators to equip "jump teams". A "jump team" can consist of four to ten operators equipped to operate 24 hours a day for three days. After three days, the teams will require food, water and fuel for the generators. These "jump teams" are organized to be transported by helicopter to the disaster site.

10. Amateur 2-Meter Repeater

The 2-meter repeater located in the ECC provides local amateur radio operators the capability to use hand held radios and mobiles to operate severe weather nets, for local disasters and emergencies, and for general utilization. The system is operational 24 hours a day for use by any amateur radio operator available.

11. FEMA National Voice System (FNAVS)

FNAVS is a dedicated leased line to the telephone switch at the Federal Regional Center in Thomasville, Georgia. It is attached to the telephone switch at Boone Center which enables any DES employee with an extension on the center to call anyone at the Federal Regional Center, selected FEMA personnel in the regional office in Atlanta, and emergency management agencies in other Region IV states free of charges. All calls coming in on this line come to the switch board and can be transferred to any DES employee.

12. FEMA National Teletype System (FNASTS)

This system is a dedicated circuit teletype leased by FEMA for use by all FEMA and state emergency management agencies to transmit hard copy messages.

13. FEMA National Radio System (FNRS)

This is a high frequency radio system that operates on frequencies between 50KHz and 30.0 MHz. It has the capability for voice, morse code, teletype and digital communications. Any

of these modes can be encrypted with the addition of the encryption device. At the present time it is operated only in the manual mode, but it is projected that when all systems are operational, it will operate in the automatic mode. In the automatic mode, personnel will enter a message, letter or document in the computer and indicate who it is addressed to and the system will deliver the message automatically. The radio can transmit at a power output level of 250 to 1 Kilo Watts in multiples of 250 watts.

14. Army Military Affiliated Radio System

This system is a special group of radio nets that operate on frequencies just outside but adjacent to the amateur radio frequency bands. It is operated on army facilities by active duty personnel or by civilian employees of the army. Specially licensed amateur radio operators, using their own equipment also participate in the nets. The system provides a backup communications system for military operations, it can be utilized for health and welfare messages, or moral messages. It can also be utilized for emergency traffic during disasters.

15. National Guard Radio System

The National Guard Radio System consists of 43 repeaters, about 50 base stations, 20 mobiles and portables. The system provides direct communications between the EOC and each National Guard installation. It also provides mobile to mobile, mobile to armory and mobile to EOC capabilities.

16. Telecommunications Device for the Deaf (TDD)

This is a device attached to telephone lines to communicate with a hearing impaired person. It has a small screen that the operator can read the message as it comes in, also the printer can be activated to print out the message. AT&T maintains a service for the hearing impaired. The hearing impaired person calls an 800 number that is answered by an AT&T operator in Birmingham, Alabama with a TDD. The AT&T operator then calls the agency that the hearing impaired person wants to talk with. The operator then acts an an interpreter to converse with the TDD with the hearing impaired person and voice with

the agency.

17. Satellite System

This system provides the capability to receive any unscrambled program from any satellites. DES monitors the Weather Channel.

18. Paging Equipment

There are approximately 300 pagers on the system. There are two paging encoders on the consoles in the ECC, one of which can be controlled by computer. The system includes pagers for various state government agencies including Ky DES, State Fire Marshal, Kentucky Educational Television, State Medical Examiner, Governor's Office, Military Affairs, Human Resources (radiological Health) and Natural Resources.

19. FAX Machine

The FAX machine transmits by telephone line an image of a document, picture, map or any item which will feed through the machine to another compatible system anywhere in the world.

20. Citizen Band Radio (CB)

The CB system provides an unsecure local voice communication capability.

D. Priorities of allocation of emergency communications by the ECC shall be the following.

1. Lifesaving-Organizations essential to survival, health and safety of the population.

2. Essential industry/commerce/transportation-Organizations which are needed to maintain civilian and military emergency and disaster operations and economic stability.

3. Others as necessary.

E. Primary and Support Functions

The Division of Disaster and Emergency Services is responsible for the overall coordination of emergency communications operations within the Commonwealth. The primary and support communications functions for each agency of state government are as follows.

1. Law Enforcement

   a. Primary responsibility-Kentucky State Police utilizing radio and telephone systems between the EOC, state headquarters and the 16 posts.

   b. Support Responsibility

      1) Tourism Cabinet, Department of Parks and Fish and Wildlife utilizing law enforcement communications systems and telephones.

      2) Department of Military Affairs, Kentucky National Guard, utilizing military communications systems and telephone.

      3) Transportation Cabinet, Department of Vehicle Enforcement and Department of Highways, utilizing law enforcement and non-law enforcement communications systems and telephone.

      4) Public Protection and Regulation Cabinet, Alcohol Beverage Control, communications is by telephone.

      5) Natural Resources and environmental Protection Cabinet, Division of Forestry, Division of Water Patrol and Department for Surface Mining Reclamation and Enforcement, utilizing law enforcement communications systems and telephone.

2. Search and Rescue

   a. Primary responsibility-Department of Military Affairs, Division of Disaster and Emergency Services, utilizing those systems described in this annex between the EOC, Area Offices, counties and field operations.

   b. Support Responsibility

      1) Tourism Cabinet, Department of Parks and Fish and Wildlife utilizing law enforcement communications system and telephone.

      2) Department of Military Affairs, Kentucky National Guard, utilizing

military communications systems and telephones.

3) Transportation Cabinet, Department of Vehicle Enforcement and Department of Highways, utilizing law enforcement and non-law enforcement communications systems and telephone.

4) Public Protection and Regulation Cabinet, Alcohol Beverage Control, communications is by telephone.

5) Natural Resources and Environmental Protection Cabinet, Division of Forestry, Division of Water Patrol and Department for Surface Mining Reclamation and Enforcement, utilizing law enforcement communications systems and telephones.

3. Fire Suppression

a. Primary responsibility-Public Protection and Regulation Cabinet, Office of the State Fire Marshal, utilizing radio and telephone systems.

b. Support responsibility-Cabinet for Natural Resources and Environmental Protection, Division of Forestry, utilizing radio and telephone systems.

4. Shelter Operations

a. Primary responsibility-Department of Military Affairs, Division of Disaster and Emergency Services, utilizing radio and telephone systems.

b. Support Responsibility

1) Tourism Cabinet, Department of Parks, utilizing radio and telephone systems.

2) Cabinet for Human Resources, Department for Social Insurance, utilizing the telephone system.

3) Corrections Cabinet utilizing the telephone system.

4) Department of Military Affairs, Kentucky National Guard, utilizing

military communications systems and telephone.

5) Education and Humanities Cabinet, Department of Education, utilizing the telephone system.

6) Red Cross, where communications equipment is available, can establish networks at the local and state levels.

5. Health and Medical

a. Primary responsibility-Cabinet for Human Resources, Department for Health Services, utilizing the telephone system.

6. Welfare

a. Primary responsibility-Cabinet for Human Resources, Department for Health Services, utilizing the telephone system.

b. Support responsibility-Cabinet for Human Resources, Departments for Social Insurance and Social Services, utilizing the telephone system.

7. Engineering

a. Primary responsibility-Finance and Administration Cabinet, utilizing the telephone system.

b. Support Responsibility

1) Transportation Cabinet, Department of Highways, utilizing radio and telephone systems between the EOC, central office and districts.

2) Department of Military Affairs, Kentucky National Guard, utilizing radio and telephone systems between the EOC and National Guard Armories.

8. Public Information

a. Primary responsibility-Department of Military Affairs, Division of Disaster and Emergency Services, utilizing KET, NOAA radio, local and state wide media services, radio and telephone.

b. Support responsibility-Education and Humanities Cabinet, utilizing telephone system.

9. Disaster Intelligence Including Radiological

a. Primary responsibility-Department of Military Affairs, Division of Disaster and Emergency Services, utilizing NAWAS, radio and telephone systems to all DES Area Offices and RADEF monitoring stations.

b. Primary responsibility-Cabinet for Human Resources, Radiation and Product Safety Branch, utilizing telephone system and other agencies' radio systems to all DES Area Offices and RADEF monitoring stations.

c. Support Responsibility

1) Justice Cabinet, Department of State Police, utilizing NAWAS, radio and telephone in the EOC to the State Police Headquarters and 16 statewide posts.

2) Tourism Cabinet, Department of Fish and Wildlife, utilizing telephones in the EOC to headquarters and district offices.

3) Department of Military Affairs, Kentucky National Guard, utilizing radio and telephone systems between the EOC and National Guard Armories.

4) Transportation Cabinet, Department of Highways and Department of Vehicle Enforcement, utilizing telephone between the EOC, headquarters and district offices.

5) Finance and Administration Cabinet utilizing radio and telephone systems.

6) Cabinet for Natural Resources and Environmental Protection, Division of Forestry, Division of Water Patrol, Department for Surface Mining Reclamation and Enforcement, utilizing radio and telephone systems.

F. Coordination

1. Message Flow

   a. During disaster operations, a Communications Manager shall be appointed for each shift in the ECC. All incoming/outgoing messages shall be given to the manager before delivery to the addressee or for transmission. The Communication Manager shall route all messages and file a copy.

   b. A reply or confirmation message shall include, within the text, the message number of the original messages to be used as a reference.

   c. If the State EOC is activated, the flow of messages and communications shall be coordinated by Ky DES according to SOPs.

2. The Communications Officer of each state agency with operating radio systems shall be under the direction of Ky DES and shall make available their communications systems for operational and administrative operations.

3. It is the responsibility of the county DES coordinators to establish local communications networks necessary to maintain and control emergency and disaster operations within the appropriate jurisdiction. A local emergency communications network shall provide communications with and between:

   a) Local Emergency Operations Center,

   b) Ky DES Area Office, and

   c) The State and/or Alternate State Emergency Operations Center.

4. Supplies

   The ECC has an adequate supply of communications materials (logs, forms, message blanks, paper and pencils/pens). A small stock of spare radio parts is maintained for the radio system, spare parts are replenished as utilized. Fuel to operate the emergency generators for 15 days is available.

5. Training

Communications personnel assigned by state government agencies are qualified in communications techniques and procedures. Volunteer RACES members are utilized for RACES operations.

6. Maintenance

a) Leased common carrier equipment in the EOC and ECC is maintained by the appropriate company.

b) Ky DES communications equipment shall be maintained by the DES Communications Technicians.

G. Federal Response Plan

1. Emergency Support Function #2 (ESF 2), Communications Annex, of the Federal Response Plan is to assure the provision of federal telecommunications support to federal, state and local response efforts following a Presidential declared emergency, major disaster, extraordinary situation and other emergencies under the federal plan. ESF #2 supplements the National Plan for Telecommunications Support in Non-Wartime Emergencies.

2. ESF #2 shall coordinate federal operations to support federal, state and local telecommunications requirements. ESF #2 shall coordinate the establishment of required temporary telecommunications in the impacted area which has received a Presidential declaration. Support includes governmental furnished telecommunications, commercially leased communications and services provided under authority of federal law and regulations.

H. Activation and Staffing of the Emergency Communications Center

1. The Emergency Communications Center is the Ky DES 24-hour warning point. Upon receipt of any type of warning, the Telecommunications Branch Manager and/or Duty Officer shall immediately notify the Assistant Director for Operations, Operations Branch Manager, Public Information Officer and affected DES Area Offices.

2. The center is also a weather warning point and receives weather information including warnings 24-hours a day. In the event of a weather warning, notification shall be made as specified in Annex C Warning.
3. When a warning or notification of a disaster or emergency is received, the following actions shall be implemented by the Telecommunications branch Manager and/or Duty Officer upon direction of the Assistant Director for Operations.

    a) Provide coverage of the RACES stations on a 24-hour basis.

    b) Verify operational readiness of all communications equipment in the center, EOC and Area Offices.

    c) Complete and verify the staffing pattern for the center and insure that the assigned personnel are knowledgeable of their responsibilities.

    d) Verify operational logs, message handling and communications procedures for adequacy and verify that all communications personnel assigned are familiar with procedures.

    e) Verify availability of supplies and/or required materials.

    f) Notify the station manager of the entry point EBS station to be ready for possible local programming by state government from the EOC.

    g) If needed, work with the impacted DES Area Offices for 24-hour communications.

    h) Complete all actions required for installing communications equipment in the EOC.

I. Operational Phases

1. Preparedness Phase

    a. Develop communication operating procedures.

    b. Develop a system of determining communications resources available.

    c. Insure that all necessary forms are available.

d. Conduct training.

e. Insure that all personnel concerned are familiar with their responsibilities.

f. Take part in tests and exercises.

g. Upon instructions of the DES Executive Director, or Assistant Director for Operations, shift to the Response Phase.

2. Response Phase

a. Increased Readiness Period

1) Complete all steps not yet completed under Preparedness Phase.

2) Review and update the Communications Annex if necessary.

3) Alert personnel needed to carry out the Annex.

4) Carry out any needed training.

5) Check to insure that all necessary equipment and supplies are available.

6) Take initial steps to increase communication organizations on duty and on standby.

7) Begin providing communication operations.

8) Maintain documentation of staff utilized, work undertaken, dates and hours worked.

9) Coordinate activities with surrounding states.

10) Upon instructions from the Executive Director, or Assistant Director for Operations, shift to Emergency Operation Period or return to the Preparedness Phase.

b. Emergency Operation Period

1) Natural and Man-Made/Technological Disasters

a) Complete any procedures under Increased Readiness Period not yet completed.

b) Conduct communication operations.

c) Coordinate activities with other agencies and governments.

d) Upon direction of the Executive Director, or Assistant Director for Operations, shift to the Recovery Phase.

2) Nuclear or Conventional War

a) Relocation Period

(1) Complete any procedures under Increased Readiness Period not yet completed.

(2) Begin providing communication service.

(3) Maintain documentation of staff utilized, work undertaken, dates and hours worked.

(4) Coordinate activities with surrounding states.

(5) Shift to Attack Period or other phase upon instructions of the Executive Director, or Assistant Director for Operations.

b) Attack Period

(1) Take shelter.

(2) Upon instructions of the Executive Director, or Assistant Director for Operations, shift to the Recovery Phase.

3. Recovery Phase

a. Continue to provide communications service for life saving and damage limiting operations.

b. Survey organization for cost of preparing for, conducting and returning to normal

operations.

c. Provide to the Disaster Assistance Branch the completed documentation of utilized staff, work undertaken, dates and hours worked.

d. Upon director of the Executive Director, or Assistant Director for Operations, shift to either the Preparedness or Response Phase.

J. All emergency operations shall be carried out in conformity with Ky DES EOC SOPs.

K. Increased Readiness Levels shall be initiated by the Ky DES Executive Director, or Assistant Director for Operations, based on information furnished by the federal government or other sources. The required actions are explained in Annex D Increased Readiness of the State EOP.

V. ADMINISTRATIVE SUPPORT

The Ky DES Telecommunications Branch Manager is responsible for the following administrative functions.

A. Insure that sufficient Ky DES, state agency and volunteer personnel have been identified and trained to operate the communications system on a 24-hour basis.

B. Maintenance of a sufficient supply of communication system parts and materials to maintain operations for 30 days.

C. Insure that standby electrical power is available to maintain operations for 14 days.

D. Insure that all necessary logs, forms and message pads are available.

E. Listing the home phone numbers of all DES personnel for utilization in off duty hours notification.

VI. GUIDANCE DOCUMENTS

A. Manual for Radio Amateur Civil Emergency Services (RACES), MP-60, December 1971.

B. Guidelines for Maintenance of Emergency Use Equipment, CPG 2-13, March 1983.

C. Electro Magnetic Pulse-Protective Guidance, CPG 2-17, February 1991.

D. EMP Protection Plan for Kentucky Emergency Operations Center, (1993 Draft).

E. Kentucky Survival Crisis Management Plan, 1993.

VII. APPENDICES

B-1 Kentucky Disaster and Emergency Services Area Offices

B-2 Emergency Communications Center Activation and Staffing For Nuclear Attack

B-3 DES Radio Network

B-4 Kentucky's Emergency Broadcast System

B-5 Kentucky Educational Television Network

B-6 NOAA Weather Radio Stations in Kentucky

B-7 Shielding Electronic Components from Nuclear Effects

B-8 Communications Matrix

APPENDIX B-1
KENTUCKY DISASTER AND EMERGENCY SERVICES AREA OFFICES

Area 1
Box 583
Mayfield, KY 42066
502-564-8601
502-247-9712

Area 2
Box 1050
Hopkinsville, KY 42241
502-564-8602
502-885-7100

Area 3
Box 2033
Owensboro, KY 42302
502-564-8603
502-683-6254

Area 4
920 Morgantown Road
Room 136
Bowling Green, KY 42102
502-564-8604
502-843-5843

Area 5
P.O. Box 911
Elizabethtown, KY 42702
502-564-8605
502-769-6367

Area 6
P.O. Box 17437
Louisville, KY 40217
502-564-8666
502-636-0439

Area 7
National Guard Armory
Route 2, Box 549
Walton, KY 41094
502-564-8607
606-485-4134

Area 8
216 Downing Hall
Morehead State University
Morehead, KY 40351
502-564-8608
606-784-5830

Area 9
P.O. Box 833
Prestonsburg, KY 41653
502-564-8609
606-886-9157

Area 10
200 Campbell Drive
Hazard, KY 41701
502-564-8654
606-439-3612

Area 11
Box 1486
National Guard Armory
Middlesboro, KY 40965
502-564-8655
606-248-7776

Area 12
P.O. Box 495
Somerset, KY 42502-0495
502-564-8656
606-679-7337

Area 13
4201 Parker's Mill Road
Lexington, KY 40513-5138
502-564-8657
606-254-2532

Area 14
West Park Shopping Center
775 West Broadway
Suite 214B
Lawrenceburg, KY 40342
502-564-8658
502-839-4664

APPENDIX B-2
EMERGENCY COMMUNICATIONS CENTER ACTIVATION AND STAFFING FOR NUCLEAR ATTACK

I. The primary NAWAS warning point in Kentucky is the State Police Headquarters Communications Center in Frankfort which is staffed 24-hours a day. Upon receipt of a warning, the communications officer or dispatcher shall immediately call and relay the warning information to the DES Duty Officer.

II. The State EOC is the alaternate NAWS warning point and shall receive the warning information.

III. When a notice of an Increased Readiness Level is received, the follwoing actions shall be implemented by the Telecommunications Branch Manager upon direction of the Assistant Director for Operations.

A. Notification via the State NAWAS circuit of all the NAWAS points within the state.

B. Activate the State ECC RACES stations on a 24-hour basis.

C. Conduct operational checks on all communications equipment in the State ECC and Area Offices.

D. If necessary, expedite the completion of any installation and/or repair of communications equipment in the ECC and Area Offices.

E. Complete a staffing and assignment plan for the ECC. Verify that the responsible personnel are knowledgeable of their duties. This includes the Communications Technicians.

F. Verify availability of communications supplies and materials.

G. If necessary, accelerate the training of personnel assigned to the ECC.

H. Review the appropriate ECC SOPs and insure that assigned personnel are familiar with the procedures.

I. Notify the station manager of the entry point EBS station to be ready for local programming by state government from the ECC.

J. Complete the installation of communications equipment in the EOC.

IV. When a more serious Increased Readiness Level is issued, the following actions shall be implemented by the Telecommunications Branch Manager upon direction of the Assistant Director for Operations.

A. Notify all NAWAS points in the state.

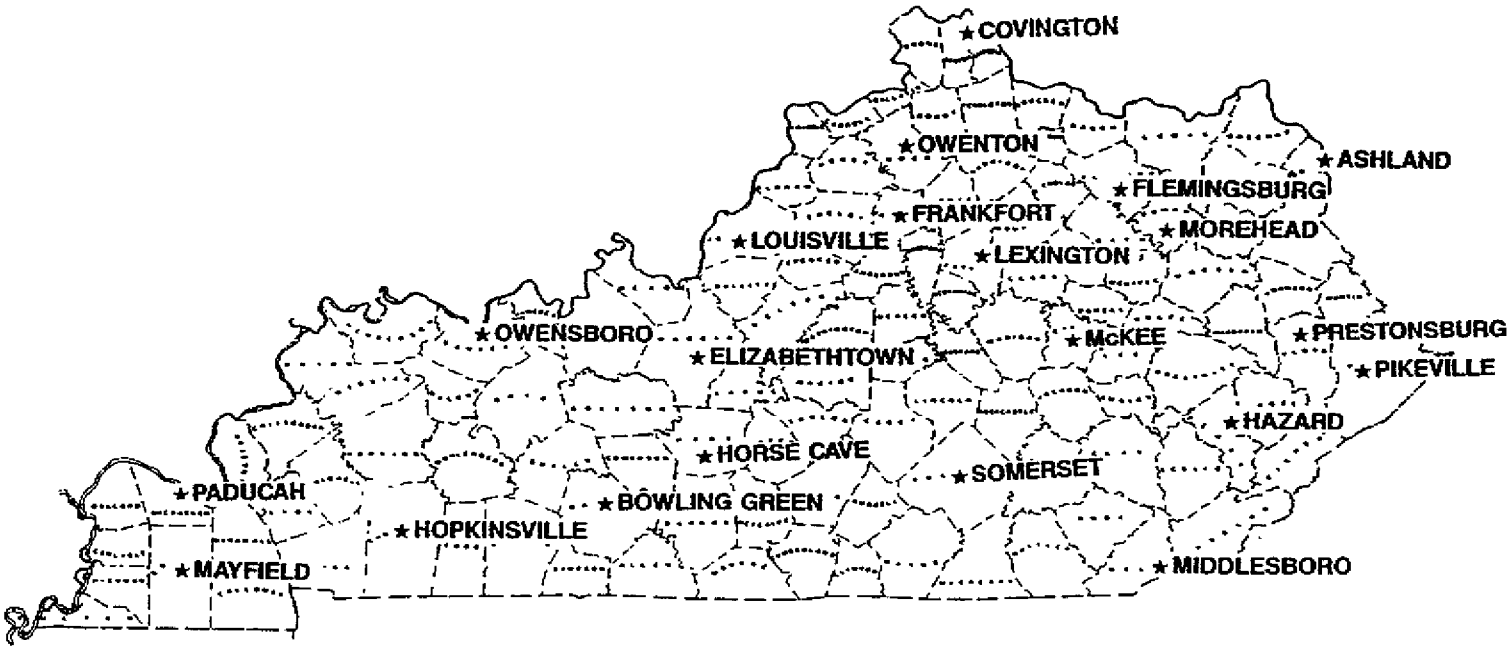
B. Fully staff the state, area and local RACES network.

C. Complete all other readiness actions as time permits.

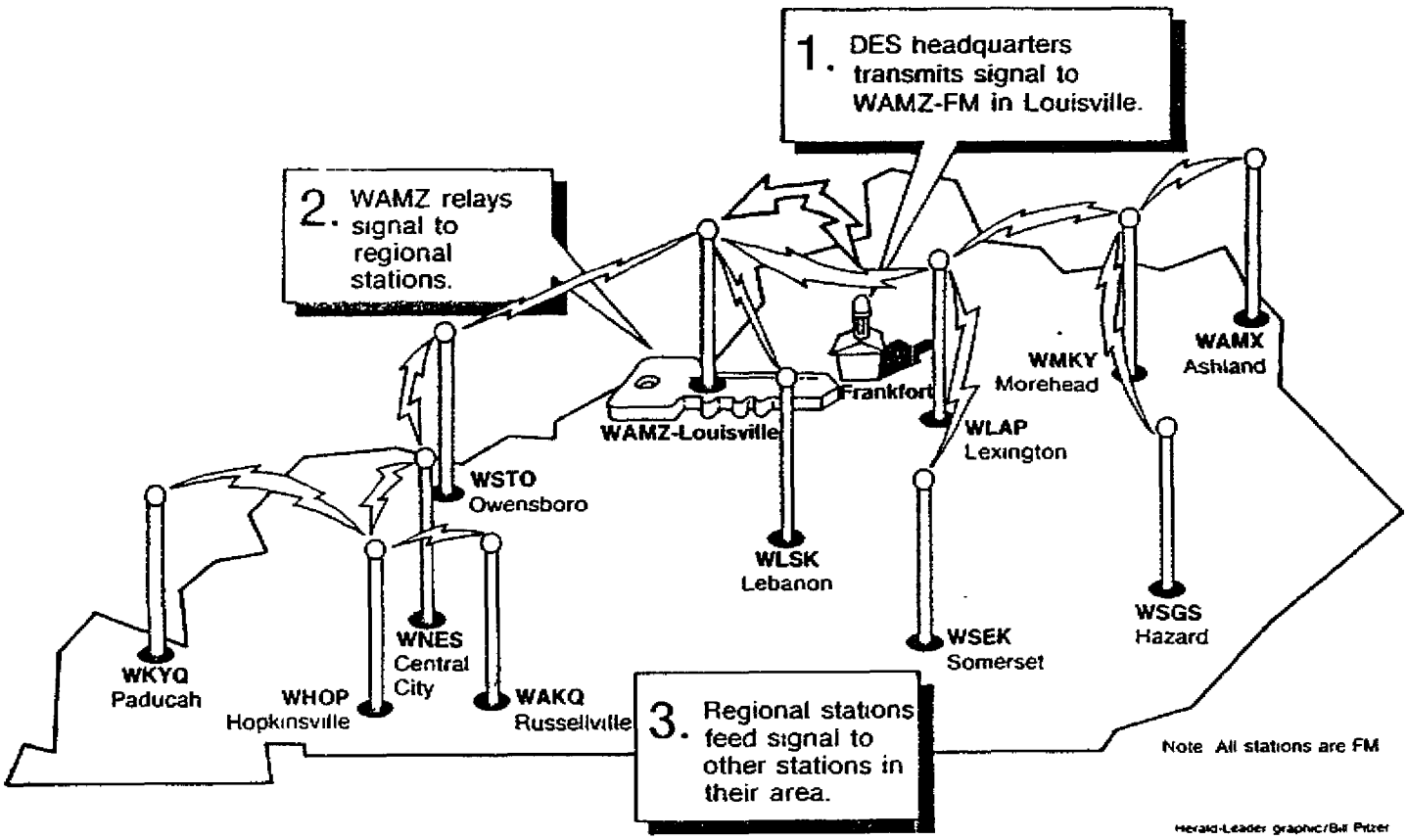
V. Upon reciept of an "ATTACK WARNING" over NAWAS, EBS, siren or any other method, the Telecommunications Branch Manager shall complete all actions not accomplished as time permits. This action is automatic and does not require direction of the Executive Director or Assistant Director for Operations. All agencies of state government shall conduct communications operations as assigned in this EOP without further notification.

APPENDIX B-3
DES RADIO NETWORK

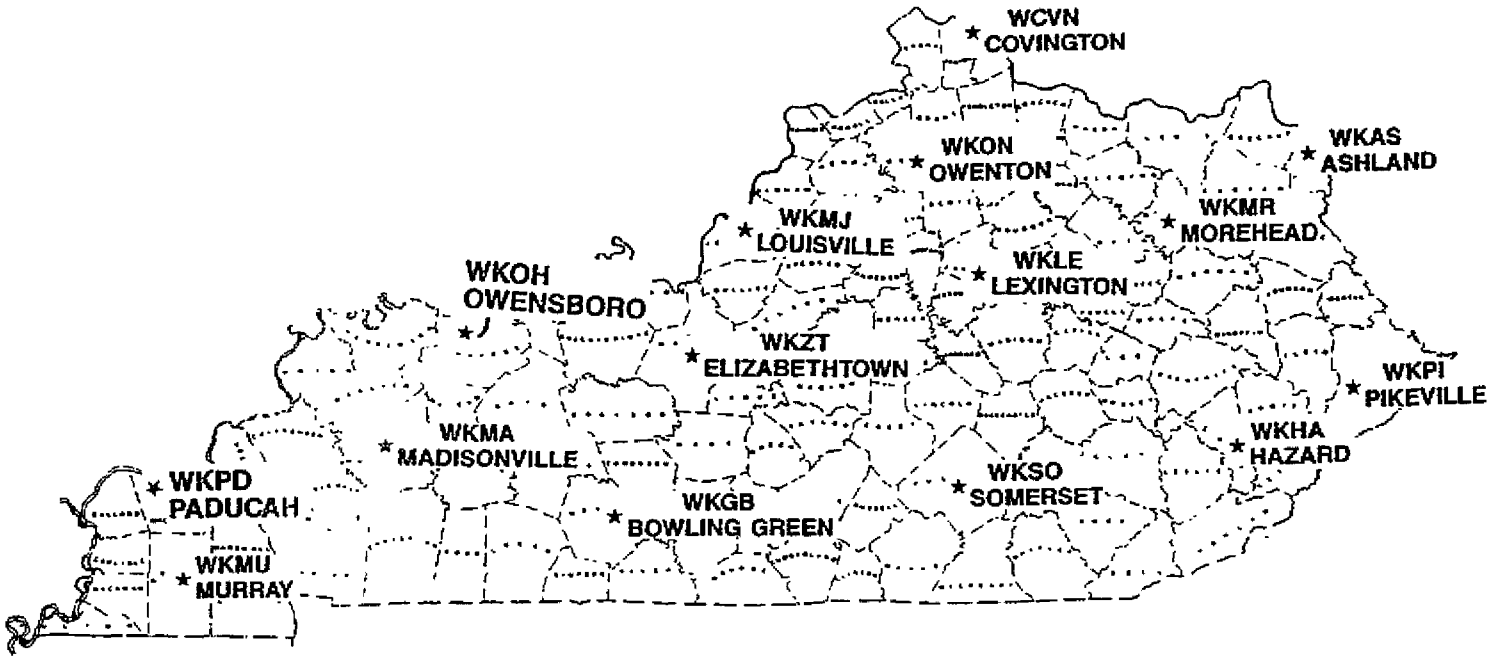
*** Transmitter Locations**



APPENDIX B-4
KENTUCKY'S EMERGENCY BROADCAST SYSTEM

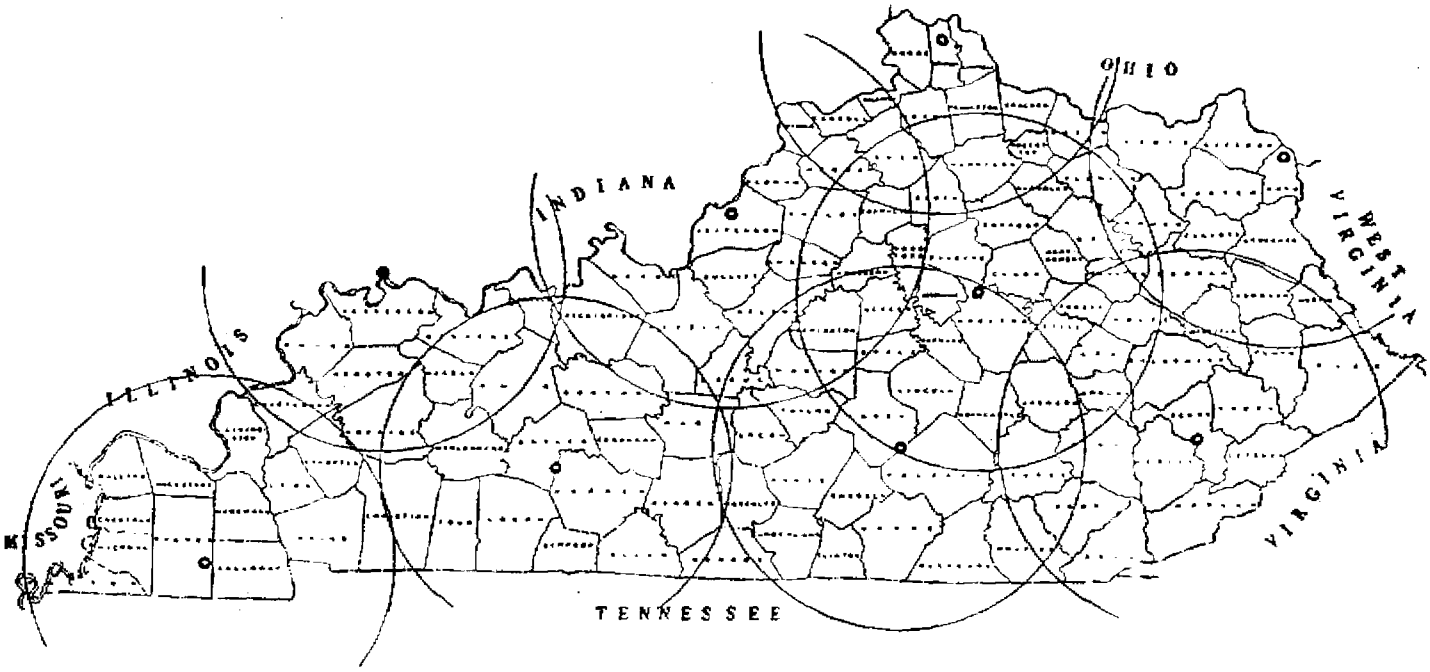


APPENDIX B-5
KENTUCKY EDUCATIONAL TELEVISION NETWORK



APPENDIX B-6
NOAA WEATHER RADIO STATIONS IN KENTUCKY

● Location of Stations



APPENDIX B-7
SHIELDING ELECTRONIC COMPONENTS FROM NUCLEAR EFFECTS

I. SITUATION AND ASSUMPTIONS

A. Without effective communication, military engagements of the future could be over in a few billionths of a second. In one possible scenario, the aggressor would detonate a single high altitude nuclear burst of 10 or more megatons at the geographic center of North America. Within 3 to 5 nanoseconds, the resulting nuclear electromagnetic pulse (EMP) could disable virtually every kind of unprotected electronic and electrical circuit. Damage to command control and communication systems could be irreversible within the limited time available to respond.

B. Military strategists in the United States consider a EMP inducing burst as the most likely first move in a major conflict. The expected precursor burst would be 10 to 50 megatons, about 250 miles above ground. For an attack on the United States, the best point of detonation would be near the geographic center of the continent-somewhere over Nebraska-for the most effective propagation. Without effective countermeasures, every electrical and electronic device within a radius of about 2,000 mile could be rendered useless by this single blast.

C. Even it out communications systems have been hardened against this threat, the disruption might be significant. however, one can predict with certainty the magnitude of the effects and resulting damage. EMP should cause a voltage surge in all types of metal conductors, including not only circuits on the ground, but also extending to the fuselages and avionics of aircraft and even the internals of satellites in near earth orbit.

D. Despite its potentially disastrous effects, an EMP attack in regarded as non-nuclear by some military strategists. The high altitude burst is "clean" and creates no shock wave or fallout. Thus, if this were the only thermonuclear device used in an opening attack scenario, it might not necessarily invite ground attack nuclear retaliation. Clearly, such considerations further increase the likelihood on an EMP precursor attack.

E. Some everyday threats related to EMP for which effective countermeasures have long been available are better understood. These related threats

include: lightning or lightning induced effects. electromagnetic interference and electrostatic discharge. These all exhibit much slower times to peak.

F. Other potential effects of a nuclear blast are electromagnetic interference (EMI) and electrostatic discharge.

II. CONCEPT OF OPERATIONS-EMP COUNTERMEASURES

A. A wide variety of active EMP countermeasures exist, with varying degrees of success. These countermeasures include: shielding, waveguide beyond cutoff, spark gap arrestor, filter network, metal oxide varistor, fiber optic circuitry and high speed Zener diode.

1. Shielding involves surrounding a circuit with metal or coating its enclosure with metallic paint and providing a low resistance path to ground. Although it provides some degree of protection from EMP, shielding cannot be regarded as an effective countermeasure by itself, especially at high frequencies, since leakage can occur through even the smallest a gaps.

2. Waveguides and spark gap arrestors represent relatively old protection technologies that generally are not suitable for suppressing EMP in digital, semiconductor based equipment.

3. A typical filter network for surge protection is a configuration of capacitor-inductor-capacitor called a pi filter because it's schematic resembles the Greek letter "pi." The pi filter has proven to be an effective countermeasure for threats such EMI and low-level EMP.

4. The metal oxide varistor (MOV) is a recent generation semiconducting device that conducts at high voltages. MOVs typically are used in overload protection circuits. Drawbacks of using MOVs for EMP suppression include relatively slow response time and a tendency for performance to degrade with each overload.

5. Using finer optic circuitry might be considered an ideal solution to all types of frequency and voltage related threats. This would be an excellent alternative if a system could be built entirely from light sensitive logic devices.

however, with current, off-the-shelf technology, interfaces with copper and silicon based electronic systems are still necessary, Thus, EMP suppression still must be provided at each point where optical signals are concerted to electronic signals.

6. A high speed Zener diode provides EMP suppression. Since the pi filter protects against EMI, the combination of these two countermeasures at circuit interfaces protects against both frequency and voltage related threats. Effective and reliable protection against EMP and EMI can be provided by incorporating a dual filter design in each line that enters an electronic module or black box.

B. Passive EMP countermeasures consists of unplugging the equipment from the electrical power system and the antennae plus providing some shielding.

APPENDIX B-8
COMMUNICATIONS MATRIX

INFORMATION	AIRBORNE ATC	FAA TO PILOT	LZ CONTROL TO PILOT	AO TO PILOT	LZ CONTROL TO AIR CONTROL	LZ CONTROL TO AO	AO TO LZ CONTROL	AO TO HOSPITAL	CP TO AO	MED CREW TO HOSPITAL	PILOT TO AO	PILOT TO CP	PILOT TO AIRBORNE ATC
FAA Air Traffic Control	UHF VHF												
ETA Landing Zone					UHF VHF FM		UHF VHF				UHF VHF	UHF VHF	
Landing Zone Conditions: Windspeed/Direction Lighting/Availability			UHF VHF FM	UHF VHF FM	UHF VHF FM			UHF VHF FM					UHF VHF
Landing Zone Coordinates/ Landmarks			UHF VHF	UHF VHF FM	UHF VHF								
On-Scene ATC of Landing Zone	UHF VHF			UHF VHF FM			FM Cell. Phone						
Alert Notification			UHF/HF Cell. Phone										
Damage Assessment											UHF VHF Video		
Mission Assignment			UHF VHF										
Mission Requirements								FM Cell. Phone					
Security/Ground Control											FM Cell. Phone		
ETA Hospitals							FM Cell. Phone		FM		FM UHF VHF		
Hospital Resources													
Patient Status												FM	

AO = Air Operations CP = Command Post