CHAPTER 12

COMMUNICATIONS

12-1 GENERAL

a. Fast, reliable and accurate communications are essential for nuclear weapon accident response operations. Moreover, securing adequate internal communications to support activities at the accident scene is a time-sensitive operation. Equally critical to effective command and control is the timely establishment of external communications to higher echelons, particularly in the Washington arena. Therefore, the communications officers of the Initial Response Force (IRF) and Service Response Force (SRF) must take immediate action to ensure that appropriate communications equipment is identified and requested early in response operations.

b. Effective response to a nuclear weapon accident relies heavily on a communications officer knowledge about secure and non-secure tactical, strategic, and commercial communications systems. He or she must be able to apply conventional and imaginative methods and ensure that required communications are available. He or she should be equally adept at establishing communications support in remote locations, or in areas near existing communications systems.

c. In addition to military communications at the accident site, the DoE, FE MA, State and/or civilian officials establish their own communications. Careful attention must be afforded these installations to ensure mutual support and eliminate interference.

12-2 PURPOSE AND SCOPE

This chapter provides guidance for establishing communications systems and capabilities to support response operations. The requirements of both the IRF and SRF are “discussed, including personnel at the accident scene (internal communications) and at long distances (external communications). Also included are treatments of various capabilities and hardware (telephone, radio, satellite, and visual signal) that are. available.

12-3 SPECIFIC REQUIREMENTS

The On-Scene Commander (OSC) requires internal communications with the operations center and with forces in the field to control and keep abreast of response activities. External communications with higher echelons of command are necessary to keep key personnel informed. Many initial communications requirements can be met by unsecure voice communications; however, both secure voice and record communications are required early in the response.

Communication requirements:

a. Establish internal communications.

(1) Telephone communications between fixed site locations, for example, the operations center and the Joint Information Center (JIC).

(2) Field phones for EOD operations (secure phones are desirable).

(3) UHF/VHF nets. Several minimum nets, command (secure desirable), weapons recovery operations (secure), radiological operations (secure desirable), security, public affairs will be required.

b. Establish external communications.

(1) Telephone communications with the Service operations center, the National Military Command Center, and the Office of the Assistant Secretary of Defense (Public Affairs). Conferencing may suffice early in the response.

(2) Multiple telephone lines to support response force elements.

(3) Secure voice via satellite, telephone, .or HF.

(4) Access to the Defense Communications System for record communications.

c. Coordinate frequency usage of all response organizations to prevent interference and radio operations in areas where electromagnetic emissions may create explosive hazards or affect electronic and field laboratory instruments.

d. Obtain frequency clearances, as necessary.

e. Prepare a Communication-Electronics Operating Instruction for use by all response organizations.

12-4 RESOURCES

The communications capabilities and resources for nuclear weapon accident recovery operations vary widely. Resources are as familiar as the telephone or as sophisticated as satellite capable secure voice radio. Communications assets must be capable of deployment to, and operation in, remote locations. The following presents a variety of communications resources for response organizations. Because the same equipment supports numerous contingencies, only those assets required for a specific nuclear weapon accident response effort should be requested. Resources are available from the DoD, other Federal organizations, or commercial sources.

a. Service Assets. The Military Services maintain communications assets organic to combat support units as well as for contingency assets. Information about specific assets as well as procedures for requesting and tasking Service assets can be obtained from the respective Service operations centers, or operational commanders. Telephone numbers are contained in Appendix l-G.

(1) U.S. Army. U.S. Army signal units have communications assets to support battalion, brigade, and division operations including wire/ telephone switchboards, multichannel radios, and record communication systems.

(2) U.S. Air Force. Tactical communications assets are available from both Combat Communication Groups and HAMMER ACE as described in paragraph (a) below.

(a) HAMMER ACE. HAMMER ACE is a rapidly deployable team of engineers and technicians equipped with advanced technology communications equipment. The team can deploy within three hours and establish communications within 30 minutes of arrival on-site. HAMMER ACE equipment can be transported on C-21, or equivalent-type aircraft, or commercial airliners. Capabilities include secure satellite system for voice, facsimile, and limited data communications. The secure satellite link can interface with AUTOSEVOCOM, STU-II, AUTOVON, and commercial telephone systems through the HAMMER ACE operations center at Scott AFB, Illinois. Record communications can be "air-gapped" to AUTODIN through the HAMMER ACE operations center. Other capabilities include air-to-ground communications and a privacy feature, land mobile radio network with a repeater/base station for local communications. The land mobile radios can interface with the secure satellite system. The limited capability provided by HAMMER ACE is an initial capability only. For this reason, HAMMER ACE personnel, in conjunction with the OSC, evaluate the situation and determine what, if any, additional capabilities are required. HAMMER ACE equipment is capable of battery operations, and enough batteries are deployed to sustain 72-hour operation. A follow-on deployment of generators or additional batteries is required for longer operations.

1. Requests for emergency HAMMER ACE support should be made directly to HQ AFCC/COXC (AFCC Command Center) or through the JNACC. Phone numbers are listed in Appendix 20-A. Any available communications media may be used to submit the request; however, verbal requests must be followed in writing within 24 hours. The requesting agency must provide the following information with the request.

a. Deployment location, including coordinates if available.

b. Situation, including type of emergency.

c. Points of contact.

d. Remarks concerning any unusual conditions for which the team should prepare.

2. Requests for additional information should "be directed to HQ AFCC/ DOXZ, Special Communications Division, Scott AFB, Illinois. Phone numbers are listed in Appendix 20-A.

(3) U.S. Navy. Each U.S. Navy Fleet Commanders-in-Chief has control of ashore mobile contingency communication units. These units are maintained in a state of readiness to permit deployment within 24 hours by COMMNAVSTA Philippines and NAVCAMSLANT Norfolk, VA, respectively.

(a) Ashore Mobile Contingency Communications (AMCC). The AMCC van is . a small mobile communications unit contained in one. transportable equipment shelter with two separately configured 55 kw mobile diesel generators. The van contains sufficient equipment to maintain the following circuits simultaneously:

1. Two secure full duplex teletype circuits (one via HF radio; or alternatively, two via HF radio).

2. One narrow band secure voice (CV-3333) via satellite with KG-36 security equipment.

3. Two UHF secure voice circuits with KY-28 voice security equipment.

4. HF High Command (HICOM) net.

5. UHF satellite fleet broadcast receiver (AN/ SSR-1 receiver only).

6. One PARKHILL narrow band secure voice circuit via HF or UHF satellite.

7. Two VINSON secure voice devices.

(b) When deployed, the AMCC uses local power where available. Power source must be 440V, three phase, 60 Hz. Otherwise, mobile generators supplied with the AMCC units will be used. A complete AMCC unit can be transported via one C-130 aircraft, one CH-53 helicopter, or one 6x65-ton truck. The mobile generators for the AMCC, if needed, requires an additional lift if transported by helicopter. When transported via truck, an additional prime mover is required.

(c) The AMCC units are, at all times, under the operational control of the respective Fleet Commanders-in-Chief (CINCs). All deployments of the AMCC are approved by the Fleet CINC based on requests submitted by subordinate commands. Contingency requests should be forwarded to the Fleet CINC as expeditiously as possible. When the AMCC is deployed, and until it returns to its host command, it is under the custody and operational control of the designated supported command.

(4) U.S. Marine Corps (USMC). The USMC signal units have multichannel radio, wire, and record communication systems.

b. Joint Chiefs of Staff (CJCS) Controlled Assets. JCS contingency support communications resources are requested according to procedures contained in "Mobile/ Transportable Communications Assets Controlled by the Joint Chiefs of Staff" (CJCS MOP 3) and in Allied Communications Publication 134, Supplement 1, references (w) and (x). Additional information regarding these assets can be obtained from the JCS Contingency and Crisis Management Division.

(1) Joint Communications Support Element (JCSE). Details of the JCSE deployment/employment concepts capabilities and logistics requirements, reference (y), can be obtained by contacting the JCSE at McDill AFB, Florida. The JCSE is a contingency support unit consisting of Army, Navy, Air Force, and Marine Corps personnel and a variety of communications equipment including:

(a) Switchboards.

(b) HF radio.

(c) Microwave/ troposcatter radios.

(d) UHF and VHF radios (secure and non-secure).

(e) Secure record communications terminals.

(f) Weather dissemination equipment.

(g) UHF and SHF satellite terminals.

(h) Secure TELEFAX (DACOM 412).

(i) KY-65, KY-70 and KY-75 secure voice devices, and

(j) The AN/ URC Joint Airborne Communications Center/ Command Post (JACC/ CP).

1. The Joint Airborne Communications Center/ Command Post (JACC/ CP), commonly referred to as JACKPOT, consists of several pieces of equipment mounted in air transportable vans. The JACC/ CP has four major components—operations center, communications control, generator, and an air conditioner/ accessory trailer.

2. The JACC/CP can provide one high frequency, single sideband (HF/ SSB) voice or teletype communication channel over its one-kilowatt transceivers or high frequency, double independent sideband (HF/ISB) with a total of four independent three-kilohertz (3 SPKHz) voice or teletype channels over its 10 kw system. The 10 kw system is limited to ground operations only. The JACC/ CP also contains three radios, a AN/ARC-73 (VHF/AM), AN/ARC-54 (VHF/FM) and AN/ ARC-51BX (VHF/AM), for ground-to-ground and ground-to-air communications.

3. The voice radio system may be connected. to a 10-line, 20-line, or 30-line, four-wire/two-wire telephone switchboard. The switchboard can connect any telephone subscriber to another telephone or a JACC/CP radio.

4. The complete JACC/ CP can be transported in a winch equipped C-130 or larger aircraft. A wide lowboy trailer must be used to transport the vans any distance or over other than paved/gravel roads.

5. The JACC/ CP can be deployed within 24 hours from the time the JCS issues deployment approval messages.

(2) JCS-Joint Controlled Tactical Communications Assets. Details on the JCCSA are in the U.S. Army plans for deployment of mobile/transportable communications assets controlled by the JCS. During normal duty hours, additional information can be obtained from the U.S. Army Information Systems Command Contingency Branch, Ft Huachuca, Arizona, or from their EOC. Phone numbers are in Appendix 20-A. The

JCCSA consists of heavy mobile/transportable equipment which can be deployed separately or in packages by C-141/ C-5 aircraft. Equipment includes:

(a) Switchboards
(b) HF radio
(c) Troposcatter radios
(d) Medium speed AUTODIN terminals
(e) Manual secure voice switch and terminals
(f) SHF satellite terminals

(3) Other JCS Controlled Assets. Most SHF satellite terminals are under JCS deployment control. These terminals include the Ground Mobile Forces (GMF) terminals assigned to the military Services. The U.S. Army 235th Signal Company, Ft. Monmouth, New Jersey, maintains UHF and SH F research and development satellite terminals which can be deployed for contingency operations and exercises. Also, the U.S. Air Force has communication assets similar to those in the JCCSA. They are located at 3rd Combat Communications Group (CCG) and the 281st CCG, Air National Guard, Tinker AFB, Oklahoma. Equipment in the van includes a secure cord switchboard (SECORD), KY-3 secure voice terminals, and a narrow band (HY-2) trunk which will interface with AUTOSEVOCOM. The van is outsized and requires C-5 aircraft transport.

c. DoE Assets. The DoE maintains emergency response, air transportable communications services and hardware. Systems include a multi-point telephone switch, facsimile, HF/ VHF radio networks (with pagers), video teleconferencing, a point-to-point microwave system, and data communications to include local area networks and high speed transmission. A multi-channel satellite system is available to provide long-haul transmission capability. Single-channel INMARSAT terminals, with data interface, are included for advance party use and emergency backup. Secure communications include voice, facsimile, data, teletype, and still video operations.

d. FEMA Assets. Deployable communication assets used by FEMA response groups are maintained at the FEMA regional office level. Although the specific equipment varies between FEMA regions, the FEMA response contingent usually arrives with the following capabilities:

(1) HF Radio (voice only) for external communication to their regional office, the State disaster response headquarters, and the Emergency Information and Coordination Center (EICC) in Washington, DC.

(2) VHF radio to support on-scene Federal Response Center (FRC) (internal) communications. Equipment includes hand-held radios, suitcase repeater and suitcase base station with telephone interconnect. The quantities of these assets will vary depending on the size of the FEMA response contingent.

e. Commercial Assets. In the CONUS, acquisition of supporting communications systems from commercial carriers (for example, American Telephone and Telegraph AT&T) is possible. Commercial carriers can provide communications to a remote area via transportable microwave, carrier systems, or cable. Leased services, including telephone, data Teletypewriter Exchange (TWX), Telephone Exchange (TELEX), and Wide Area Telephone Service (WATS), are available in most locations.

12-5 CONCEPT OF OPERATIONS

Nuclear weapon accidents present a variety of technical, logistical, and operational. communications problems. Several factors, including the location of the accident, the response force involved, and the command and control arrangements of those forces, contribute to the complexity of the problems. This concept of operations focuses on the actions of the military response force(s)" communications officer(s). The approach is to present items of concern sequentially without regard to whether the IRF or the SRF communications officer takes the action. Incumbent upon the SRF communications officer is the responsibility to ascertain what has been accomplished prior to arrival, and to carry on from that juncture.

a. Initial Actions. The initial task of the response force communications officer is to determine the communications assets at, or close to, the accident site. The local telephone company, State/ local officials, or civilian authorities can provide information on the communication infrastructure near the accident scene, and the capabilities for long haul and local communications. Once existing capabilities are determined, the communications officer should use these resources with deployed assets to establish an effective communications network.

(1) In remote or sparsely populated areas, the initial communication capability may consist of only hand held, short range VHF/ FM radios, portable HF radios, or wire (field phones). Conversely, if an accident occurs close to a populated area, a coin operated telephone, or even a business or private telephone may be available

immediately for emergency use. In either case, additional leased communications such as WATS can be obtained to augment available communications. Naturally, more time is required to provide leased assets to remote areas. Therefore, the requirements must be identified and requested at the earliest possible time. Follow-on deployment of mobile communications provides the response force with additional local telephone and radio, as well as long haul secure voice and record capabilities.

(2) Another method of communications for external (long haul) communications, particularly if assets are limited, is the telephone conferencing capability of Service operations centers and/or the National Military Command Center (NMCC). Further, if communication can be established from the site to the DoD JNACC, the DoD JNACC will assist by relaying information or coordinating with other forces/agencies. When requested by the Services, DoD JNACC arranges for transportation of specialized communications resources.

(3) The OSC may spend considerable time away from the command post. The response force communications officer must, therefore, plan communication methods to support the mobility of the OSC. Radio nets provided for OSC communications should have sufficient range and be capable of frequent use. If possible, the net should be secure and have a radio/ wire integration capability into the local switchboard and long haul voice circuits. The staff directors for support and operations, and the special staff advisors should be included in this net.

(4) The communications officer must take prompt action to obtain frequency clearances. Radio frequencies are managed at the national level by the Military Communications-Electronics Board (Joint Frequency Management Office). Each Service has membership on the board. Moreover, each military department has a frequency management office, but in most cases these offices have delegated the authority to assign frequencies to area coordinators. Additional details maybe obtained from U.S. Army FM 24-2, "Radio Frequency Management," or U.S. Air Force Regulation 700-14, Air Force Radio Spectrum Frequency Management, references (z) and (aa). DoE and FEMA communications personnel should coordinate frequency requirements through their own channels and keep the military communications . officer advised. Failure to obtain valid frequency authorizations could result in interference with other critical communications. The use of unauthorized. frequencies could lead to embarrassment for the U.S. Government.

(5) One of the more complex problems facing the response force communications officer is preparation of a Communications-Electronic Operating Instruction (CEOI). The CEOI should be an easy-to-use instruction containing the capabilities and limitations of equipment and detailed "how-to-use" procedures for all available systems. The instructions should be unclassified, if possible, and widely distributed. As a minimum, they should include system descriptions (charts and diagrams are helpful), an on-site telephone directory, dialing and telephone routing instructions, message addresses, message handling instructions and routing indicators, radio procedures and call signs, secure voice procedures, and communications security (COMSEC) operations security procedures including essential elements of friendly information (EEFIs). An outline of a typical CEOI is at Figure 12-1.

(6) Although COMSEC instructions are a part of the CEOI, COMSEC deserves additional emphasis. Enemy or dissident elements may be able to intercept and exploit command and control communications systems and traffic used for response to nuclear weapon accidents. Compilations of individually unclassified items concerning weapons communicated during recovery procedures may well be classified, and unfriendly elements may be able to compile these items. Therefore, the communications officer must plan to defeat this threat by determining the EEFI for the operation, and then by acting to preclude interception or exploitation of this information. COMSEC actions to prevent exploitation of EEFIs may include using secure transmission facilities, communications discipline, codes and authenticators, and changing call signs.

b. Follow-On Actions. As additional response forces deploy to the accident scene, and a support base camp is established", additional communication resources will be deployed or acquired concurrent with the build-up. As this build-up occurs, the response force communications officer should establish and maintain a list of communications assets and capabilities on-scene. The list should include assets and frequencies belonging to non-DoD agencies identifying potential mutual interference, and should ensure that all possible assets are considered when meeting overall communication requirements. Coordination should be made with the appropriate representative from Federal and civilian authorities/ officials agencies possessing on-scene communication systems.

(1) As emphasized throughout this chapter, increasing the quantity of communications assets and routing those assets into the appropriate users hands is of primary importance as the response organization grows. Additional communication assets, primarily in

Communications-Electronics Operating Instruction (CEOI)

(Sample Contents)

Figure 12-1. Communications-Electronics Operating Instruction (CEO).

the form of telephones and VHF/FM radios, are needed for effective operation of the JIC, and to support radiological monitoring and site restoration operations.

(2) As the response operations peak, so will the communications support required. As the response transitions into site restoration, the primary communications should be routine situation reports, supply (MILSTRIP) messages, and other administrative messages. After the weapon(s) and weapon components are removed from the site, little or no need will exist to communicate by secure voice. However, record communications support provided on-site during the early response and weapon recovery should continue through site restoration.

12-6 ACCIDENT RESPONSE PLAN ANNEX

Procedures and information appropriate for the communications annex to the accident response plan include:

a. A description of actual or projected requirements and the location of assets to fill requirements.

b. Procedures for establishing communications links with the NMCC and Defense Communications System from remote locations.

c. Procedures for obtaining leased commercial communications.

d. Procedures for obtaining Service and JCS deployable communications assets.

e. Procedures for establishing local radio nets and assignment of call signs.

f. Procedures for obtaining frequency clearances.

g. Procedures for coordinating communications with non-DoD agencies.

h. Procedures for using secure/clear fax resources.

i. Prepare an integrated communications plan.