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BEST PRACTICE

Use of Amateur Radio Operators to Augment Emergency Communications: Amateur Radio Information and Emergency Planning

PURPOSE

If utilizing amateur radio operators, emergency management agencies should integrate technical and operational procedures of amateur radio operators into emergency management plans.

SUMMARY

Amateur radio operators will be most effective during an emergency if key technical and operational issues are addressed in the emergency planning process. Emergency management agencies (EMAs) and amateur radio operators should work together to update emergency management plans to address these technical and operational considerations.

DESCRIPTION

After a state or local EMA has established contact with an amateur radio point of contact (POC), the EMA and POC should review the jurisdiction's emergency communications plan. Whenever possible, amateur radio POCs should be included on committees or other decision-making bodies that develop and review emergency plans. The amateur radio POC and EMA should ensure that emergency plans address technical and operational considerations necessary to effectively integrate amateur radio operators into emergency communications.

In particular, emergency management plans or standard operating procedures (SOPs) should address the following considerations for amateur radio operations:

Area(s) requiring coverage: Emergency plans must address all natural and man-made limitations on radio propagation within the covered area. Limitations to radio propagation typically include:

- Mountains
- Valleys
- Forests
- Tall buildings

To remedy coverage shortages, amateur radio operators or units can borrow or purchase portable signal repeaters that strengthen radio signals. The number of

repeaters must be sufficient to meet the jurisdiction's communications needs. Emergency

Sample Memoranda of Understanding (MOU)

- [Oahu, HI Civil Defense Agency](#)
- [Johnson County, KS Emergency Management Department](#)
- [City of Cupertino, CA](#)

management agencies should consider developing official memoranda of understanding with local radio repeater owners to ensure that radio coverage is sufficient for the jurisdiction.

Operating frequencies: The amateur radio POC should know the operating frequencies used by local amateur radio operators and units in the area. The amateur radio POC should work with the EMA to incorporate radio frequency designations into emergency plans. Plans should designate frequencies for specific types of traffic (e.g. emergency management, health and welfare, family support) or areas. Designating specific frequencies for specific types of radio traffic helps to reduce overloading frequencies during emergencies.

Communications Plans With Frequency Allocations

- [Radio Amateur Civil Emergency Services \(RACES\): Commonwealth of Pennsylvania Operational Plan](#)
- [Oregon State Amateur Radio Communications Plan](#)
- [Emergency Communications Plan: Northern Florida Section: Amateur Radio Relay League](#)

Record keeping: The EMA or Emergency Operations Center (EOC) should keep records of any amateur radio operators supporting it. These records should include the following types of amateur radio operator information:

- Application for membership
- Documentation of acceptance
- Issuance of identification
- Training documentation
- Federal Communications Commission (FCC) license copy

Emergency plans should also include guidelines for periodic updates of operators' contact information and credentials. Many jurisdictions update this information annually.

Background checks for amateur radio operator POCs: Background checks are mandatory for all Radio Amateur Civil Emergency Services (RACES) operators, who, at a minimum, undergo a check through the FBI's National Criminal Information Center (NCIC), and a driver's license check through the Law Enforcement Data System (LEDS). For non-RACES operators involved in emergency communications, emergency managers should consider conducting background checks during the application phase. Many jurisdictions also require amateur radio operators to sign non-disclosure agreements to help prevent the unauthorized release of sensitive information.

Clearly delineated chain of command: The amateur radio POC should work with the EMA/EOC and radio operators to define and develop an organizational framework that outlines command responsibilities. This organizational framework should address the command relationships among amateur radio operators and the relationships between radio operators and EMA/EOC personnel. If the EMA/EOC uses the Incident Command System (ICS), amateur radio operators should understand their role within the hierarchy and be familiar with the basic concepts of ICS itself. Emergency plans should

Within the Incident Command System (ICS), communications typically falls under the Service Branch of the Logistics Section. In a full ICS structure, communications personnel are typically divided into the following responsibilities:

- [Communications Unit Leader](#)
- [Communications Technician](#)
- [Incident Communications Center Manager](#)
- [Radio Operator](#)

outline which radio operators will serve as moderators for nets (i.e. on-air meetings directed by a moderator) and subnets (nets designated for specific message types).

Activation protocols for amateur radio networks: Judging when to activate an amateur radio emergency communications network can be difficult and subjective. RACES units activate only at the order of the state or local EMA while Amateur Radio Emergency Services (ARES) units are typically activated by the unit's leader. However, some ARES units and other organizations can self-activate without official direction from leaders (e.g. when phone lines are down).

Emergency plans should outline emergency situations that warrant self-activation and define how the self-activation process should work. Many jurisdictions are vague about what type of emergency will activate amateur radio units, leaving the decision for self-activation to the discretion of local operators. Some areas instruct operators to tune in to a pre-determined "resource and rally frequency" for instructions in the event an emergency has likely occurred.

Hayward, CA's [emergency communication plan](#) allows any amateur radio operator to self-activate:

"If no NET is in progress, any operator who is aware that an emergency situation exists should assume net control responsibility (become NCS) and act accordingly."

Emergency plans should also address procedural elements of activating amateur radio networks. The procedures for activating amateur radio networks vary greatly across jurisdictions. Some jurisdictions provide pagers to amateur radio operators for activation alerts. Other jurisdictions use phone trees or packet radios for activation purposes. Since the nature of an emergency may dictate activation procedures, emergency plans should outline multiple procedures for activation. Predictable emergencies (e.g. hurricanes) may allow time for phone tree notification where as unpredictable emergencies (e.g. terrorist attacks) may require packet radio or pager notifications.

Standard documentation formats: Properly documenting operations is essential not only to the efficient coordination of tasks *during* the emergency, but also to assist in investigations *after* the emergency. Emergency plans should detail the types of records that amateur radio operators are required to keep during emergencies.

The National Oceanic and Atmospheric Administration (NOAA) provides official PDF and form-fillable versions of [all incident command system \(ICS\) forms](#), including radio/communication forms. These forms are applicable to all types of incidents, not just oceanographic ones.

The Amateur Radio Relay League's (ARRL) introductory course on emergency communications includes instruction on the ICS structure and on documentation formats.

Sample Amateur Radio Emergency Communications Plans:

- **Alaska:** [ARES Alaska](#)
- **California:** [CERT Fremont-Union City, California](#)
- **Massachusetts:** [Massachusetts Amateur Radio Emergency Communications Plan](#)
- **Montana:** [Missoula County Amateur Radio Emergency Services Communication Plan](#)
- **Oregon:** [Oregon State Amateur Radio Communications Plan](#)
- **Pennsylvania:** [RACES Commonwealth of Pennsylvania Operational Plan](#)
- **Wisconsin:** [Volunteer Emergency Communications Support Plan Sample Emergency Plan for Wisconsin ARES/RACES Units](#)

RESOURCES

Boyd, Jerry. *Management of the Amateur Radio Emergency Communications Function*. Worldradio Books. 2003.

(<http://www.wr6wr.com/newSite/products/books/emcommMan.html>)

City of Hayward Office of Emergency Services' Emergency Communications Committee. *Emergency Communications and Operations Manual First Edition*. 1995.

(<http://www.qsl.net/hwdraces/emergcom.html>)

Stafford Amateur Radio Association. *Stafford Amateur Radio Standard Operating Procedures for ARES & RACES Personnel*. American Radio Emergency Service. September 2001.

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