

RESILIENT HIGH FREQUENCY RADIO NETWORK

- 1. REASON FOR ISSUE:** This Veterans Health Administration (VHA) directive provides policy and requirements to ensure the operability and readiness of the VHA Resilient High Frequency Radio Network (RHFRN) in providing an alternate means of communication during disasters and communication outages.
- 2. SUMMARY OF CONTENTS:** This directive defines the roles and responsibilities for VHA personnel to ensure the readiness and operability of the RHFRN.
- 3. RELATED ISSUES:** VHA Directive 0320, Comprehensive Emergency Management Program.
- 4. RESPONSIBLE OFFICE:** VHA Office of Emergency Management (10NA1) is responsible for the contents of this directive. Questions may be referred to 304-264-4800 or VHA10NA1Action2@va.gov.
- 5. RESCISSIONS:** None.
- 6. RECERTIFICATION:** This VHA directive is scheduled for recertification on or before the last working day of September 2022. This VHA directive will continue to serve as national VHA policy until it is recertified or rescinded.

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RESILIENT HIGH FREQUENCY RADIO NETWORK

1. PURPOSE

The purpose of this Veterans Health Administration (VHA) directive is to ensure the operability and readiness of the VHA Resilient High Frequency Radio Network (RHFRN) in providing an alternate means of communication during disasters and communication outages, supporting effective and rapid recovery of VHA services in the wake of disasters and infrastructure failures. **AUTHORITY:** Title 38 United States Code (U.S.C.) 8117.

2. BACKGROUND

a. The RHFRN is established by the VHA Office of Emergency Management (OEM) to support communications during communication outages caused by power outages, infrastructure damage, cyber or other impacts that prevent communication of urgent resource support needs and operational status. The RHFRN provides alternate, resilient communication among the Department of Veterans Affairs (VA) medical facilities, Veterans Integrated Service Network (VISN), VHA OEM, VHA Consolidated Mail Order Pharmacies, and VA Central Office (VACO), plus a fleet of mobile disaster response vehicles, and offers additional connectivity to other VHA high frequency (HF) radio stations located in outlying areas of the Pacific Ocean and Caribbean Sea. The RHFRN is “resilient” in that it relies on no external infrastructure. The RHFRN utilizes Automatic Link Establishment (ALE) which creates ease and simplicity of use. Additionally, the RHFRN enables communication with the Department of Homeland Security’s SHARED RESOURCES (SHARES) HF Radio network which facilitates interagency communication and mutual support.

b. VHA’s RHFRN is designed to provide communications connectivity for situational awareness, response coordination and resource requests when normal communications are not available. There are more than 180 radio stations planned in the RHFRN. Most VHA fixed facilities will have a 125 watt system that is expected to reach all other stations within a 600 mile radius. Remote stations in Hawaii, Alaska, and Puerto Rico equipped with 500 watt stations will be able to reach the Mainland 500 watt stations in Loma Linda, Seattle, and Bay Pines, respectively. Thirteen designated backbone stations will have two radios, one with a telephone interface allowing any station within range to place an HF radio-to-telephone call, thus allowing distress communications from any station in the RHFRN to be received even if the stations in range are not being monitored at the time. The usual mode of communication will be regional communications to those stations within a 600 mile radius, such as between neighboring facilities and networks. Longer range communications will be possible through step-wise voice message relay across the RHFRN or use of the telephone interface capability.

c. The VHA HF Radio Network architecture is designated as an alternate mode of communications in a disaster. The RHFRN architecture is designed to be flexible to

accommodate the VHA disaster communication requirements and to complement national level disaster communication among Federal agencies. In addition, RHFRN integrates into the SHARES program while also supporting independent VHA-only communications.

d. The RHFRN design accommodates internal VHA VISN structure to support intra-VISN communications as much as possible given the geographical location of a backbone stations. Backbone stations in geographical areas with a high density of VHA facilities will have a higher than average distribution of contact sites. While this provides a higher level of resiliency and redundancy, it also increases the responsibility for those backbone stations in those high density locations. The designed architecture balances the increased number of contacts for radio checks as much as possible.

3. DEFINITIONS

a. **Automatic Link Establishment.** Automatic Link Establishment (ALE) is a communication system that permits HF radio stations to call and link on the best HF channel automatically without operator assistance. ALE determines only the best channel to pass traffic and tries to establish a link between radios. Typically, ALE systems make use of recently measured radio channel characteristics stored in a memory matrix to select the best frequency. The system works much like a telephone in that each radio in a network is assigned an address (similar to a call sign). When not in use, each radio receiver constantly scans through its assigned frequencies, listening for calls addressed to it. ALE will not improve propagation. If poor propagating frequencies are used, ALE will not make them work better.

b. **Backbone/Alternate Backbone Site.** Each backbone site is designated a set of fixed and/or mobile sites within its communications radius over which to maintain communications control. As the system matures and identifies sites that are difficult to contact due to geographical or other persistent interference issues, the sites assigned to a backbone site may be adjusted. Prior to changing this network control architecture, it must be coordinated with VHA OEM so the changes can be distributed network wide. This ensures communications reliability. Additionally, each backbone site is designated as an alternate site to another backbone. This ensures contact with HF radio locations in the communications radius if the designated primary backbone is non-operational.

c. **Communications Conditions.** Communications conditions are designated levels of increasing responsiveness of the VHA HF radio network designed to improve support and speed information exchange during emergencies, exercises and special events. A change in level may be applied network wide or to a specifically defined geographic area or areas.

d. **Comprehensive Emergency Management Program.** The VHA Comprehensive Emergency Management Program (CEMP) is a program that supports the mission, vision, and strategic goals of the organization to ensure the safety of patients, staff, and resources, and provides for the continuity of operations in the event of a disaster or emergency that affects the VHA.

e. **Contingency.** A contingency is a future event that is likely but not certain to happen. The consequences of the occurrence are such that one must prepare for the event.

f. **Disaster.** A disaster is an accidental or uncontrollable event, or set of events, actual or threatened, that are concentrated in time and space, in which society incurs human, material and infrastructure losses to the degree that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society are prevented.

g. **Emergency.** An emergency is an unexpected, serious occurrence or situation that disrupts and/or causes a surge in demand for normal services, and which requires prompt action and provision of needed resources in order to continue or recover normal operations.

h. **HF Radio Operations Plan.** The HF Radio Operations Plan is a general plan published by VHA OEM that defines the operational scope, design and communications processes for the RHFRN. **NOTE:** *The HF Radio Operations Plan is available at the VHA OEM SharePoint site: <https://vaww.visn5.portal.va.gov/sites/RO/VHA-OEM/> This is an internal VA Web site that is not available to the public.*

i. **Network Radio/Non-Backbone.** Each network radio, non-backbone, station is assigned a primary and alternate/backup backbone site that provides the network control functions for that site.

j. **Propagation.** Propagation is the behavior of electromagnetic radio waves as they travel from one point to another through the atmosphere and are affected by the phenomena of reflection, refraction, diffraction, absorption, polarization, and scattering.

k. **Resilient HF Radio Network.** A Resilient HF Radio Network is considered a reliable communications platform due to advantages over other communication media, which include:

(1) **Long Range Communications Capability.** While Very High Frequency (VHF) and Ultra High Frequency (UHF) radio is commonly used for short-range line-of sight communications, HF is capable of communicating over distances of 3000 km or more.

(2) **Minimal Infrastructure Requirements.** The RHFRN requires minimal external supportive infrastructure and services.

(3) **Full Mobility.** HF radio is simple and quick to deploy and provides communications capability for users no matter where they are. Fixed base stations can be used to communicate with other bases or to provide command and control for mobile (vehicle-mounted) and portable (Man-Pack) users in the field.

(4) **Interoperability.** HF radio can be used to communicate with existing VHF and UHF radio systems, cellular telephones and land-based telephones through

developments in cross-patching technology that make this as easy as dialing a telephone number.

(5) **Low Cost of Ownership.** Once the initial investment in equipment is made, there are no ongoing monthly line or equipment rental costs. Also, HF radio equipment is ruggedly built to withstand extreme conditions, which proves to be very cost-effective.

I. **Response.** Responses are activities designed to address the effects of the disaster or emergency.

m. **SHARES (SHARed RESources).** The SHARES High Frequency (HF) Radio program, administered by the Department of Homeland Security's (DHS), National Coordinating Center for Communications (NCC), provides an additional means for users with a national security and emergency preparedness mission to communicate when landline and cellular communications are unavailable. SHARES members use existing HF radio resources to coordinate and transmit messages needed to perform critical functions, including those areas related to leadership, safety, maintenance of law and order, finance, and public health.

n. **Telephone Interconnect.** Telephone interconnect units at the backbone stations and some mobile stations provide the capability to use the HF radio network to communicate over the telephone network, allowing HF communications to reach beyond their normal signal radius and reach any telephone.

4. POLICY

It is VHA policy that VHA provides and ensures the operability and readiness of the VHA RHFRN to provide an alternate form of communication for all VHA in-patient facilities during disasters and communications outages.

5. RESPONSIBILITIES

a. **Deputy Under Secretary for Health for Operations and Management.** The Deputy Under Secretary for Health for Operations and Management is responsible for ensuring the VISNs and medical facilities operate and maintain the RHFRN in accordance with the VHA HF Operations Plan and this directive.

b. **Assistant Deputy Under Secretary for Health for Administrative Operations.** The Assistant Deputy Under Secretary for Health for Administrative Operations is responsible for providing direct oversight to VHA OEM.

c. **Director, VHA Office of Emergency Management.** The Director, VHA OEM is responsible for:

(1) Establishing and maintaining the VHA RHFRN.

(2) Convening meetings no less than quarterly of the RHFRN Management Committee to monitor the RHFRN, maintain RHFRN documentation and guidance, and

to recommend improvement actions and policy recommendations to the Director, VHA OEM. Minimum representation will include one member from each stakeholder group: Facility Emergency Management, Facility Police, VHA Network or District Emergency Management, VHA OEM Field Program, VHA OEM Logistics Program, Licensed Amateur Radio Operator, and VA Office of National Communications Services. Minutes will be produced and made available within 1 week of each meeting, and a summary report on the RHFRN will be prepared and provided to the Director by October 1st every year.

(3) Conducting or facilitating coordination on HF radio integration and use with external response partners.

(4) Coordinating with other VA entities (e.g., VACO, Office of National Communications Services, Pharmacy Benefit Management (PBM) Consolidated Mail Order Pharmacies (CMOPs) etc.) on RHFRN operations.

(5) Providing guidance and support as needed to VA facilities to establish and maintain RHFRN readiness.

(6) Developing and maintaining HF program capabilities through annual review of this directive, the HF Radio Operations Plan and other RHFRN guidance, including template standard operating procedures (SOPs), job aids, and guides for VA facilities to tailor as needed with site specific information.

(7) Ensuring long-term sustainment of the RHFRN by providing training, warranty services, ongoing maintenance, repairs, equipment replacement and procurement.

(8) Operating and maintaining HF radios installed in VHA OEM owned/managed mobile assets in accordance with the HF Radio Operations Plan.

(9) Coordinating network architecture and control changes.

(10) Establishing and implementing a process to notify communications conditions and changes across the RHFRN.

(11) Establishing and implementing a process for encryption activation and updates across the RHFRN.

(12) Providing RHFRN communications support to VHA leadership and/or the Emergency Management Coordination Cell (EMCC) for response coordination.

(13) Coordinating deployment or relocation of equipment and/or personnel to support RHFRN communications during surge or emergency/disaster operations.

d. **Veterans Integrated Service Network Director.** The VISN Director, or designee, is responsible for:

(1) Supporting the RHFRN for facilities within their VISN with an HF radio.

(2) Integrating HF Radio communications into the VISN Comprehensive Emergency Management Program (CEMP) program.

(3) Implementing radio operations in accordance with the HF Radio Operations Plan for any VISN assigned HF radios.

(4) Designating necessary staff to support training, operations and maintenance in accordance with the HF Radio Operations Plan for any VISN assigned HF radios.

e. **VA Medical Facility Director.** The VA medical facility Director is responsible for:

(1) Designating a position or individual to serve as the facility RHFRN Site Coordinator to coordinate the RHFRN program at the facility.

(2) Ensuring development and maintenance of facility-specific HF radio SOPs, templates of which will be provided by VHA OEM, sufficient to facilitate timely and successful communications during RHFRN operations, as measured by successful RHFRN and SHARES communications tests.

(3) Designating an adequate number of staff to support RHFRN operations in accordance with the HF Radio Operations Plan. RHFRN staff requirements for operating facilities are to support continuous 24/7 operations for at least 4 days, the duration that RHFRN communications support is expected to be required for large disaster activations.

(4) Supporting HF communications tests, exercises, and normal and emergency/disaster communications as delineated in the HF Radio Operations Plan.

(5) Ensuring RHFRN operations are incorporated into the facility CEMP.

(6) Ensuring HF radio is used for appropriate communications and that unauthorized information is not transmitted (e.g., Health Insurance Portability and Accountability Act (HIPAA), etc.).

(7) Ensuring the support of Biomedical Engineering and other services as necessary in transferring software updates to the RHFRN radios when required.

f. **Facility RHFRN Site Coordinator.** The designated facility RHFRN Site Coordinator is responsible for:

(1) Developing and maintaining currency of facility-specific HF radio SOPs, templates of which will be provided by VHA OEM, sufficient to facilitate timely and successful communications during RHFRN operations.

(2) Coordinating facility participation in scheduled SHARES and VHA RHFRN drills and exercises, communication tests etc.

(3) Providing HF Radio Readiness reports monthly, or as requested, in accordance with the HF Radio Operations Plan.

(4) Reporting changes in operational status or system configuration to VHA OEM, and reporting any maintenance issues in accordance with the HF Radio Operations Plan. Radio maintenance may only be performed by qualified technicians authorized by VHA OEM or its maintenance services contractor.

(5) Ensuring the HF Radio equipment is used, operated, and updated in accordance with manufacturer's recommendations and the provisions of RHFRN guidance.

(6) Ensuring HF radio is used for appropriate communications and that unauthorized information is not transmitted (e.g., Health Insurance Portability and Accountability Act (HIPAA), etc.).

(7) Supporting VHA OEM-provided training on HF radio operations.

(8) Incorporating RHFRN equipment into the facility Equipment Inventory Listing (EIL) with annotations that equipment is property of OEM but managed under local inventory control.

(9) Ensuring annual inventory of HF Radio components is conducted in accordance with VA Directive 7348, Utilization and Disposal of Personal Property dated March 30, 2012, or subsequent issue.

(10) Establishing and maintaining facility SHARES membership by submitting a SHARES Form 1 through the VA Office of National Communications Services, and by submitting a revised SHARES Form 1 when needed due to personnel changes.

g. **Facility RHFRN Radio Operator.** The facility RHFRN Radio Operator is responsible for:

(1) Ensuring the HF Radio equipment is used and operated in accordance with manufacturer's recommendations and the provisions of RHFRN guidance.

(2) Maintaining proficiency on radio operations and network control procedures with adherence to at least the minimum required activities in accordance with the HF Radio Operations Plan.

(3) Operating and establishing network control (if and when assigned as a backbone or network control site) for the RHFRN in accordance with the HF Radio Operations Plan.

(4) Supporting VHA OEM-provided training on HF radio operations.

h. **Mobile Radio Custodian.** The Mobile Radio Custodian for the vehicle-based or Man-Pack HF Radios is responsible for:

(1) Establishing and maintaining SHARES membership by submitting and renewing SHARES Form 1 through the VA Office of National Communications Services.

(2) Ensuring the HF Radio equipment is used, operated, and updated in accordance with manufacturer's recommendations and the provisions of RHFRN guidance.

(3) Participation in scheduled SHARES and VHA radio network communications drills and exercises, communication tests etc.

(4) Maintaining proficiency on radio operations and network control procedures with adherence to at least the minimum required activities in accordance with the HF Radio Operations Plan.

(5) Operating and establishing network control (if directed for Multi-Use Vehicles (MUVs) for the RHFRN in accordance with the HF Radio Operations Plan.

(6) Maintaining site specific SOPs and guides or checklists to facilitate time critical communications and maintaining proficiency.

(7) Reporting changes in operational status or maintenance issues to VHA OEM in accordance with the HF Radio Operations Plan.

(8) Supporting VHA OEM provided training on HF radio operations.

6. BACKBONE STATIONS

a. Each backbone site is designated a set of fixed and/or mobile sites to maintain communications control within its communications radius. As the system matures, backbone-normal station site pairings may be adjusted. Prior to changing this RHFRN control architecture, it must be coordinated with VHA OEM so the changes can be distributed network wide. This ensures communications reliability.

b. Additionally, each backbone site is designated as an alternate site to another backbone. This ensures contact with HF radio locations in the communications radius if the designated primary backbone is non-operational. Due to differences in communications radiuses among the various backbones, they do not provide identical coverage across the primary/alternate backup pairings. This may result in some redundancies or gaps. For example, contact with Alaska, Hawaii, and Puerto Rico may only be achieved with their designated primary backbone. Any redundancies may result in additional/duplicate contacts with sites.

7. FIXED STATIONS

Each fixed station is assigned a primary and alternate/backup backbone site. If a fixed station persistently experiences communication connection issues with its primary or alternate backbone site, additional backbone sites may be within communications

radius. Prior to changing the backbone assignment in the architecture, it must be coordinated with VHA OEM so that changes can be distributed network wide.

8. MOBILE STATIONS

a. Some mobile stations (i.e., vehicle mounted or person-transportable units) are located at a fixed facility but are capable of being driven to an alternate site to support continuity operations or other response activities. While in the fixed facility, the mobile station is assigned the backbone station support based on the fixed facility location. If the mobile station moves outside of communications radius of its assigned backbones, coordination between the backbones (exiting coverage/ entering coverage) must occur to transfer control of the mobile station to the new backbone in coverage.

b. Mobile stations are also installed in the Multi-Use Vehicles (MUVs). There are 12 MUVs located across the US that can be relocated anywhere within the US. While at their assigned home stations, these mobile units will be assigned backbones according to the home station determinations. As they move/relocate, a supporting backbone/alternate will require designation and coordination based on backbone operational status and communications capability and reliability. The MUV HF operator will coordinate with the closest operational backbone within the coverage footprint of the MUV and sites it needs to communicate with for any required network control support. In a disaster response situation, it is feasible the MUV can be designated as an additional backbone site or as a replacement backbone site. As an additional backbone site, the MUV operator will coordinate with any operational backbones within the coverage area to coordinate transfer network control for sites within that area. If the MUV assumes network control for sites due to non-operational backbones (primary and alternate/backup), the MUV will automatically assume network control of all sites assigned to the failed backbone. The MUV can provide support for either a primary or alternate/backbone site. The MUV is also capable of supporting teleconnection across the RHFRN.

9. REFERENCES

- a. VA Directive 7348, Utilization and Disposal of Personal Property.
- b. VHA Directive 0320, Comprehensive Emergency Management Program.
- c. VHA HF Radio Operations Plan. Available at the VHA OEM SharePoint site: <https://vaww.visn5.portal.va.gov/sites/RO/VHA-OEM/>. **NOTE:** *This is an internal VA Web site that is not available to the public.*
- d. SHARed RESources (SHARES) High Frequency (HF) Radio Program, Department of Homeland Security (DHS) Web site resource: <https://www.dhs.gov/shares>.

e. VHA OEM Resilient HF Radio Network (RHFRN) Program site, available at the VHA OEM SharePoint site: <https://vaww.visn5.portal.va.gov/sites/RO/VHA-OEM/>

NOTE: *This is an internal VA Web site that is not available to the public.*