



*The HF log-periodic dipole array in this photo is one of the antennas serving the SHARES HF Radio Program Office near DHS Headquarters in Washington, D.C. (Photo courtesy of Department of Homeland Security)*

# SHARES: The Federal Government's Plan-B HF Communications System

By Steve Handler

**S**eptember 11, 2001. Almost all of us remember where we were when we heard the news of the terrorist attacks on the United States. What you might not know is that a relatively obscure government department, called “SHARES,” immediately sprang into action. As with every natural or man made disaster, the government is concerned that landline or cellular communications might fail or be damaged in such an event. SHARES’ mission is to serve as a backup to the landline and wireless networks. Operating on HF, its members are capable of handling and passing traffic relating to critical national security and emergency preparedness matters.

In response to September 11, SHARES quickly estab-

lished HF circuits in Washington, D. C., and New York City. Three hundred forty-two SHARES stations from 47 states, the District of Columbia, Puerto Rico and the Virgin Islands participated.

So how did SHARES come into being? In the aftermath of the 1962 Cuban Missile Crisis, President John F. Kennedy wanted to improve the communications systems that link the federal agencies. The goal was to provide better interconnectivity, and also survivability, of the system in the event of war and natural or man made disasters. He signed an executive order creating the National Communications System (NCS). The NCS reported directly to the Executive Branch and were charged with seeing that the Kennedy’s goals were



*SHARES and DHS logos (Courtesy: DHS)*

accomplished.

In furtherance of the goals of improving communications and survivability, SHARES was created. Using the HF radio resources of member stations, they provide an additional means for users with a national security and emergency preparedness mission to communicate.

### **SHARES Origins**

On September 20, 1988, NCS created the SHARED RESOURCES (SHARES) High Frequency (HF) Radio program. This program was tasked with backing up the landline, and later cellular, telephone systems. Membership and participation in SHARES was voluntary, with each Executive Branch agency deciding whether to participate. Participants used the HF radio resources of member agencies to provide an additional means for users with a national security and emergency preparedness mission to communicate.

The NCS operated independently as an executive branch entity for almost forty years. However in 2003, the NCS along with more than 20 other federal agencies were merged into the Department of Homeland Security (DHS). SHARES is currently administered by the National Coordinating Center for Communications (NCC) part of DHS.

SHARES participates in two types of operations: emergency operations and special operations. An emergency operation supports situations that occur without warning. Earthquakes and terrorist attacks, major power outages and the crash of the Space Shuttle Columbia all are examples of emergency operations supported by SHARES. Special operations, support situations that have advance warning such as hurricanes, as well as activities that might be a high value target for terrorist activities such as the Superbowl, presidential inaugurations and the State of the Union Address.

### **SHARES Operational Status Levels**

Do you remember DHS's original color-coded threat advisory system? I never could remember which color represented what threat level. However, SHARES boiled its

operational status down to three easy to understand levels.

During Level 3, conditions are normal and no emergency exists. SHARES frequencies may be used for normal, non-emergency traffic. When a potential emergency exists, the status level goes to Level 2. Non-emergency operations immediately cease. The national and regional nets are activated and stations that are available report their status to the net control station.

Level 1 is declared when an actual emergency exists. SHARES national and regional nets receive member station availability reports, list SHARES message traffic, and coordinate the processing of SHARES messages.

Current SHARES participants include the Departments of Agriculture, Defense, Energy, Health, and Human Services, Homeland Security, Interior, Justice, Transportation, and Veterans Affairs. Other governmental entities include the Federal Communications Commission, General Services Administration, NASA, and the Environmental Protection Agency. Non-governmental organizations include entities such as the American Red Cross. Critical telecommunications infrastructure companies such as AT&T, CenturyLink, Cincinnati Bell and Verizon, for example, also participate in shares.

### **SHARES Regional HF Frequencies**

So where's the action? The most used frequency is the SHARES National Coordination Net, primary frequency of 14396.5 kHz. Each Wednesday, during Daylight Savings Time, a weekly voice net is held between 1500 and 1700 UTC. The net is held between 1600 and 1800 UTC during the portion of the year that Standard Time is in effect. In addition to voice, digital messages are sent using MT63 1K Long.

SHARES also holds a number of weekly regional nets. The Northeast Regional Coordination Net is composed of stations in FEMA's Regions 1, 2 and 3. These states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New York, Pennsylvania, Rhode Island, Vermont, Virginia, Washington, D. C., and West Virginia. Frequencies used in-



*Another antenna serving the SHARES HF Radio Program Office near DHS Headquarters. (Photos courtesy of DHS)*

clude 3347, 5063.5, 5236, and 6845 kHz. The Northeast net has been heard in operation on Wednesdays from 1600-1700 UTC during Daylight Savings Time and 1700-1800 UTC when Standard Time is in effect. It has also been heard in operation on Wednesdays between 2300 until past 0000 UTC on Thursdays.

The SHARES Southeast Regional Coordination Net is composed of stations in FEMA's Region 4 and includes the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. Current frequencies used by the Southeast net frequencies include 7554.5 and 7632 kHz. The net operates on Wednesdays during the same time as the National Net.

The North Regional Coordination Net serves the states in FEMA's Region 5, 7 and 8. Those states are Colorado, Indiana, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Utah, and Wyoming. The North Net uses frequencies includ-

ing 3311, 5429, 6765 (Primary), 8048.5, and 10819.5 kHz. The North net is in operation Wednesdays, during the same time as the National Net and also on Tuesdays between 2300 and 2359 UTC, and Sundays from 2330 to past 0000 UTC.

The SHARES South Regional Coordination Net is comprised of stations located in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The Southwest Regional Coordination Net covers FEMA Region 9 and includes the states of Arizona, California, Hawaii, Guam, and Nevada. I am unable to confidently provide current frequencies and suggest searching frequencies between 3 MHz and 8 MHz.

Lastly, the SHARES West Regional Coordination Net (formerly called SHARES Northwest) serves stations in FEMA's Region 10, being Alaska, Idaho, Oregon, and Washington. The frequencies used by the Northwest Net include 14402 kHz and can be heard on Wednesdays from 1700-1730 and sometimes even until 1800 UTC.

Federal government stations that have frequently participated in the weekly National Coordination Net include KGD34 the SHARES HQ Project Office, located in Washington, D.C., KGG83 the FBI, KHA908 and KHZ910, which are NASA facilities, KLM569 from the Department of Veterans Affairs, KBW49 which belongs to the Department of Energy, and KTQ315 located at one of the regional offices of the Environmental Protection Agency.

SHARES also operates an ALE Network on 5760, 7391.5, 7991, 9106, 11426.5, and 14928.5 kHz. The prefix and suffix of voice call signs are sometimes reversed when used on ALE channels. For instance the voice call signs using the NCS prefix all reverse their suffix on ALE, so that the voice call sign of NCS123 would become an ALE ID of 123NCS. Other call signs such as KGD34 use their normal voice call sign, without reversing the prefix and suffix, as their ALE ID.

## Understanding SHARES-Speak

Now that I have provided you with where to tune in, here is a short program guide to help you identify to whom you are listening. Regular USAF MARS members use call signs with the prefix "AFA." National Staff, Region and State staff MARS members use the prefixes "AFD", "AFE", "AFR" or "AFS." USAF MARS stations assigned to an Air Force Base use the prefix "AGA." Most of the US Army MARS stations that frequent the SHARES Net use the call sign prefixes of "AAA," "AAM," "AAR" or "AAT." United States Coast Guard Auxiliary stations use six character call signs beginning with the letters "NF" or "NM."

Prior to the dissolution of the US Navy's MARS program, DHS NCC volunteer auxiliary stations used a six character call sign, beginning with the letters NCS followed by a three-digit number. It is presumed that NCS was chosen because it is the abbreviation for NCC's National Communications System. After the dissolution of Navy MARS, the call signs formerly assigned to them became available for other agencies to use. It is presumed, although not official-

ly confirmed, that part of the former Navy call sign block “NNA0AA through NNZ9ZZ” may now also be assigned to some of the NCC auxiliary stations.

To participate in the SHARES Network you must be sponsored by a member agency and approved by the SHARES project office. According to my DHS source, there are currently 2192 registered stations. Of that total, 183 were U.S. military and Coast Guard facilities. Civilian US Government agencies accounted for 1094 stations. Volunteer members of MARS, NCC Auxiliary, Civil Air Patrol and Coast Guard Auxiliary accounted for 809 stations, and the remaining 106 stations included critical infrastructure facilities of the communications industry and other stations.

DHS provided me with a number of interesting statistics about the SHARES program. In the current fiscal year, on average, 58 stations check into the SHARES National Coordination net each Wednesday. Data which they provided shows that the volunteer members of the DHS’s NCC auxiliary account for 39 percent of the station that have participated, followed by volunteer members of the Army and Air Force MARS who made up 32 percent of the weekly check ins. The volunteer members of the Coast Guard Auxiliary and Civil Air Patrol accounted on average for 2 percent of the check ins and US Government agencies and critical telecommunications infrastructure facilities made up the balance of the check ins. The average of 58 stations is just that, an average. For example, in a spot check conducted in July of this year, I determined that 74 stations checked into one of the weekly SHARES National Coordination Net.

With many volunteers (MARS, NCC Auxiliary, CAP, US Coast Guard Auxiliary) supporting SHARES, I raised the question with DHS about their purpose and value. I was told that the volunteers in the SHARES program perform important roles including: serve as net control stations or regional coordinators; provide training or technical support, lead or support various working groups. In other instances, volunteers act as relay stations or provide communications support for disaster responders. In looking at the history of SHARES, their use of a large number of volunteers has worked to our country’s benefit. It’s clear that SHARES values its volunteer participants.

On the “What have you done for me lately” front, SHARES sent ten volunteers to Puerto Rico to provide emergency HF communications following Hurricane Maria.

Of the ten SHARES members, two were federal government employees and eight were unpaid volunteers. All ten were licensed amateur radio operators. They worked in two-person teams providing amateur radio and federal government HF communications from the FEMA Joint Field Office and four branch offices.

## Future of SHARES

So what’s in SHARES future? DHS stated that they are prototyping HF and VHF flyaway kits for members to use in

lieu of their own equipment. This project applies one of the lessons learned by SHARES from providing communications support to Puerto Rico following Hurricane Maria.

As to past challenges, DHS commented, “One of the challenges is promoting the SHARES program to increase voluntary membership. The program strives to ensure we have plenty of volunteers to transmit emergency messages from originator to recipient when normal communications systems are destroyed or unavailable, and/or provide HF radio channels for interoperability. We have to take into account volunteers that may be impacted by a disaster; have limited or no backup power for long term emergencies; or have other unexpected challenges that could create a communications gap.”

As to the greatest challenges facing SHARES in the future, their response was not what I expected. There was no talk about new upcoming technology. Rather DHS presented a much more fundamental issue. They said, “The current and future challenge for the SHARES program is promoting the benefit and raising awareness of HF radio communications in the event of an emergency or natural disaster where normal communications systems are destroyed or unavailable. Those agencies and organizations that have used this program in an emergency generally see the value of investing in HF radio capability.”

The SHARES program provides valuable services to America. Both its volunteer membership and government entities have seen the value of HF radio communications in the event of landline and or cellular communications failures. SHARES accomplishes their goal not by spending funds on radio communications equipment, but by using a BYOR (bring your own radio) philosophy where existing governmental, industry and volunteers put their existing HF equipment into use to support SHARES. The SHARES HF system is a reliable, sensible and strategically important addition to our nation’s communications capabilities.

SHARES parent, the DHS’s National Coordinating Center for Communications, recently filed an interesting four-page comment before the FCC addressing the great importance of amateur radio operators in emergency radio communications.

Author’s note: I wish to thank the DHS and its media representatives for their help in providing certain information used in this article. DHS did not provide any frequency or call sign information used herein, nor were they requested to do so.

[Amateur radio operators who wish to know more about participating in the MARS program can find an individual civilian and club application here: <http://www.netcom.army.mil/mars> — Editor]