War Emergency Radio Service, 1942 -‘45

By Bart Lee, K6VK, a CHRS Fellow in History

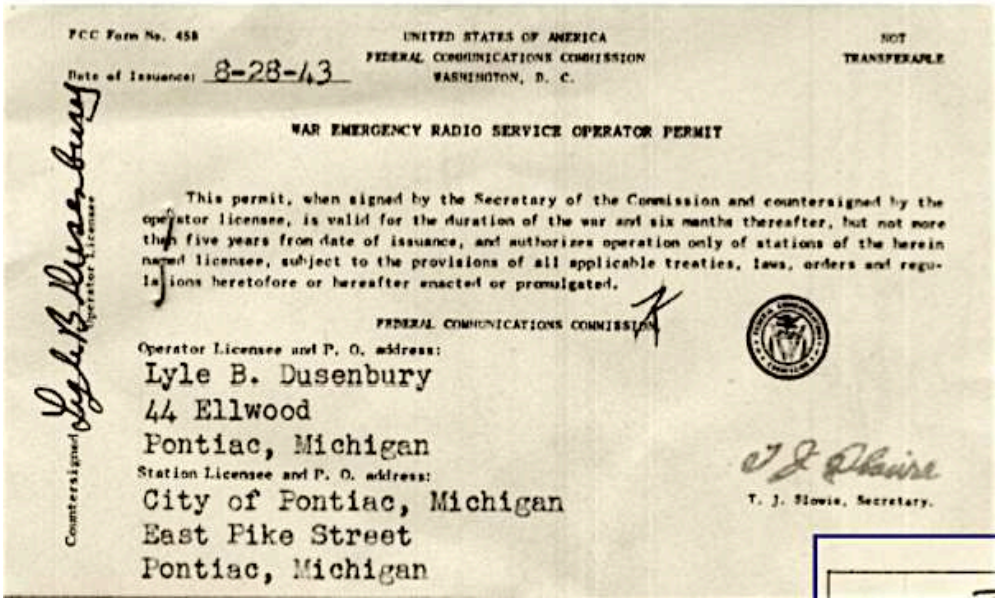
The annual amateur radio emergency drill known as **Field Day** convenes nationally on the third weekend in June. The ARRL, the national association for amateur radio, has sponsored this drill since the 1930s. It then created the Amateur Radio Emergency Corps. But when war came on December 7, 1941, the FCC shut down amateur radio. ARRL thought that hams’ emergency radio preparedness, their capabilities and their readiness, could help defend the nation. It petitioned the FCC for a role in Civil Defense. The FCC responded with a new radio service, the War Emergency Radio Service, for licensed hams, on VHF (2&1/2 meters, 112 MHz). The City of San Francisco provided 35 Abbot TR-4 transceivers to its licensed WERS operation, call-sign KGCW.

TR-4 Interior with HY-75 Power Tube

The members of the San Francisco Radio Club, not yet in uniform, took to VHF with enthusiasm. The years of radio silence during World War Two were in many ways the Club's finest hour. Although the club was necessarily quiet, many of its members served with distinction in the armed forces. In the 1930s, the San Francisco Radio Club had pioneered VHF, and VHF mobile operation, and VHF at Field Day.

Amateur participation in WERS on 2&1⁄2 meters, 112 MHz, was a natural evolution. As well as the WERS collective call-sign KGCW, tactical identifiers could come into play. Sixty or more San Francisco and Oakland amateur radio operators participated in WERS (according to *QST* local notes in several wartime issues).

The FCC issued special permits to WERS operators. Both men and women served.



FCC Form No. 458

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D. C.

NOT TRANSFERABLE

Date of Issuance: 8-28-43

WAR EMERGENCY RADIO SERVICE OPERATOR PERMIT

This permit, when signed by the Secretary of the Commission and countersigned by the operator licensee, is valid for the duration of the war and six months thereafter, but not more than five years from date of issuance, and authorizes operation only of stations of the herein named licensee, subject to the provisions of all applicable treaties, laws, orders and regulations heretofore or hereafter enacted or promulgated.

FEDERAL COMMUNICATIONS COMMISSION

Operator Licensee and P. O. address:
Lyle B. Dusenbury
44 Ellwood
Pontiac, Michigan

Station Licensee and P. O. address:
City of Pontiac, Michigan
East Pike Street
Pontiac, Michigan

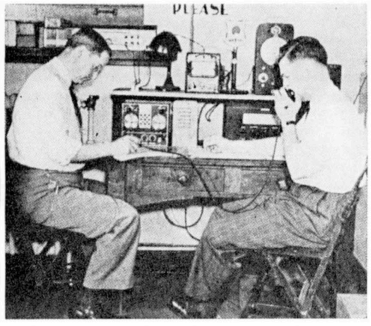
T. J. Slowie, Secretary.

Countersigned Lyle B. Dusenbury
Operator Licensee

War Emergency Radio Service Operator Permit, 1943

WERS aided Civil Defense authorities just as the ARRL's Amateur Radio Emergency Corps had been designed to do.

War Time WERS 1943



WERS was a poor substitute for amateur radio in emergency work, but they did their best. Here's the Granite City, Ill., control station in operation during a Mississippi River flood in 1943. That's Radio Aide W9THB at left, with W9GFF at the microphone. Note the ubiquitous TR4, a fixture in most WERS station units.

The War Emergency Radio Service on 2&1/2 meters, 112 Mhz.

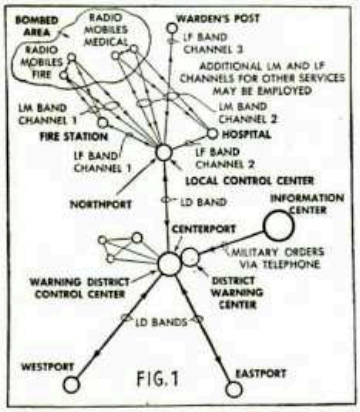
In May and July 1942 WERS provided communications support for flooding of the Mississippi and Lake Erie; 1944 communications support after an Atlantic Coast hurricane; in 1945, for a Western NY snowstorm early in the year, spring flooding, and a September Florida hurricane, according to the ARRL

National magazines praised WERS and its volunteers:

Civilian War Emergency Radio Service System

"DEFENSE Councils, particularly those in target areas, can now substantially increase the effectiveness and flexibility of their defense forces through the War Emergency Radio Service," (WERS) states OCD Director James M. Landis. The Office of Civilian Defense recommends that every community take steps immediately to give itself this added protection in case of enemy attack or local catastrophe. WERS is a new system of two-way radio communication for civilian defense in local areas. It can be set up only by specific authorization of the Federal Communications Commission, and is open to radio amateurs and others who wish to serve their country. It is a rugged, home grown, highly adaptable system of greatest use before, during, and after an air raid or other emergency.

The WERS system consists of numerous small short-wave transmitters and receivers reporting to central stations. Photo A shows two civilian defense operators at a control center receiving reports from civilian defense radio volunteers who are operating efficient homemade mobile and "walkie talkie" portable field equipment of "junk box" construction, as shown in photos B and C. The FCC has assigned to WERS frequencies from 112 to 116 megacycles, and recommends that operations be planned for three bands of several channels each. This tripart plan is clearly outlined in diagram Fig. 1 of the district warning area. The warning district control center relays to all local control centers. The network plan will require a subdivision of the 112-116 Mc. band into frequency channels 200 Kc. apart in order to eliminate interference between networks. Each segment has its specific use; nominally they are (LD) local-district, (LF) local-fixed band, (LM) local-mobile and walkie-talkie, and Civil Air Patrol band.



OCD photos from OWI; diagram from A.R.R.L.

WERS networks could be quite extensive. WERS pioneered the use of repeaters, now taken for granted. Modern repeaters co-locate the paired receiver and transmitter and isolate the two with cavity resonators. WERS at 112 MHz did not have that luxury, so it physically isolated the pair:

"The first widespread use of repeaters was implemented during this time. The receiving portion was usually separated from the transmitting portion by several hundred feet and the audio was carried by telephone line from the receiver to the transmitter."

(Glen Zook, K9STH on a QRZ forum about amateur radio in World War Two)

WERS in Civil Defense emphasized the coastal states, especially New York and California. As of August 1943:

" … there were 223 licensed Civilian Defense WERS stations, 6 Civil Air Patrol WERS stations and 10 State Guard WERS stations. The 223 Civilian Defense stations extend over 35 states and cover 25% of the entire population of the country."

(From *The Civilian Defense War Emergency Radio Service*, by Lieutenant General "Papajoad" (*nom de plume*) in "Hooked on Re-enacting!" http://www.20thcenturygi.com/index.php?topic=1978.0))

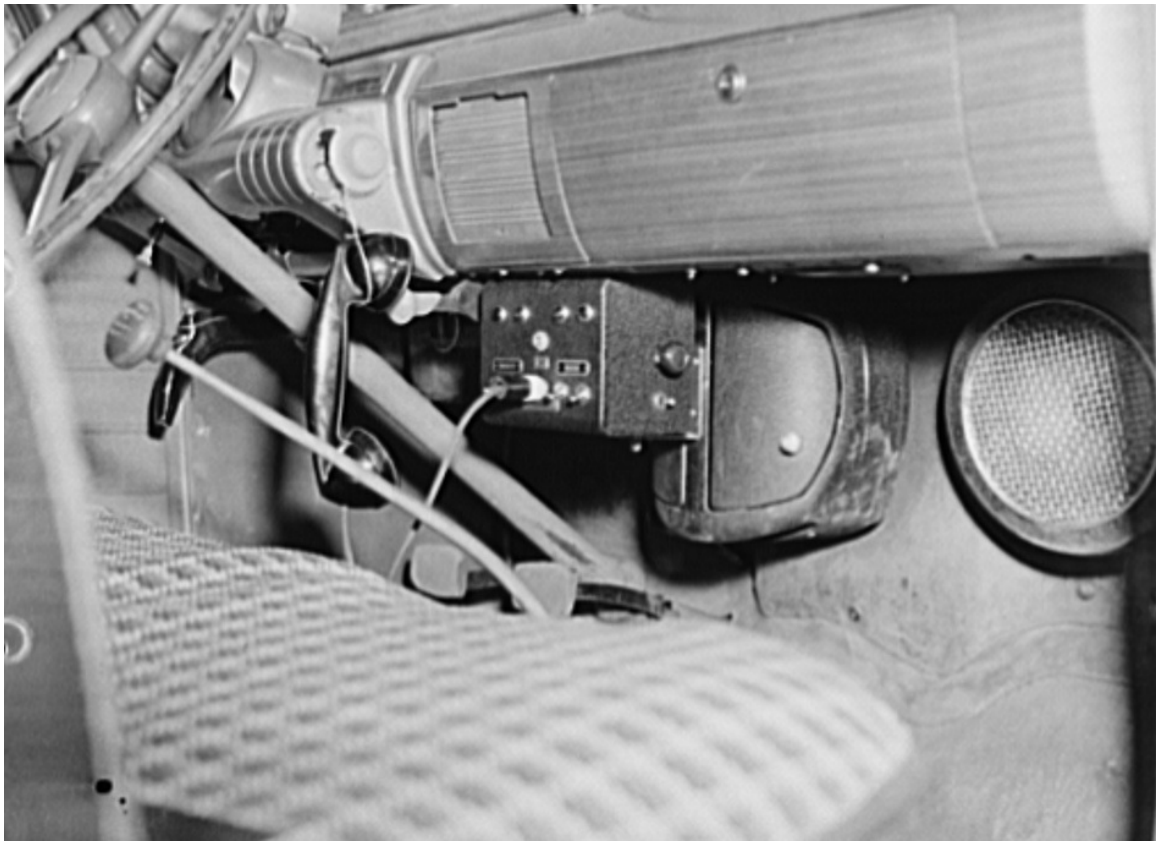
New York provides the model for an extensive WERS network:

"The FCC has issued a Civilian Defense War Emergency Radio License to New York City with the call of WNYJ. This license is for 205 transmitters, the largest number of transmitters for a WERS license. The New York City system allows the 205 transmitters to be operated on only 11 frequencies within the 112-116 Mc [Mc = MHz] Civilian Defense WERS band. Here's how it works, the main city frequency is 112.25 Mc and is used for communication to the five county control stations, Kings County, New York County, Richmond County [Staten Island now], Queens County and Bronx County. These are the main county control stations. *Kings County then communicates to all of its precincts on 112.55 Mc. All of these Kings County precincts communicate with their portable and mobile stations on 114.2 Mc. *New York County control station communicates with its precincts on 112.85 Mc. All of the New York County precincts then communicate with their portable and mobile stations on 114.6 Mc. *Richmond County [Staten Island now] control communicates with its precincts on 113.15 Mc, the precincts then communicate with their portable and mobile stations on 115.0 Mc. *Queens

County control communicates with its precincts on 113.45 Mc which in turn communicate with all of the portable and mobile stations on 115.4 Mc. *Bronx County control communicates with its precincts on 113.7 Mc and the precincts communicate with their portable and mobile units on 115.8 Mc."

(From *The Civilian Defense War Emergency Radio Service*, by Lieutenant General "Papajoad" (*nom de plume*) in "Hooked on Re-enacting!" http://www.20thcenturygi.com/index.php?topic=1978.0))

Mobile operation often used converted commercial transceivers:



Library of Congress photo --https://www.loc.gov/item/2017697301/

This mobile rig features a telephone handset, and this 1930s automobile featured a real stick shift (the first automatic transmission did not appear until the 1940 Oldsmobile, as the "Hydra-Matic"). The Library of Congress, in its interpretation of this photo, notes the utility of mobile operation in emergencies:

“Commercial short wave radio transmitters are made into mobile two-way War Emergency Radio Service sets for Civilian Defense by patriotic radio "hams" who not only install and operate the sets, but frequently contribute their own equipment. Powered by the auto battery, these War Emergency Radio Service mobile stations can maintain uninterrupted contact with their control center even if all telephone and power lines are out of operation.”

WERS emphasized portable operation:

“WERS amateurs have built walkie-talkies that meet basic civilian requirements…” reads the caption of this photo from *Popular Science*, August 1945 at p. 175.

Some time in 1943, the Office of Civil Defense acquired 100,000 military batteries for WERS use, alleviating the wartime civilian shortage of this field communications necessity.

By the end of 1944, five thousand radio transmitters could operate in WERS under 250 licenses (according to the wiki).

The Atomic Bomb ended the war. WERS retired:

"After VJ Day in 1945, hams were given authorization to begin operating again on the 2 1/2 meter band, on a shared basis with WERS. WERS was terminated in mid-November. By the 15th of that month, the FCC released bands at 10, 5, and 2 meters for amateur use. The post-war era of amateur radio had commenced."

(Walter S. Westerman, Amateur Radio During Word War II,
relying on ARRL, FIFTY YEARS OF AMATEUR RADIO,
at W9WSWcelebrating technological curiosity,
https://www.w9wsw.com/?p=1054.
Westerman provides an excellent summary of WERS wartime operations.)

Now **Field Day** is once again **Field Day**, for emergency drill and socialization.

Field Day 2002 Diversity!

Miss Keller Visits The Presidio Field Day Site, 2002

San Francisco Radio Club Field Day, 2002, AA6ZL, Alan Schuman,
a long time principal of the club, in the background.

The Amateur Radio Emergency Corps of the 1930s evolved into the Amateur Radio Emergency Service (ARES). In a way, WERS was reborn in the 1950s as the Radio Amateur Civil Emergency Service (RACES). RACES in California often functions as the Auxiliary Communications Service of the Office of Emergency Services (OES) and locally often under the Sheriff's Department of County Government.

73 de K6VK ##