WHITE RIVER AREA PREPAREDNESS
THU 9-29-2022

Invocation, pledge of allegiance

Mark Stamos presented an introduction to communications devices/types of radios and how they work. He presented pros and cons about various systems.

Among the topics discussed were the meanings of and various uses of the following:

1. Trunk systems for groups to communicate, up and down frequencies, repeaters on towers and rebroadcasting, power levels involved; for instance, battery-powered radios operate at 5 watts.
2. Repeaters operate/rebroadcast via line of sight, mobile base has more power. Repeater tells radios among "group" to listen; if another group gets on, the repeater chooses an alternate frequency for them. Channel is computer controlled. Control channel selects which frequency to use.
3. Trunking scanners follow the control channel. Advantage is 1 tower can serve a large group, such as a community, is expandable to new groups, groups can interact if radios enabled through programming, towers can be linked. Disadvantage is expensive radios - $1500, repeater is expensive, if tower loses power radios become useless, as control channel can't "hear."
4. Simple Repeater System: Radios each have one "up" frequency and one "down" frequency. It's not a shared system-no computer, requires a repeater for each group. DCS – Digital Coding Systems, CTCSS – Continuous Tone Coded Squelch System (analog).
5. Shared Repeater System – 2 entities can share. Advantage: cheaper radios, no receiver, transmitter only, towers can be linked.
6. Example: Blue Mountain repeater is linked to Utah and Wyoming. Disadvantage is if expansion desired, must find tower to put repeater on, and system only works with power.
7. Point to Point: Each group has designated frequency, controlled by FCC. HAM radio operators have wide number of frequencies available; can transmit as far as radio is able. Disadvantage is that practical operation is limited by radio capability, and obstructions limit transmission. However, this system might be the only option if the electrical grid is not operational.
8. Mark presented further information about the MURS (multi use radio service), CB (citizens band), FRS (family radio service) and GMRS (general mobile radio service) systems, such as the frequencies at which they operate (high frequency, ultra high frequency - UHF, very high frequency- VHF etc), the number of channels available and power (wattage) at which they operate.
9. Mark reviewed some initial experimental test results conducted 9-26-2022. Test 1 resulted in about 4.8 miles (to Kenney reservoir) at 2 watts. A CB radio test on 9-28-2022 resulted in 1.8 miles of coverage.

10. Mark discussed the fact that antennas must be matched to wavelengths, but can be halved, quartered, or 5/8 wave. An outdoor antenna, if used for transmitting, must match wavelength to frequency to avoid “standing waves.” Frequency is the number of wavelength cycles per unit of time; high frequency corresponds to a short wavelength and low frequency corresponds to long wavelength.
11. Mark recommended RG8X cable upon installing a system (or RG58, RG8) with a lightning arrestor. He mentioned that an EMP would destroy radios unless stored in “Faraday cage.”
12. There was some general information about FCC HAM technician licensure and the fact that GMRS is fee only with no test.

    The meeting was adjourned at 8:03pm