

A Little History of VVARA Repeater Operation by Steve Pearson KC7TIL - April 2019

These are my recollections of over the past twenty plus years I have been associated with the VVARA, the **Verde Valley Amateur Radio Association**. I did serve as president of the club for the maximum term of three years and have been on the technical committee for a number of years working with **Mike Wingate, WA6LSE (SK)**, and many other volunteers who have worked so hard to keep things running smoothly.

As far back as the mid 90's, VVARA was sharing the building and antenna that the Mingus Mountain Repeater Group (147.000) owned at the north communication site administered by the Forest Service. This arrangement worked pretty well as it was a big step up from having the repeater housed in the town of Jerome. VVARA paid MMRG a fee for maintenance, electrical service, etc. As a club, we decided it would be better to try to get our own equipment and location for more control of our operations. With a lot of hard work, mainly by **Bob Shipton, K8EQC**, we were able to move into another building used by both Army MARS and the BATF which was about 175 feet to the northwest of the MMRG building/tower. Since the Army MARS representative was located in Tucson, we agreed to maintain the building and their equipment in exchange for our use of the building, which included electrical power. This was a great opportunity and we took it and had all sorts of fundraisers to generate the funds for a commercial antenna, hard line, duplexer, and of course a repeater. If I recall, the initial cost were somewhere around \$5,000 plus sweat equity.

The tower was there with two vertical antennas on top, one for Army Mars, and one for BATF, both VHF. We needed to find a way to mount yet a third large, 20' vertical antenna near the top, and came up with a custom yard arm arrangement designed and built by **Harvey Hinds (SK)** who was a commercial fabricator. This all worked pretty well with the able help of **Neil Vince** and **Bob Budin** and **a lot of other volunteers**.

Well, the first radio we bought was a disaster. It would not work in the harsh climate at 7,800 feet in cold weather. As a club, we decided to replace it with a then new Vertex/Standard VXR7000 to the tune of about \$1,500. We then acquired another VXR7000 as an identical back up radio but have rarely needed it.

We were lucky enough to have Mike Wingate, WA6LSE (SK), volunteer to help as a technical advisor as he spent his entire career as a communication specialist with the National Forest Service Fire Division and had a vast knowledge of repeater operations and many contacts in the field. Mike worked tirelessly on improving the system and installed some very sophisticated equipment for various needs.

Then, BATF planned on moving into a different facility on Mingus which left VVARA and Army Mars to fend for ourselves. At about that time, the Army Mars folks offered complete ownership of the building, tower, etc. if VVARA agreed to continue to maintain the structures, and their equipment if needed. Of course, we agreed and then the construction of two huge tower projects adjacent to our site began.

We first lost our commercial power connection to the old FBI building next door as they removed it to make room for the 180' tower that now resides there. They were kind enough to allow us access to APS power via a 100' extension cord for four years! Once again, Mike negotiated a solution with the construction company, running underground electrical conduit to the new H panel about 100' away with a separate meter for which we (VVARA) now are responsible for our monthly electrical consumption.

Since Mike, WA6LSE, has passed away, we have been playing catch up on so many things that Mike just took care of on his own. He acquired equipment, parts, etc. and used his contacts with Forest Service folks to keep things running smoothly. There are so many things that Mike kept in his head that we can no longer know.

The technical committee has made improvements to the site over the past few months, including: 1) re-tuning our three receive and three transmit duplexers, done by Niles Radio in Flagstaff, along with adding an isolator required by the Mingus Mountain Users Group and 2) Removing the BATF antenna from the top of the tower adjacent to our antenna since BATF has removed all their equipment from the building. 3) New back up batteries on Mingus and the Echo Link system in Prescott Valley. The old BATF antenna was removed by **Lance Halle, KW7LH**, and his **ARA guys** who also determined that our antenna was "suspect" and needed replacement. The club voted to purchase a new antenna from Tally, Inc. for about \$1,000 including freight, and a new Yaesu DR-2X radio on a special club discounted price of \$850 including freight with the LAN option which MAY be used in the future for internet linking. The antenna has been installed by a **co worker of Matt N7YIO, Ben and Bob Thompson, Bob Shipton and of course, Matt Dutton.**

Rod, KI6FH, owns and maintains the 220 MHz repeater in the building and it is an open system on a band that is way underutilized. Ben also installed a new 220 MHz antenna that Rod KI6FH bought in the same location about $\frac{3}{4}$ of the way up the tower as to not conflict with the new VVARA antenna and the Army MARS antenna on the top of the tower.

We also maintain an EchoLink system, W7EI-L, which is in Prescott Valley that was first assembled and put on the air by Jack, W7JLC. A backup Echo link system, WB6ODR-L, is maintained by **Bob, WB6ODR**, and is accessible by club members and approved friends of VVARA. **Jim, KJ7NW**, did a lot of work on the Astron power supply/battery charger, and Matt, N7YIO, was able to acquire a nice 19" rack for the equipment along with a "newer" back up battery, so even if APS power is lost, the system, including the necessary internet modem/router, which also runs on 12v DC, will still be running.

A few years before Mike, WA6LSE, passed away, he also donated to the club the entire installation on Squaw Peak including the building, the tower, and the 147.100 + PL 131.8 repeater system, which is up and running on 100% solar power. That entire system was built by Mike using commercial Daniels components he donated. We have recently welcomed some Winlink equipment into the Squaw Peak facility for the ARES/RACES guys. We also installed three new 100 watt solar panels to replace the aging panels along with a bank of four 145 amp hour deep cycle batteries, replacing four old batteries that had been in service for well over ten years. There is also an APRS system running in the building that Mike donated all the equipment for.

There have been **a lot of folks** that have donated their time and material to make the VVARA what it is today. The new Yaesu DR-2X repeater was purchased NOT to change over to strictly digital operation, but to try to blend both analog and digital operations for the club. It is also a modern, easy to program radio system with built in remote control ability that was made available for club purchase for a deeply discounted price. Of course, Yaesu is in the business of selling radios and making a profit, so they are hoping to sell a lot of their new digital/analog radios to club members and I think it is working. It is called a Fusion system as it automatically repeats either analog or digital signals so all the existing analog radios out there will work just fine.

Over the years there have been many civic minded operations carried out by VVARA members including communications during the floods in the Verde Valley in the early 1990's. Also in the 2004-2006 area, members gathered data to thwart BPL or internet over power lines which was a real threat to HF operations in the Verde Valley. This was kind of a test area operation in which many club members gathered data to show the problems for HF communications it would create.

It has been a very interesting experience with the VVARA over the years and I hope we can continue on as a viable club well into the future. Upgrades are always in the works but sometimes take a while as, after all, it is AMATEUR RADIO and **all maintained by volunteers.**