Pleasant Valley Amateur Radio Club Update December 29, 2020

Hello All,

It's been a while and I would like to update you all on the PVARC projects.

The construction of the new South Mtn repeater system is well underway taking most of my time. Racking equipment, installing antennas, fixing electrical, but more of this in a bit. I would first like to bring you up to date on the other radio site projects.

Sulphur Mtn

The 24 volt battery bank (8 each 6v golf cart batteries) are no longer holding a charge are scheduled to be replaced. I am happy to report that new batteries (8 each 130ah AGM) have been purchased and will be installed in the first quarter of 2021. The donation of these batteries came from the generous folks of the Ojai Valley Amateur Radio Club. Thank you OVARC.

Of the 12 each 130ah battery's purchased, 8 each will be installed at the Sulphur Mtn radio site and 4 each were recently installed at the 145.40 Ojai Valley Black Mtn radio site. These batteries came out of a commercial battery backup system with the batteries in float service for less than one year.

The 4 each 420 MHz link radio trays, duplexers and bandpass cavities have been removed and will be reinstalled into the new South Mtn repeater system. Currently the Sulphur Mtn 145.20 and 445.56 repeaters are only linked to the Santa Ynez Peak 145.16 repeater. I have managed to manually manipulate the system to support the Sunday night news casts and interfacing to Bozo for the Newbie net.

The next step towards this reconfiguration is to replace the existing 8 port controller with a 4 port controller. The controller is back ordered and once received and programmed it will be installed.

Camarillo Hills

Two additional 145ah batteries were purchased in December and are waiting to be connected to the existing battery bank. Once installed the battery system will provide the site with 580ah's of backup power. The site solar system will maintain the battery charge during times of commercial power outages.

Chatsworth Peak

The 445.84 UHF repeater noise issue is still unresolved. I have spent many hours of trouble shooting and replacing equipment but after a day or so the noise returns. I look forward to resolving this issue.

South Mtn

The new South Mtn repeater system is well under construction. When installed the site will support a VHF repeater, UHF repeater, 4 each 420 MHz duplex links, and updated MESH network equipment.

The planning and construction of this system is as expected is taking a good deal of time. The best way to proceed with this project is to break them up into their major components. Site acquisition, multiple site survey's, site cleanup of building – generator and power, antenna instillation, system construction, system testing - programming and alignment, move completed system to site, on site performance verification.

Initial contact with the South Mtn site owners began summer of 2019. Late summer 2020 site access was granted. The initial trips involved site surveys to determine where to install our antennas, where to install our equipment, and site access.

As reported earlier, the first trip with the crew of Eric KE6MLF, Eric KG6WXC, Rob W6RH, Orv W6BI, Rich W7KI and me, was to clean up the site and to see if we could use any of the existing antennas. Cleanup removed over 1500 lbs of old equipment, cleaned up the generator area and hooked up to two donor antennas both of which had performance issues.

Within three months I had all but one antenna in stock, I had in stock the required lengths of ½" hardline for the eight antennas. In the next month we had purchased and received the hardline connectors, tower antenna clamps and cross over plates, antenna masts, seal tape, and the in-building transition termination. With all antenna instillation parts in hand I did as much preassemble as possible. Build and installed 3 three foot RG214 pigtail transitions from antennas to hardline, built-up all clamps and brackets onto the mast assemblies. With the on ground antenna preparations complete we scheduled a tower instillation for October 31, 2020

The antenna instillation day came, the crew of Eric KE6MLF, Eric KG6WXC, Rob W6RH and me assembled and headed up the hill. The vehicles were unloaded and staged near the building. Rob and Eric KE6MLF put on their climbing belts and with ropes and pulleys ascended the tower, Eric KG6WXC and I were the ground support.

The day went well; all planned antennas and ½" feedlines were installed and brought into the building. Due to the lateness in the day the cables inside the building will be terminated at a later date

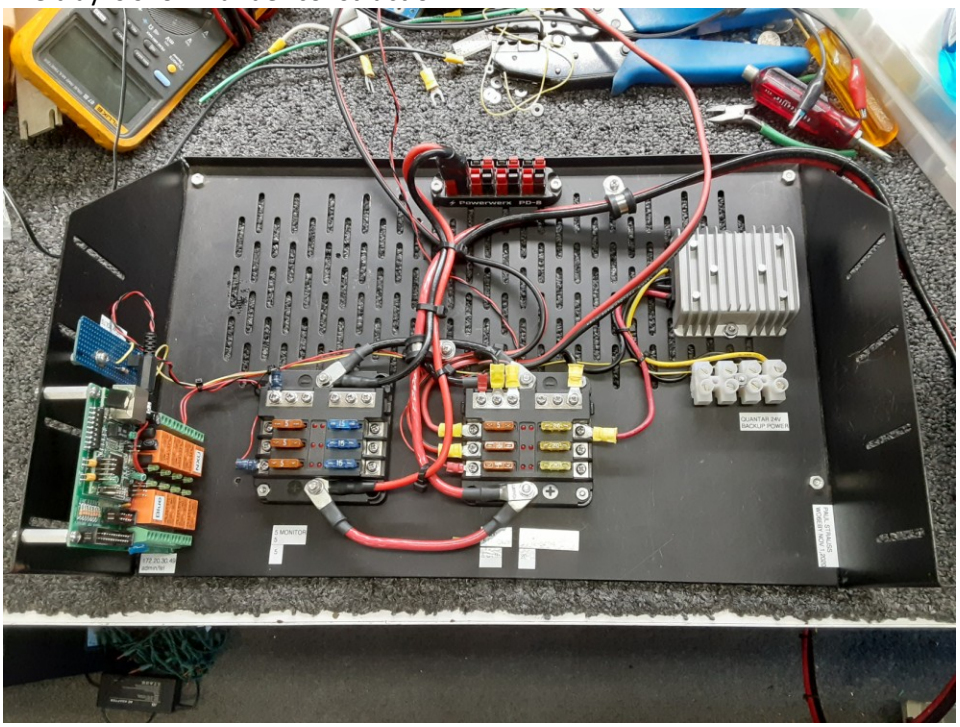
December 2020, the outstanding antenna was delivered to the Vendor in East LA. Orv W6BI made the trip to East LA and delivered the antenna to my house. On Saturday December 12, 2020 the team of Jay WB6YQN, Rob W6RH and myself made another trip to the mountain top. With Rob on the tower again, I roped the outstanding antenna up the tower for Rob to install. The tower clamps, mast section and hardline were previously installed waiting for the antenna, Rob connected the pigtail to the feedline and with the sealing the RF connectors completed the tower work. Jay cleaned up some of the buildings power issues mainly replacing receptacles. After 30 years of use the receptacles would no longer support a plug, they just fell out. Circuits were identified and a schedule was attached to the panel. Rob and Jay went down the hill and I remained for an hour to reprogram some of the temporarily installed equipment.

While the hilltop preparations were taking place construction of the repeater rack has been underway. After several layouts all equipment has been installed within the seven foot deep rack. I managed to install 4 each repeaters, 4 each duplex link radios, 1 each 220MHz packet system. Supporting the radio systems are 8 each duplexers, 8 bandpass cavities and 2 each repeater controllers. The system also includes additions and upgrades to the MESH network.

The system is powers by a pair of IOTA Engineering DLS-30 amp power supplies. These power supplies are designed that they can be run in parallel. If I did not have these two 30A units in stock I would have looked towards purchasing a single 60 amp unit. This power supply tray included circuit breakers for the power supplies, load to the electronics and a CB supporting a battery connection; the tray also included a Low Voltage Disconnect. If the system looses power and has to run off of the batteries the LVD will insure the batteries will not discharge below their 50% level, 11.7 volts. Any lower discharge will damage the battery life.

Power Supply Tray

There is a separate power distribution tray that routes power the many radios. The tray is shown under construction.



As mentioned the rack is well under construction, with the layout established I have started to wire the cabinet. The 12V DC power system has just been completed and power brought to all radios. Appropriate repeaters and links radios have been connected to the repeater controller and are now repeating audio. Controller programming and audio alignment is underway. The two other special purpose repeaters still need to be wired to their controllers. Half of the RF cabling is complete with another 18ea RG141 RF cable still needing to be built and installed.

View of the rear of the cabinet

The new PBX system programming has been completed with telephone extension transfers now underway. The MESH Linux and Windows WinLink servers are installed and operational with just a few adjustments still needed.

The primary repeater system controller is made by Sierra Radio Systems (pictured). The controller's eight ports are configurable use as repeaters, link or remote base. The second controller is an Arcom RC210 and the third controller is a Zetron Model 37-max. All controllers have the latest firmware loads and are waiting programming.

Once the system in operational the 420MHz links will interconnect South Mtn to Chatsworth Peak, Sulphur Mtn, Camarillo Hills and Santa Ynez Peak. Since it was established the link to Santa Ynez Peak has been through a Radio Over Internet Protocol (ROIP) link. When the 420 link comes online there will no longer be a dependency of the public Internet to maintain this link.

The radio site has a generator which is under repair. I will be installing a small battery backup system to maintain system operation during times of transition from shore power to generator power. Should the need arise the system has the capacity for a larger battery backup system to be installed.

Finances

To date our 501C3 organization PVTAC.org has received contributions to maintain system operations, repair, site rental and limited new construction. We continue to spend at a minimum level and are very grateful in the contributions we have received. If you would like assist with a donation to the organization please contact me Paul Strauss.

PVARC Status

The fall of 2018 was the official start of the PVTAC organization. In December 2019 I tried to bring everyone together for a meeting but it was too close to the holidays to bring in the membership at large. As we have all been dealing with the Covid this 2020, hopefully in 2021 we all meet and formally restart the PVARC organization.

I want thank you all for your continued support.
If you have any questions please do not hesitate to contact me.

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