

# Elizabeth Amateur Radio Club

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## Water Tower Maintenance

Posted by **wanthy** on Saturday 26th September 2009. Last Updated Tuesday 7th September 2010.

*Members make the big climb up the tower to investigate antenna problems on the 145MHz link and install a new battery back-up system.*

A team of members assembled at the water tower at around 1:30pm on 5th September 2009 for a working party to repair a repeater linking antenna and install a bank of sealed lead acid batteries for the backup power system at the top of the tower. Members in attendance were John VK5NI, Iain VK5ZD, Allan VK5FAMK, Andrew VK5AKH, Bruce VK5VAB and Will VK5AHV.

After the arduous task of winching all of the tools and the couple hundred kilos of batteries to Level 5 Iain began building the battery system and attaching the charger while others made the final climb up "the guts" and then back down into the tank floor to work on the link antenna.

## Upgrading The 145MHz Link Antenna

It had been reported that the 145MHz WIA broadcast linking antenna was transmitting spurious emissions and that its signal quality was poor. Members were seeking to troubleshoot the antenna problem, and to repair it as needed. The efforts were impeded by a broken bolt, rusty fittings, poor coaxial connectors and Mr. Murphy. A mast pipe mounting bolt had sheared previously, and efforts were made to drill the remaining bolt and use a "easy-out" bolt remover. Unfortunately, the remaining bolt was corroded in place soundly and members were forced to resort to an angle grinder.

After several hours of grinding and hammering, the offending bit was finally removed and the mast was lowered for the recovery of the antenna. As it was removed from the mast, it was noticed that an adapter was in place to mate the cable to the "pigtail" from the antenna. This warning was overlooked at first as the antenna was lowered onto the tank floor and the fiberglass radome removed.

There was evidence of moisture everywhere on the antenna element, and the loading coil was found to have failed at a solder joint. As it was inspected further, another adapter was found at the end of the antenna "pigtail", and soon after a third. In the end, the antenna was mated to the coaxial cable from a PL-259, to a PL-259 to BNC adapter, to a BNC to N adapter, to a N female-to-female union. Everyone in attendance was properly disgusted, and the decision was made to properly terminate the antenna and remove the need for any adapters.

An effort was made to repair the mast mounting bolt problem as well, with a new hole being drilled and a "pin through" philosophy put in place instead of a "set screw" method.

## Thanks

The Elizabeth Amateur Radio Club would like to thank all of the members that assisted in the repairs and upgrades to the equipment at the water tower. Your efforts are greatly appreciated.