

## W1SYE Repeater Update April 27, 2013

Saturday, April 27, was another work day at the W1SYE repeater for Jack, N1JK, John, WA1ABI, and Willy, W1LY.

The work actually began earlier in the week when Ed, W1NQH, constructed a new set of Heliac cables for the repeater. Ed built three new cut-to-length Heliac cable assemblies to replace the existing braided coax lines that connect the duplexer to the transmitter, the receiver, and the antenna's main transmission line. He used top of the line Andrew silver-plated connectors on the cable ends. Ed's workmanship is superb, and the finished cables look as good or better than pre-made Andrew factory cables. Installing these custom cables allowed us to dispense with several existing elbows and adaptors. The new cables will provide much better shielding than the braided cables they replaced.

Willy once again climbed to the antenna, this time to investigate any potential noise sources in the vicinity of the antenna. Jack, using a series of calibrated attenuators, provided a weak repeater input signal from a remote site. Willy then shook, banged, and rattled all the hardware near the antenna while he monitored the repeater output with a handheld transceiver. This is an excellent method of finding noise sources under real world weak signal receive conditions. Willy discovered that an abandoned Diamond fiberglass antenna near the repeater antenna was making a great deal of noise as it moved in the breeze. Willy could make Jack's weak input signal drop out of the receiver entirely by shaking the old Diamond antenna. Willy removed the abandoned antenna and lowered it to the ground. He also discovered a loose cable hanging over the edge of the structure, free to move in the wind. At the end of this cable was a metal connector that was dragging across the vertical metal wall of the structure as the cable moved. Willy secured this cable out of harm's way on top of the structure.

All the above work resulted in incrementally improved repeater receive performance. Some desense from the repeater transmitter still exists. Weak signal reception has improved somewhat, but still needs improvement. We are methodically working our way through the repeater and its environment before making any adjustments to the duplexer. We are close to the point of being able to tune the duplexer in place, knowing that everything else in the RF chain is in tip-top shape.