

## Thunder Bay FM Association

The Lakehead Amateur Radio Club members wanted to set up a repeater operation separate from the Club. To that end, some Club members banded together under the name of the Thunder Bay FM Association. Membership fees were \$10.00 per month. Revenue generated from memberships, various donations and loans from members were used to purchase equipment used to build the repeater. The activities and achievements detailed below were taken from High-Q and personal memories of the participants.

*From the September '74 High-Q, Bill Klemacki - VE3EEW Editor (now VE3AJ).*

After many months of equipment collection, assembling, circuit design, squabbling, and general head scratching, the repeater (*VE3YQT*) is nearing completion.

For the past six months Don McKay - VE3GST has been working on the electronics. Villy Madsen - VE3GHO built up a solid-state identifier. Bill Klemacki - VE3EEW has had the antenna system under construction in his back yard. Phil Moorey - VE3AXL has been running himself ragged making arrangements for the site, heliax cable, hardware and press releases.

Saturday, August 31, 1974, a gang consisting of: Ray Forslund - VE3EDZ, Pat Doherty - VE3HFS, Phil Moorey - VE3AXL, Bob Andrews - VE3RA, Matti Nummelin - VE3EEI, Bill Unger - VE3EFC, Bill Klemacki - VE3EEW, along with a member of CKPR's engineering staff made their way up the super highway to the site of CKPR-TV on Mount Baldy. Ray Forslund - VE3EDZ then headed straight for the basement of the transmitter site to put in the 110 Volt line for the trickle charger.

Phil Moorey - VE3AXL and Bill Klemacki - VE3EEW dragged their carcasses up to the 250-foot level, installed a gin pole and hauled up a rope for the big lift. However, the high winds, (gusting to 30 at ground level) along with rain showers forced tower activities to cease for the day. The heliax had been laid out and connectors installed beforehand. Bob Hansen - VE3RVA who was on a vacation visit to the city found himself involved in our project.

Sunday, September 1st, a group made another trip to the site, to install the antennas. Phil and Bill, the Club's high riggers then made their way back topside to the 225-foot level, while the boys on the ground readied the aerials. The receiving antenna was installed at 225 feet up and the transmitting antenna was installed at 145 feet. Everything was tightened down, but hoisting the feed-lines had to be left for the next day. Just as well too, for shortly after leaving the mountain, a rainstorm came through the area, followed by a hailstorm, and the usual high winds.

Monday, the 2nd saw our faithful gang of: Frank Start - VE3AJ, Phil Moorey - VE3AXL, Ray Forslund - VE3EDZ, Matti Nummelin - VE3EEI, Bill Klemacki - VE3EEW, Don Vester - VE3GOE, and Pat Doherty - VE3HFS again trekking to the top. The heliax was hoisted to the receiver antenna, connections waterproofed and the cable was secured to the tower leg down to the transmitter antenna where the feed-line for the transmitting end was picked up. All connections were made fast and weather protected, and all cables were fastened to the south tower leg.

The repeater itself is currently undergoing modifications and troubleshooting.

We hope to have the complete information on the workings of the Thunder Bay Repeater in the October issue of High-Q.

That's the news up to September 2nd, 1974.

*As we look back today, here is an interesting note in the same High-Q:*

Now that we are reaching a climax with our machine, there is some talk of UHF controlled repeaters along the North Shore. Walt (possibly Rev. Gibbons?) - VE3ERX, a new resident of Nipigon, is reportedly loaded to the rafters with radio equipment and is interested in our results, as well as establishing a repeater in his own territory to relay the Thunder Bay machine along Highways 11 and 17.

**From December 1974 High-Q:** VE3YQT is the official call for the Thunder Bay repeater and the licensee is in the possession of Laurie Bridgett - VE3BCD, the repeater trustee.

Problems currently plaguing the machine, with the identifier and timer board removed and being worked on by Villy Madsen - VE3GHO. The command circuitry and solid state switching has been built by Bill Klemacki - VE3EEW. The trickle charger has been built, tested and installed by Ray Forslund - VE3EDZ.

It is still hoped that the machine can be installed on Mount Baldy before Christmas, with everything in working order.

**From January '74 High-Q:** Installation of the repeater at the Mount Baldy transmitter site has been delayed. However the long-awaited identifier board is to be installed shortly.

The **June '75 High-Q** carried an encouraging repeater report. VE3YQT is back on the air! After an exasperating delay of over three months, the Thunder Bay machine is once again receiving FM signals on 146.46 MHz and retransmitting them on 147.06 MHz. From a temporary location in the basement of Ray Forslund - VE3EDZ, signals are radiating all over town, and so far, no glitches. Timing circuits have been reset and the ID is now given at the start of each cycle - "DE VE3YQT", over a 5.5 second interval and a .5 second delay if there is no carrier, then it drops.

ID is given at approximately one minute intervals, and before the three minute time-out, the ID is given again. Then QRT and it will stay until the carrier that caused the time-out drops out, allowing the timer to recycle. By the time you read this, the repeater should be installed in its operation site at Mount Baldy, and with a large quantity of good fortune, the inter-mod that could result when you combine 94.3 MHz and 54 MHz (TV channel 2) will not occur. A full report (*is expected*) at the June meeting and on two metres, of course.

**From September '75 High-Q:** After about a year and a half of preparation and construction, the much talked about and long-awaited repeater for Thunder Bay is finally in operation. VE3YQT was been placed on the air from the Mount Baldy site on June 4, 1975 at 2345 EDT. Bert Tamblin - VE3ANP had the honour of being the first station to use it, his contact was Ray Greer - VE3CH.

An immediate problem was noted when the unit activated for the first time. The ID was badly messed up. After a quick consultation it was determined that RF from CKPR's transmitters was causing the problem. A search of the basement soon located a piece of copper mesh which was

fitted over the end of the box housing the plug-in boards containing the ID, Timer and Regulator circuits. This cured the problem.

The results were gratifying to the crew on the mountain because there was no front end desensitizing or inter-mod from CKPR's transmitters (over 200 kW ERP).

Within a few days, a good idea of the coverage was determined. The survey indicated Highway 17 East was good for 40 miles, Highway 61 South was good for about 25 miles, Highway 17 West was workable for 40 miles (to Shabaqua Corners). Secondary highway coverage gave indications of the same average of 40 miles. The fellas in the Upper Peninsula (Mich.), about 90 miles, were able to hit it with mobiles and hand-helds.

For the past three months, the machine has performed extremely well, surviving a few thunder storms and power failures. It felt very good to hear the ID even though CKPR's equipment had been knocked off the air because of power failures. In this period of time, two faults have shown up. One was the loss of the delay in the timing circuits, which results in an instant drop off on the repeater when the activating transmitter drops the carrier. The Identifier is sure working hard these days. The second fault is evaporating battery water because the batteries are over charging. The efficiency of transistorized equipment is the source of the problem here. The batteries are not working hard enough. A solution will be found in the fall.

All-in-all, the system works quite well, and Chief-Engineer, Laurie Bridgett - VE3BCD, and his crew are already planning changes: to enhance the over-all coverage (antenna improvements), an increase in transmitter power level, refinement in the ID/Timer circuits, adding UHF control links and telemetry and most difficult of all...building a complete second system in case of failure of the first.

Last June's High-Q contained vital information on how to best utilize the advantages of a repeater, and it is recommended reading, if you have not already done so.

From **December, 1975 High-Q**: VE3YQT was recently worked on to correct a hum problem that occurred after the two six Volt batteries were replaced with a single 12 Volt battery. The long-missing tail has been restored and a half-volume ID level circuit was added. The severe buzz that recently developed has also been eliminated, hopefully permanently.

All local stations making use of the repeater are morally obliged to financially support the FM Association to provide funds to upgrade the repeater system. Send or bring your dues to Ray Forslund - VE3EDZ direct or via Box 2571, Thunder Bay.

The **May, 1976 High-Q** reported on five hardy souls who braved April showers to give VE3YQT its spring check-up. Drs. Phil Moorey - VE3AXL, Laurie Bridgett - VE3BCD, Ray Forslund - VE3EDZ, Bill Klemacki - VE3EEW, and Greg Kasstan - VE3HXX performed the operation. Phil and Bill climbed the tower to check out the heliax and antennas, they advised that they are holding up so far. Laurie and Ray worked on the half volume ID circuit in order to cure some noise on the repeater, the culprit was a leaky transistor which was replaced but late word has it that the problem is back. The battery was checked and the charging circuit was adjusted. Greg decided to retune the finals of the machine in order to give it that last bit of umpfh. He managed to squeeze out 29 Watts with only four reflected.

The same High-Q also carried the following, "While I'm on the subject of repeaters it seems that there is a move afoot to do some antenna work at VE3YQT. The existing antennas may be replaced with a commercial version, if the bank account *can afford it*. Also planned for this summer is to move the antennas from the south *tower* leg to the west leg in order to extend coverage of Highway 17 to Raith and the Spruce River Road area."

"With all this work about to be undertaken, anyone who is operating on the repeater should help by prompt payment of his dues to the Thunder Bay FM Association. The Treasurer is Ray Forslund - VE3EDZ."

From **February '77 High-Q**, Membership in the Thunder Bay FM Association is still \$10.00.

The same High-Q reported that after good and faithful service for several years the repeater was in need of some reworking. The main thrust for this overhaul is to replace the two home-brew antennas with a commercial version at a higher level (near the 500 foot mark) on the CKPR tower. The antenna that the group hopes (*to get*) is a Sinclair job that will give much better coverage to the region North of the City, without any loss to the other directions now being covered. The cost of this antenna is around the \$400.00 mark. Since we are now planning to use only one antenna (*instead*) of the present two, a duplexer will also be required, this will allow both the transmitter and receiver to be fed into the same antenna. A specific model of duplexer has not been settled upon as of yet but several models are being studied. The price range of the models we were looking at is \$600.00. And last but not least, the other project for VE3YQT is to put in an Auto-patch. How many times have you been mobile and have not been able to raise anyone on the repeater, with the addition of the Auto-patch this problem will be solved. By the time we get the Auto-patch circuitry and controls in, this will add another \$300.00 to the account.

The FM Association has had a meeting recently to discuss how to raise the necessary funds and several plans are now being checked out. If you have any ideas let Phil Moorey - VE3AXL know. Now, though it may seem like a drop in the bucket don't forget that the FM Association dues are now payable to Ray Forslund - VE3EDZ. A year's dues are \$10.00 and if you wish, you may pay as many years in advance as you wish.

When all the above plans are completed on VE3YQT, Thunder Bay will have a repeater second to none in Canada, so give any support to this plan that you can. See you on the repeater.

This chronology was compiled in 1996 with the benefit of looking back on national and international developments related to repeater use over the years on both sides of the border. Of course the American Radio Relay League 2 Meter Bandplan had not yet been fully accepted. The input/output split was essentially a matter of preference within local geographical areas. In light of today's widely accepted concept of repeater frequency pairs, it is interesting to note the frequencies assigned to Ontario repeaters found in the February '77 "The Canadian Amateur". The list included 59 repeaters in 39 communities across Ontario. All machines with an output of 147.06 MHz also had an input of 146.46 MHz contrary to the widely accepted 147.66 MHz found on most units south of the border today. Indeed, one of those repeaters in Windsor (VE3III) also had a second input at 146.28 MHz.

The April, 1977 High-Q carried an observation on activity overheard on the repeater. Apparently some ham operators found it far too easy to slip back into their old CB habits.

"One night after listening for a while a ham noticed he had 22 channels on his rig, and he must have then got confused with those other people. Although he understood everyone else, he kept saying "10-4 good buddy" and other weird things. Please remember that when you passed your Amateur Certificate you were examined on operating procedure and hopefully passed."

"Please, it's hard enough to tell us apart from the GRS, now we don't need people on the amateur bands sounding like them."

LARC