Belmont repeater history
by Don Heide, W7MRI
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The original Belmont repeater was started sometime in 1968, but did not look like it was up until 1970. Here are some clips from Sparks, the CCARC newsletter of the time that I have found in the scrapbook.

The club is still working on a Two-Meter repeater for McDonald Pass. If the license can be worked out, we will have the Two-Meter rig on the air soon. This repeater placed atop McDonald Pass should give nice coverage for all Two-Meter hams in the Helena area.

11/1968

In particular I like the statement at the end of the second article about possibly being the first repeater in Montana. In talking to Ed W7ARO he sent me some pictures of taking the first 34/94 repeater to XL Heights east of Butte in March 1971.

The Helena club is making good head way on the Two Meter repeater for McDonnald pass. The transmitter 146.760 mHz and the receiver 147.340 mHz are in working order now. We do have a small problem with the transmitter, but will have it cleared out soon.
Don K7SRA made us a nice pair of ground plane antennas for the repeater.
The only real problem now seems to be the license and the transmitter control..
The FCC requires all transmitters to be under control of a direct wire loop, or a 400 mHz controllink.
With some doing we will get the control by one of the above means.
We hope to be the first repeater going in Montana.....

12/1968

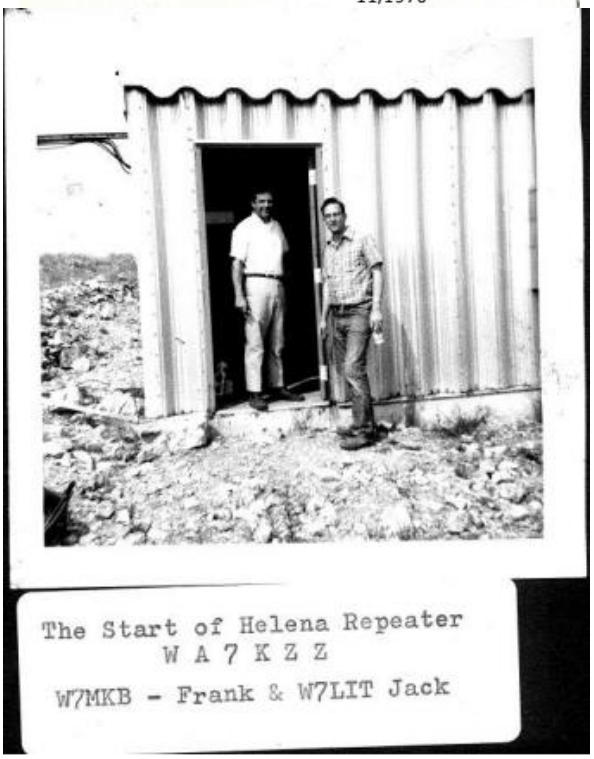
In the November 1970 issue of Sparks there is a note that the repeater is operational in the valley on 34/94. I have not been able to find any proof as to when it was taken to Belmont, but do have several pictures labeled "Start of Belmont Repeater" with the call of the repeater license WA7KZZ received on February 18, 1972.

THE TWO METER REPEATER...

... is now in operation, thanks to a great deal of good work by K7ASW Tim Vanek and others. For the present the rig is located at Tim's QTH in the Helena Valley. The frequencies are 146.340Mhz Input and 146.940 Mhz output.

11/1970

So, with that information I would say that maybe Helena had the first repeater operational, but it looks like Butte had the first repeater operational on a mountain top.



In 1975 the FCC required repeaters to have a special call, so it was changed to WR7AFE and the frequency was changed to 16/76, as it was listed in the 1976/1977 ARRL repeater book with information from January 1975 as the Capital City ARC. In the same book were listed a total of 4 repeaters in Montana.

By the early 1980's the FCC again changed their mind and quit giving out special repeater calls and you were to use the repeater trustee's call, which was W7CT.

I do remember first using the 146.76 Belmont repeater on a trip over to Montana for work in about early 1978. At that time, it was controlled by Les Crowder W7CT located in the Lewis & Clark County communications building that is still on the

mountain, though will probably be taken down this year (2020). Les would remotely turn on the repeater at 6:00am sharp every morning and turn it off at 10:00pm every night!

Sometime in the mid 80's it was decided to replace the aging home-built repeater with a new Yaesu repeater and the frequency was changed at that time to 147.82/147.22. This was upside-down to the normal frequency band plan due to a mix-up in ordering the crystals used to set the frequency by the repeater trustee at the time.

Here is a picture of the then-new repeater and of me (W7MRI (ex-WB7ETT)) checking out the repeater for the first time when asked by the club to maintain the repeater in the early 1990's.

This is a picture of the duplexer that allows the use of a single antenna for both the transmit and receive functions at the same time.

Other than a few broken antennas, replaced with the help of Ralph WG7Q on the 120-foot tower in the middle of December, everything worked well.

In early 1997 we were told we would have to remove the repeater and antenna from the county building in the summer of 1998 as the building was quite small and they needed the room for expansion of the county communications system.

Several years previous a local radio station had moved the transmitter of their station to the top of Belmont, poured a concrete pad and anchor points for a large tower, and installed the equipment on the west edge of the mountain. I don't remember the exact year, but not too long after it was installed, a powerful storm with high winds came along and blew the building off the pad, hitting the tower and buckling it to the ground! I do remember going up the following spring and seeing the transmitter and tower smashed beyond use with parts down the hill.

Back to 1997, the concrete pad, tower base and anchors were all that was left except for a disconnected power feed. At that time, I started asking around about who the owner of the pad was and ended up talking to the Bureau of Land Management (BLM) office in Butte that had jurisdiction over the site. I was told that the site had been abandoned and if we wanted to utilize the site, we would have to put in an application including plans for the building and tower. Also, one of the restrictions was that it could only be used for amateur radio and no commercial use allowed. Such a problem for amateur radio!

With the advice of Dwayne K7SYO, I drew a set of plans for the building and outlined how the tower would be installed and submitted the application to the BLM with the $175 one-time fee. Very shortly thereafter we were sent a letter of approval and the site was the club's.

Since Dwayne was a contractor and had a spot at his shop, he offered to furnish the materials and build the building. As near as I can remember those helping were Bill K7MT, Chris KC7VCY, Cliff KC7QLM (sk), Bob K7HLN, John KB7EBL, Bill N7MSI, Rich N7GC, Bill Craft, Dwight KC7ZPK (sk), Sam KC7VWA (sk), myself and others. The building is 10'x10' and constructed of steel studs screwed and welded together. Dwayne also knew some contractors that could provide full blown-in insulation for the walls and ceiling and also a commercial rubber membrane roof that is sealed down around the edge of the walls, and a full commercial steel insulated door for access.

This was all loaded onto Dwayne's flatbed trailer and a full caravan of helpers headed for the top of Belmont. Unfortunately, I had to be out of town for work that day, but have heard many stories of taking that up a narrow dirt road to the site and unloading it perfectly onto the concrete pad. It was then anchored to the pad with commercial concrete anchors every 16 inches around the building. To this day it has not moved.

Also, during this time 7 commercial Rohn tower sections were donated. With the help of Bill K7MT and helpers, a 70’ tower was erected that is guyed at 3 levels to the existing anchors. Near as we can tell, about 5 yards of concrete were poured into each of the holes blasted out of pure rock and have 6” I-beams coming out of them to tie the guy lines onto. We are using 5/16” guy lines.

Ralph WG7Q did all the wiring to code since he is a licensed electrician, and Montana Power (now Northwestern Energy) ran the main feed buried from the pole to the building from a separate transformer. We have 100 amps at 220v if needed. There is also electric heat if we should need it for any reason, but it is normally left off.

Since amateur radio is exempt from fees per the BLM regulations, the only cost involved are equipment upkeep, and the monthly power bill.

Here is a very nice picture of the site looking north towards Lincoln with a lightning bolt in the distance! I believe this was taken by Bill K7MT as his truck is in the bottom right.

Overall, it is a very good site as from there you can see Anaconda, Riverdale Hill south of Great Falls, and Point 6 near Missoula. It is 7322’ elevation at the base of the tower, and 170’ from any other communications site.

In the spring of 2012, the Yaesu repeater was removed and a Motorola MSF5000 repeater installed. At that time the frequency was changed to 147.220 output and 147.820 input to comply with the 2m frequency band plan. A PL tone of 100.0 Hz was added to eliminate any interference.

In August 2012 the antenna was replaced with a commercial 4-bay dipole.

To honor Dick Beaton N7RB (sk), a longtime member, the club was given permission by his family to have his call as our club call. In 2015 we applied and received the call to be used by the club and also for the repeater.

If anyone has more information or corrections, please contact me so I may update this document.

Don W7MRI