



September 1994

The Ohm Tower News

Voice of the Bridgerland Amateur Radio Club



Elaine and Nate Ricks, KC7BDS & KC7DHC operate the Forest Service radios at Beaver Command

HOT TIME AT BEAVER MOUNTAIN

By Kevin Reeve N7RXE

Yes it is old news by now, unless you were out of the valley and out of .72's range, you know the involvement of RACES and members of the Bridgerland Amateur Radio Club. On Tuesday August 16th a fire was reported burning near the Beaver Mountain Ski area in Logan Canyon. Immediately Lt. George Becker of the Cache County Sheriffs office activated RACES.

By 5:00 the Mobile EOC was on its way up the canyon. The mobile EOC is mounted on the back of a 5 ton 6 x 6 all wheel drive army vehicle. Tagging along behind it is a 50KW diesel generator. Inside the EOC is an Amateur Dual Band radio, a 2 meter packet radio, TNC, computer and printer, a HF radio and tuner, 4 sheriffs radios and an electronic weather station.

"Here we go, this is what we have been training for", thought DeAnn Jensen KB7LLG as she and Mark N7EVJ, headed up the canyon. Mark and DeAnn, along with other RACES members have been

training to assist the county with communications in an emergency, but the training was now over, or was it. In the long run this exercise turned out to be the best training that any amateur radio operator could have asked for.

In the early going Nate Ricks KC7DHC used HF frequencies to pass health and welfare messages for firefighters into California. There is no phone at Beaver Mountain so HF was the only way out. He was even able to get confirmation back that messages were delivered. "Once I got onto the HF radio and amateurs heard our situation there were plenty offers from amateurs all over the west to pass messages for us," said Nate.

Forest Service personnel started arriving on Wednesday evening. Gary McCardle, Incident communications officer with the Forest Service started setting up radios and repeaters to support the fire fighting effort. "I thought we might be operating 2 or 3 radios," said Mark Jensen N7EVJ, "not the 6 that we ended up with, and sometimes they started going all at once". Amateurs soon were faced with a new set of policies and procedures. The BLM requires every message, or communication to be logged with time, ...

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The Mobil EOC shown here was the command center for all communications from Beaver Mountain.

HOT TIME

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station contacted, comments and operators name.

Eventually the logs become a permanent part of the fire record. Messages received had to be written on message forms before being delivered.

On non amateur bands, there is a different language being talked. Nobody knows what QSL means. Most of the Forest Service office personnel do not know the phonetic alphabet and the sheriffs dispatchers and officers use the 10-codes.

The .72s auto patch was kept very busy ordering supplies, food, coordinating personnel, and even life flight. Occasionally the call was a fire fighter to his wife or fiancé giving them the bad news. "I am committed for 21 days."

Efforts to set up a reliable packet link failed. The Snowbird digipeater could be heard on occasion, but because of its location and the amount of traffic passing through, it provided to be an unreliable link. "Packet would of been a valuable asset," stated Tyler Griffiths N7UWX, Cache County Races coordinator, "We tried for several days to get something going there, but because of our location we needed a dedicated digipeater."

"Everyone did a great job. It was something that most of us had never done before," said Brian Potts, KB7FUB. "We have a lot to work on and we will be better the next time." Reports from officials at the fire have nothing but praise for the Amateurs efforts. "They learned fast, got the job done, and everyone got along," said Gary McCardle. The Forest Service usually brings in a team of communications specialists for a fire but according to Gary there were not any to be found because of all the fires burning in the west.

The Mobile EOC operated until Wednesday the 24th. When all was done over 700 man hours were put in by the amateurs and over 700 communications via radio were completed and logged. It was a monumental effort by local Amateurs. Many took off or rescheduled work to help out. Some went beyond the call and put in a lot of extra hours, sometimes without much sleep. Still others in the valley monitored and offered help when needed. To all who helped in any way, What a great job!

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PRESIDENTS CORNER

By Dean Stevens N7WDY

The month of August has been a very eventful one. With the Beaver Mountain fire, everyone seemed to be a little more, shall I say alert? Thanks to the many of you that helped in one way or another with the fire. We even has some Hams up on the front line fighting the actual fire. Thanks guys. A job well done. I am sure that everyone that was involved in one way or another can say that this has been a very good learning experience. I won't dwell on this any more because our RACES people will be discussing all the details and happenings in an up coming issue of the Ohm Town News.

I would like to make an official announcement, that BARC is having a Contest!!! I discussed with our club officers at our last board meeting the need to have an official club logo. We have decided to involve all of you in this and have a contest to see who can design the best logo. It will need to fully colored. At our November club meeting we will display all the logo's and vote on the best one. Now the winner will receive a \$20.00 gift certificate from Ross Distributing. So everyone that is interested, sharpen up your pencils, designing and coloring abilities, and we will see the winning logo in November. Have fun, and good luck!!!

I thank everyone for all the help that has been rendered toward the club to help it run smoothly, and look forward to seeing as many as possible at our September club meeting. Until then, you have the rest of a great summer.

73's
Dean N7WDY

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THE LOOP ANTENNA

By Dr. Clayton Clark, AC7O

There has been much interest lately in the loop antenna, stimulated somewhat by the commercial units such as the AEA and MFJ high Q loops. Excellent articles in QST and other ham magazines have shown how to build tunable loops.

This discussion is intended to show that loops are compromise antennas with special purposes of small size, portability and concealment. Their efficiency is low and they are usually located in space with objects around close that could absorb and...

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LOOP ANTENNA

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distort the pattern of the radiated waves. A half wave dipole up in the clear should always out perform a loop for reasons listed below.

The dipole gives more than 90% efficiency while the loop probably is more like 30 to 50 percent. The reason for this is as follows:

Any antenna, when reactance is tuned out, appears to the transmitter as two resistors in series. One is the radiation resistance which represents useful power put out into space and the other is ohmic loss resistance of the conductor which is higher for RF than for DC. The dipole has a radiation resistance of about 70 ohms at the center feed point if it is high enough above ground. Its ohmic loss resistance is probably less than one ohm. Power is the current squared times the resistance so the power radiated is high for the dipole compared to the power lost in heating the wire.

The loop antenna has a radiation resistance around one or two ohms or less so to get power out you must have high current. For example, with 100 watts into a radiation resistance of 2 ohms more than 7 amps (RF current) is required. Commercial units are designed to make their ohmic loss very low. They use strap conductors rather than round tube, welding direct to tuning capacitors to avoid small leads, butterfly capacitors that have two stators and no wiping contact to the rotors and still it is hard to get the RF resistance below one ohm. If the radiation resistance and the ohmic resistance are the same value you have 50% efficiency. The commercial loops do a good job and they seem to perform well but they are very critical to tuning with any change of frequency and they are seldom up in the clear, away from absorbing objects.

A dipole is hard to beat. The center, where the maximum current and radiation occur should be as high as possible. If you can not make it flat let it slope with quite good results. If you can not get the total length on your lot make it flat as far as you can then let the ends droop down. Tie it all securely with insulators, of course, and remember that the drooping ends are very hot to RF. Less radiation occurs from the ends but the total length is necessary for resonance. Do not shorten it with a coil in the center as the coil has loss, reducing the efficiency and the best radiation occurs in the center where the current is greatest. The same is true if you use a parallel feed line in the center, as in the G5RV, and reduce the length. The parallel feed line is like a coil.

Because of earth reflections the dipole radiates well in all directions with approximately twice the power (3 DB) in directions broadside to the dipole

compared to signals in line with the dipole. Loops have some directionality, depending on size and polarization, but horizontal loops radiate quite well in all horizontal directions.

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NEW AND IMPROVED .72

All members of the club should have received a letter about the new plans for the .72 repeater and the plans to put in new systems at Red Spur and Riverside. In addition the old .72 repeater will be moved to the Cache County EOC building with an auto patch. Wally Gibbons WB7ASK, reports that work on the new .72 repeater is going well. The new system is being built and tested here and then will be moved to the mountain.

A few delays in the arrival of parts has set back the trip to Mount Logan but as soon as it is ready and tested, a trek will be made. The Mount Logan and Red Spur systems are the top priority because of lack of access to those sites during winter months. Work on the Riverside system will then proceed when the Red Spur and Mount Logan sites are up and running.

Thanks to all those who have sent in donations to the repeater fund.

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AUCTION TO SUPPORT REPEATER FUND

Do you have any old stuff that you might wish to get rid off. Well here is your chance. Donate it to the club to be auctioned off at the September club meeting. Proceeds will go towards the new repeater system.

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TESTS

LOGAN -- September 10th, 8:00 AM at Old Main on the Campus of Utah State University. Computer Lab on the 4th floor. Contact Paul Hansen W07N for a reservation. 753-4843

OGDEN -- November 5th, 8:00 AM Weber State U. Engineering Tech Bldg, Room 24. Contact Mike Fullmer, KZ7O. 731-7573

SEPTEMBER CLUB MEETING

September 8th, 1994
7:30 PM, Cache County EOC

Eldon Kearnl KB7OGM will be the guest speaker. He has a slide shown on various repeater systems throughout the state. Eldon is the owner of the Bear Lake Repeater. An auction will also be held to help raise money for the BARC repeater system. See above article for more information. A debriefing for all those involved with the Beaver Command will be held after club meeting.

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THE UTAH VHF SOCIETY

By Clayton Clark AC7O

The Utah VHF Society was formed more than ten years ago for the purpose of supporting and coordinating communication through out Utah. It coordinates frequencies and supplies some funds to help install and maintain repeaters in remote places for the benefit of all of us. They have given us some money to maintain our .72 repeater. The amount they can supply depends on how many of us pay our dues. They have said they would help with our new antenna when we get it.

The VHF Society holds a wonderful swap meet each spring in the National Guard armory in Salt Lake. The admission price is your annual dues to the society, \$10. That works out very well because we have a great time at the swap meet and get our dues paid at the same time. We get our dues in value also from use of the repeaters around the state that they support. (Actually "they" means all of us who pay our dues.)

Also when we go to the swap meet and pay our dues we get a valuable listing of all dues paying members in the state. I have found that booklet very useful.

If you wish to pay your dues other than at the swap meet you may send \$10 to: Utah VHF Society, PO Box 482, Bountiful, UT 84011-0482.

Nets

VHF Nets

Bridgerland	Tuesday 9:00 PM	146.72
MARA (local)	Sunday 9:00 PM	147.20
UARC info Net	Sunday 9:00 PM	146.62
UARC Packet	Sunday 8:00 PM	146.62
UBET	Wednesday 8:00 PM	145.29/145.43
VHF Swap-Net	Tuesday 8:00 PM	146.94
RACES*	3rd Thur. 8:00 PM	146.68/145.49

UHF Nets

Bridgerland UHF	Wednesday 8:00 PM	449.80
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HF Nets

Beehive	Daily 12:30 PM	7.272
HF slow code	Daily 7:30 PM	3.710
FARM	Daily 8:00 PM	3.937
MARA (voice)	Saturday 7:30 AM	3.918
MARA (cw)	Saturday 8:00 AM	3.723
RACES*	3rd Thur. 8:00 PM	3.650
Utah MARA (voice)	Saturday 8:30 AM	3.873

Code Practice

K7HLR	Daily 7:30 & 9:30 PM	156.58
	also on 3.698 MHz & 7.092 MHz	

*NOTE: RACES Net is on VHF in even months and on HF during odd months. You must have a RACES number to check in.

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Dues to the Bridgerland Amateur Radio Club are \$10 per person or \$12 per family. On family memberships only one copy of the Ohm Town News will be sent unless individual memberships are paid for by each person wishing to receive a copy.

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