
NZLSAR News

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Inaugural National SAR Award – 2001

NZLSAR had the pleasure of nominating AREC for the National SAR Award, for their long commitment to Search and Rescue in New Zealand, not only Land SAR, but assistance with Marine and Class III searches as well. It was gratifying that AREC was the ultimate recipient of this Award.

After a number of attempts to schedule a presentation ceremony, the date of Friday 1 Feb was finally selected.

The Marine Safety Authority hosted the event in their building in Featherston Street in Wellington.

The Honourable Marian Hobbs MP made the presentation of the award itself, and **Brian Purdie the AREC National Director** received it.

Most of the AREC management team were also present and went forward as part of the presentation. A representative from NZART, their parent body, was also there and presented copies of a history of Amateur Radio in New Zealand to dignitaries.

Representatives from MSA, CAA, Police, and myself for NZLSAR were also there for the award presentation.

The Commander and representatives from the crew of HMNZS Resolution were in attendance, as they were recipients of a Certificate of Commendation for their rescue of a shark attack victim near Minerva Reef near Tonga in July 2000.

An afternoon tea of Muffins and Scones followed the presentation speeches, and very nice they were too.

Steve Davis
NZLSAR Committee



This is a recent award, and the first time it has been presented. It is intended for individuals or organisations involved in any aspects of Search and Rescue in New Zealand (see *explanation of the Award on page 4-5*).

HF Radio, what it can do now, what it could do in the future

Introduction

HF SSB radio is not as clever or as convenient as VHF but it is not going to go away. There are places where the land is too steep or the population too sparse to make the investment in a VHF infrastructure an option. In this article I shall be looking at how to get more functionality from HF radio, beyond the traditional "Hello you, this is me" broadcast scenario.



Selcall

Selcall is an abbreviation of the words *selective calling*, and is the single most useful enhancement to HF. In simple terms (because I am not an engineer), selcall is a string of warbling tones that are recognisable to a machine. Selcall is very robust and can be correctly interpreted in conditions too poor for voice communications. Every single radio (and groups of radios if you wish) is identified by a unique number known as its selcall number. This enables the radio (depending upon its degree of sophistication) to make some decisions and convey information without additional human input:

1) An individual radio can be muted so that nothing is heard until its own selcall number is addressed.

- 2) The radio initiating the call is identified by its selcall number to the receiver (like caller ID on a telephone).
- 3) If a radio call is missed, the Selcall number of the initiating radio is displayed on the receiving radio, facilitating a call back.
- 4) A radio can automatically respond to selcall (beacon call). This proves the communication path, therefore if no one is talking to you it is because no one is there to answer, not because the equipment is faulty or propagation conditions poor.
- 5) Scanning becomes more reliable because the scan will only pause for recognisable selcall tones, and will not lockup on noise. Reliable scanning means more channels can be used and more channels mean more reliable HF communications.
- 6) Selcall enables HF radio to automatically link to the telephone system (telephone interconnection). The fact that the base radio operator has gone home is no longer a barrier to communications.

The full potential of selcall can only be realised when every radio is selcall capable, fortunately it is possible to retrofit selcall capability by buying an intelligent microphone.

Further Enhancing Functionality

Probably the greatest single advantage VHF has over HF is the fact that it can be left switched on whilst walking about. HF aerials tend to be two orders of magnitude longer than VHF and dragging 30m of aerial about is not really an option. In practical terms this makes HF field radio a very good safety tool because it has long range and is not limited by line of sight propagation paths, but a very poor management tool because communications can only be initiated from the field end.

But it is possible to cheat a little, an active aerial substitutes electronics for metres of wire. Thus a box, about the size of a pack of cigarettes, with 0.5m of aerial sticking out of it is good enough for a radio to detect its own Selcall number and go "beep". This tells the operator that someone wishes to speak and it is time to erect the full sized aerial and make contact. This may not sound like a great achievement but, in fact it utterly transforms HF communications to parties on foot as now both ends of the link can initiate

communications. This is not mere speculation, prototype active aerals have been tested and they work with Selcall.

This next bit, however, is pure speculation. Selcall has been developed further so that short alphanumeric messages can be sent using the same warbling tones. This is useful if you have a vehicle to feed the power demands of a modern HF radio, less useful if you are on foot with a radio running on penlight batteries. However, an HF pager (= radio for receive only) need not be too big or heavy, and the base could send short messages in addition to alerting a field operator of the requirement to stop and establish voice communications. Just an idea, but I think it's rather a good one.

Telephone Interconnection

As suggested above, interconnection to the telephone system means that a field radio operator no longer needs a base radio operator in order to be able to talk to someone. Telephone dialling can either be by pressing buttons in the usual manner (known as *telcall*) or by calling a specific selcall number that then automatically dials a preset number (like a speed dial). Of the two, speed dial is much more robust and is the preferred option for safety critical communications. At present DoC, MFish and Mountain Radio are all using telephone interconnection and DoC finds HF telephone interconnection so useful that it is planning to expand it to cover the whole country.

Reliable HF communication requires multiple channels and a choice of destinations. A single interconnect can scan up to ten channels, satisfying the need for a choice of channels, never-the-less a selection of receive sites is also required if a low power radio (4W) is to be confident of linking in.

A single interconnect feeds a single telephone line. To have more than one telephone line requires multiple interconnects and that requires the radio transmit and receive sites to be separated from each other. However, the benefit is that doubling the number of telephone lines more than doubles the chance of a line being free for your call (because each line is not in use 100% of the time). Indeed, once transmit and receive are separated, as many as eight interconnects feeding eight telephone lines, can be run at one site.

Time for a little more speculation. Assuming that co-operation were achieved and the right consents given, then:

- 1) If every telephone interconnect were to scan the SAR day and SAR night frequencies in addition to its own channels then:
 - a) The police and NZ Land SAR would have instant access to all telephone interconnects and could use them for emergencies.
 - b) By having SAR day and night channels on their radios, DoC and others would have emergency access to all other telephone interconnects, thereby increasing the number of accessible receive sites and potentially preventing an accident turning into an emergency. Coincidentally those radios would be channelised for SAR operations if required.
- 2) If all current and future users of HF telephone interconnection were to co-operate, costs could be reduced and functionality increased, i.e. instead two independent sites with one telephone line each, one site, with separate transmit and receive, could be established with two interconnects (and possibly as many as eight). This would more than double the accessibility of a telephone line and would permit more users. More users would proportionally reduce costs. Some users may even be commercial, permitting revenue generation from the site without reducing its primary function of safety for field personnel.

Conclusion

Selcall can be retrofitted to all HF radios and brings many advantages. Some, such as improved scanning and telephone interconnection, dramatically improve functionality and thus safety. Others, such as active aerals and HF paging, are not yet in use (so far as I know) but have the potential to turn a safety communications tool into a safety *and management* communications tool.

Lastly I have indicated that hardware is only part of the equation. If organisations co-operate and were to co-ordinate the establishment of HF telephone interconnection sites, there is the potential to increase functionality and reduce running costs.

Whilst I would be delighted if this article were to catalyse such co-operation, please do not

assume any official status or endorsement for my thoughts expressed on these pages.

Matthew Lloyd, MComms.

National Voice Communications
Science, Technology and Information Services
Head Office. Department of Conservation

A wild and wet search exercise

On the weekend of 14/16 September 2001 over 30 volunteer searchers and police From Tauranga, Kawerau, Whakatane and Opotiki combed an area in the Waimana Valley for three "missing" parties. The practise exercise was also a challenge for local volunteer AREC people with three AREC people from Gisborne assisting. The exercise was organised by the Whakatane Land SAR squad headed by **Ray Walker**. The Te Urewera Lions Education Centre at Ngutuoha in Te Urewera National Park was used as the headquarters. **Pete Shaw** acted as Search Controller ably assisted by Advisers **Gus Garaway** and **Tiki Hutchings**. **Brent Martin** Tauranga SAR acted as a Referee.

On mid Friday afternoon two teenage boys were reported missing between the Tauranga River and Onepu Stream. Quick response search teams located sign up the Onainai Stream before dark curtailed searching. Later that evening another report was received of two missing hunters in the Aruhepapa Stream – Te Toi Stream area. In depth planning on the Friday night had searchers in the field at first light on Saturday and the two teenage boys were located by 0700 hours. Meanwhile early on Saturday morning another report was

received of a further two persons missing in the Otapukawa - Otane area. Heavy rain and poor visibility hampered searchers. However persistent tracking and the use of a search dog eventually had the general area of both the missing parties narrowed down. On Saturday night one of the missing teams was found by **Geoff Harcourt**, deployed in a passive-searching role. Later on that evening the search team led by **Kevin Marsden** and Ray Walker encountered the last missing party as they sought shelter from the weather.

The use of both HF and VHF radios (with portable repeater) overseen by **Allan MacDonald** Whakatane AREC meant that good communications were maintained throughout the exercise. Searchers trained in TCA, the use of a tracker dog and the dedication of the search teams made for an exciting but challenging weekend.

Special thanks to the Whakatane Adventure Centre (Great Outdoors) and A1 Electronics sponsorship

Pete Shaw
Advisor Bay of Plenty District

National SAR Award, an explanation

The Award

The New Zealand National Search and Rescue award is presented annually by the National Search and Rescue Committee (NSRC). The NSRC membership includes representatives from CAA, MSA, Police, Defence, Aviation Industry Association, NZ Shipping Federation, NZLSAR, Coastguard and AREC.

Award criteria

- This prestigious award is in recognition of an "Outstanding contribution to search and rescue" within the New Zealand region.
- It is awarded annually at the National Search and Rescue Committee meeting.
- The award is open to any individual or organisation and may relate to a particular event or a sustained contribution over a period of time.
- The successful nominee will have made a significant contribution to New Zealand's Search and Rescue ability or to the saving of human life.

With five nominations received, a selection committee was set up which considered the merits of the nominations and presented a recommendation to the Search and Rescue Operations Committee (SAROC). SAROC in turn endorsed the advice given and forwarded the recommendation to the NSRC. After consideration they decided the recipient of the 2001 New Zealand National Search and Rescue Award would be – Amateur Radio Emergency Communications.

AREC with a history dating back to the 1920's of providing a volunteer communication service are worthy receivers of this Award. I include below a passage from the letter putting forward their nomination which I think sums up well the reason AREC have won this prestigious Award.

AREC has been a long time volunteer contributor to the helping of those in distress, often under the most difficult of circumstances. However NZLSAR has observed that they are not bound in their history. They are a progressive organisation with a Mission Statement and Objectives which they not only promulgate but are actively acting upon. AREC are indeed a worthy recipient of the National SAR Committee Award not just for their previous or even present contribution but also for their efforts to provide excellence in the future.

Congratulations AREC from us all.

John P Tristram, NFO

An elderly man stuck in a blackberry bush

We seem to be getting more and more of this type of short search. This truly indicates why "search is an emergency", and the reasons for modern techniques like night searching, use of dogs, and immediate response particularly using urgency assessment guidelines.

At about 1913 hours on Thursday 30 August 2001 the Central Police Communications Centre received a call from a family member. A 79 year man and a tan terrier had gone missing in an area in Paraparaumu adjacent to the motorway on the east side and covered with a large area of scrub on the west.

Little was know about the man at that stage. There was a brief description and a possibility he had blood pressure issues. It was not known if it was high, low, or if he was taking any medications for it.

His fitness level was not known so a Police patrol was dispatched to interview the informant and clarify some of these questions.

As the Duty Police SAR Coordinator I was paged at 1925. After reviewing all the information available and instructing the patrol on the information required, I gave instruction on the initial area to be searched by local Police. An Adviser was paged at 1939, with the Wellington Land SAR organisation code of "consultation".

Tom Clarkson immediately responded and we discussed the scenario. We agreed that more information was required but as the situation presented itself there was sufficient information to warrant placing SAR personnel on standby. The actions we agreed to take included:-

Myself

- Page the Police SAR Squad for standby.
- Contact a civilian dog handler and place him on standby.
- Contact the Ambulance Service for advanced warning of possible deployment in the area.
- Monitor the enquiries made by the Police patrol at the informant's address and reassess if required

Tom

- Contact a Field Controller (Operations Manager) and put them on standby
- Have at least one volunteer team on standby.

As it happened, just before being notified of the missing person I had been talking to **Matt Nolan** who was in the process of selecting a vintage bottle of wine before going out to dine. Matt was again contacted via his cellphone, asked to be Field Controller to which he agreed.

The Police patrol sent to do an initial interview with the informant was **Stu Laurie**, a senior experienced Police member. The information that came to light was that the missing man had high blood pressure, and was taking medication for it. He normally only walked the dog for a very short time (just over 15 minutes), and usually only did this in the back yard or in the street. This time he mentioned he was going into the reserve some three houses away. Recently he had instances of where he "became disorientated".

Stu's appraisal was that SAR be activated as he felt concern with the situation and held fears for the man's safety.

Coupled with some other information, I felt that the "Urgency Assessment" had dramatically

increased so at 2013 I sent out another coded page 444 (Adviser urgently required). Tom was again quickly in touch with me and an immediate action plan initiated. Tom and I set the time line of the first shift to be change over at 0200 hours and arranged our relief's prior to leaving to home.

The resources placed on standby by both of us were activated. The local Police were to commence a search of the area starting from the houses and area adjacent to his home (including that property) which at that time was the Point Last Seen (PLS). An on duty police dog was to be activated if available.

The equipment was hastily gathered and all personnel headed to the Paraparaumu Police Station for a 2120 briefing. Fortunately a local Police Officer, also a SAR squad member, **Bruce Johnston** (otherwise known as Mort due to a previous occupation as a mortician) and a volunteer for the local ambulance, who knew the area very well started a track search in the area west of the house in the fields.

Mort made voice contact with the missing man within about 1 km in a direct line from the PLS, at about 2100. The man's son, who had also been out looking, heard the dog bark at the same time. The missing person when found was stuck in thick blackberry with the dog, so stuck that he could not extricate himself.

Mort was within 10m of the trapped man and dog but was having trouble getting any closer. The SAR Landcruiser with the scrub clearing equipment was held up briefly 25 kilometres away at a Evidential Breath Test Compulsory Stop at the Plimmerton weigh bridge. It got through this with a quick flash of the blue and white lights and it passed Tom on the Raumati Strait not far from the scene of the man trapped in the blackberry. It does speed ones passage through traffic having blue/red flashing lights and a siren.

Meanwhile two dedicated teams of volunteers were arriving at the Paraparaumu Police Station

with Matt Nolan who was in touch with Tom and the cruiser. The rest of the Police SAR squad were arriving at the station and scene. Matt also had the Te Horo rural fire force on standby as an extra resource.

Meantime Mort managed to direct the son into where his father was as they had both initially gone in the same way. The son and **Nick Davies**, another Police SAR squad member who had arrived, helped the man out. Lance from the Wellington Free Ambulance then helped guide the man back to the waiting ambulance.

The dog had dragged the elderly man into the bushes quite early on. He was shaken, scratched and had a fair amount of blood on his pants from the tears. Although he managed to walk out and most of the way back by himself, he needed to be carried down a slight incline. Whilst walking him out it started drizzling, and the night became much colder later on.

As this is being written the hype of the search is slowly fading, and looking back there are some important points to consider. It was still winter. If the Police had not been contacted and activated the SAR Coordinator, the man may still be where he was found, possibly not breathing in the morning.

If the SAR Coordinator did not contact the volunteer teams and activate the volunteer system there would not have been enough trained staff to search the required area, making a similar outcome likely.

The Police and NZLSAR are following best practice. If best practice had not been followed who know what the outcome for this person may have been. Here is a real situation where the public of New Zealand are well served by the efforts of the volunteers and Police alike.

Sergeant Andy Warnes

Wellington Police SAR Coordinator

Correction to the Annual Accounts

The Treasurer confirms that there was an error on the **Statement of Movements in Equity** for Year Ended 30 June 2001 and that the \$5,000 shown as being transferred into the ACR Training Fund should have been added to SAR Research Fund, making the correct totals \$10,000 for ACR and \$15,000 for Research. The error was only on the above page of the published accounts. The Statement of Financial Position page in the published accounts and the formal accounting records show the correct figures.

Steer Peak Avalanche Fatality from a Dog Handlers Perspective

At approx. 2100 hours on Tuesday 11 Sept 2001, the Queenstown Police called requesting a dog handler to report to DoC Glenorchy at 0630 the following morning. I referred them to our callout Advisor who then confirmed the request and that I should pack for a bush scenario.

On arrival at DoC Glenorchy, we were briefed, and it was explained that the missing person was overdue by four days. His vehicle was found in a carpark with a note giving his expected time of return. An assumption was made of a potential direction of travel and then this route was flown by helicopter on the Tuesday, finding no evidence to support that he had travelled in this direction.

After more information had been gathered, a second flight took place Wednesday morning finding footprints in the snow that lead to Steer Peak. These were then followed to a location where a piece of cornice had collapsed. The tramper had obviously fallen down through rocky out crops and chutes triggering a class three avalanche. The debris from this avalanche covered an area of about 20 -30 metres by 100 metres ending in a terrain trap with a depth ranging between two to six metres and was well compacted. The debris had then been subject to four days melt freeze which made probing near impossible.

A second briefing was then held to ascertain what resources were available and a plan of attack was decided on. Three ACR personnel, and myself, accompanied by a Police overseer who would provide a radio link were flown to the site to assess the remaining overhang and the safety of the area below. It was then decided that it was safe to go in and we were deposited at a safe location to the left and down wind of the debris. An observer and the helicopter were

positioned on a knob adjacent about 300 metres away checking communications and keeping a constant eye out for any danger from above.

I deployed Ella at the top of the debris site as the wind was favourable to search our way to the bottom. After covering the top third we proceeded along the top of large wind scallop that flanked the debris. I then re-deployed Ella from the base into a slight breeze; the snow pack was compacted making movement over the site easy for the dog to zigzag her way. One third of the way up the site she gave an indication. This point was then probed and the dog called to reconfirm a find. A shovel crew were called to investigate and I re-deployed Ella to search the rest of the site. The search area would have taken approximately 10 minutes to cover and the indication would have been around five minutes from deployment. The deceased was buried to a depth of one metre at his head and two metres at his feet. The snow on his top side had thawed and created a seal. It took around one hour to dig the snow out from around the body in order to extract it.

Key points:

Come prepared for all scenarios. It is worth noting the importance of having multi skilled dogs. The speed and efficiency of dogs saved long and tedious probing and put few personnel at risk.

All safety measures were taken and the search was well organised.

Finally I would like to thank all involved for the assistance and confidence given to myself and Ella in making the site safe for our deployment leading to a successful find.

Brent MacDonald
NZASD Queenstown

Editors Comments. A big thank you to **Steve, Matthew, Pete, Andrew and Brent** for your articles. To those who proof read and check the spelling and grammar, thank you also. Copy for the **April News** is most welcome and the close-off date is **Monday 25 March 2002**. Articles on gear, SAR training or operations are most welcome. Please either mail as neatly hand-written, printed hard copy or on a disc to **NZLSAR, PO Box 12081, Thorndon, Wellington**. Alternatively email it to **tristram.nzlsar@xtra.co.nz** Even if you have some thoughts on an article but are diffident in putting pen to paper, feel free to give me a ring on **04-470-7247** and we can talk it through. Regards **John P Tristram**, National Field Officer