

Exercise "Avon Express" Severn Tunnel, 17 & 18 September 2005

Overnight on Saturday/Sunday 17/18 September 2005, members of the Gwent and South Glamorgan RAYNET Groups took part in Exercise "Avon Express" based around the Severn Railway Tunnel.

This was a live, multi-agency exercise involving the Police, Fire and Ambulance Services, British Transport Police, Monmouthshire and South Gloucestershire Councils, Network Rail, WRVS and First Great Western who provided an "exercise train".

RAYNET were invited to participate and provided Network Rail with a communications link between the Severn Tunnel area and their regional office in Cardiff.

Following the successful exercise at the Caerphilly Railway Tunnel earlier in the year, one RAYNET operator was aboard the exercise train so that attempts could be made to communicate with him from Green Lane on the English-side of the Severn Tunnel.

A total of 18 RAYNET members took part, covering locations at Sudbrook Pumping Station (Silver Control), the Network Rail Cabins at Severn Tunnel Jnc. (Casualty Clearing Point), and the "Green Lane RVP" (Bronze Control). A Talk-Through Unit was located within the compound at Sudbrook Pumping Station, and a RAYNET "Monitor Station" was established at Chepstow Park Wood near St Arvans.

The exercise commenced at around 01:50hrs after the exercise train had stopped in the tunnel, simulating a derailment. There were around 70 pseudo-casualties

onboard, "suffering" various levels of injury. The casualties were detrained within the tunnel as a test of the Emergency Services' evacuation procedures.

Four frequency bands were used; 4m, 2m, 70cm and 23cm. The 23cm link was successfully used to communicate with the operator onboard the exercise train, which had been stopped approximately 2.4-miles into the Tunnel, from the English end. The link to and from the train was established with operators in a lineside position at Green Lane, using an 11-element Yagi aerial vertically polarised, and pointing directly at the tunnel portal with a radio providing around 10-Watts power output. The onboard operator used a handheld radio with a homemade "copper-tube" dipole and a power output of around 1-Watt.

The RAYNET "Monitor Station" at Chepstow Park Wood was active to keep an eye on the overall radio net. A backup TTU was located there, although the "main" TTU at Sudbrook performed faultlessly. On two occasions the Monitor Station identified "technical problems" which were quickly rectified.

Net Control was established at Sudbrook Pumping Station and operated a TTU link to Cardiff on 433MHz. A second TTU, courtesy of a Bristol RAYNET member, was established at Piling and fed signals from the Green Lane operators into the Net to Cardiff. A "trouble-shooting" Net was also established on 4m. It is interesting to note that the Monitor Station at Chepstow Park Wood was able to "hear" all radio traffic on the Net (except from within the Tunnel!), and is likely to be the preferred location for a TTU in any future



Gerwyn GW4JDE, Dave 2E0KAC and Ben 2E0RCG and their operating location at Green Lane Rendezvous Point. (Photo courtesy of Adrian Balch)

event involving the Severn Tunnel and other exercises/events in the Gwent RAYNET area. Thanks to Dave (2E0DCR) and Steve (GW8ZOE) for setting up a very useful monitoring facility.



One of the home-made "copper-tube" dipoles, used during "Avon Express". (Photo: GW7BSC)

Exercise "Avon Express" was a very enjoyable event, and an excellent opportunity for RAYNET to establish and test a wide-area communications net, including communications within a tunnel. The exercise ended at around 05:30hrs on the Sunday morning.

We are now looking at an opportunity to test communications, on 23cm, throughout the entire length of the Severn Tunnel over the weekend of 07/08 January 2006. This will be another night-time exercise and we hope to have the assistance of South Glamorgan RAYNET once again. ■



South Wales Fire & Rescue Service "Unimog" railed at Severn Tunnel Jnc., waiting to enter the Tunnel. (Photo: GW7BSC)

Putting a Quart into a pint-pot!

Following last issue's homebrew project of a radio station in an aluminium case, Gerywyn shows how to get a quart into a pint-pot with his car!



In the glove-box is an Ascom SE-550 4m radio, whilst below the normal broadcast radio is a Yaesu FT-5200 dual-band transceiver. To the left of this, at an angle facing the driver's seat, is a dedicated scanner and, above it, is a Yaesu VR-500 scanner.



Talk by Wales Air Ambulance Staff

An illustrated talk has been arranged with staff of the Wales Air Ambulance. This will be taking place at 19:30 on Thursday 2nd March 2006, in the Lecture Theatre at County Hall, Cwmbran.

Invitations have been sent to all of the local Voluntary Agencies as well as the local Emergency Services. The event is, of course, open to RAYNET members and their families and friends.

If you (or friends) would like to attend, please let Kevin GW7BSC know (if you have not done so already), so that sufficient seating can be arranged in the Lecture Theatre. ■



Exercise "Sabrina 4"

Saturday 24 September 2005

Exercise "Sabrina 4" was to have been a wide-area exercise involving RAYNET Groups and Emergency Planning Units around the Bristol Channel/River Severn coastline.

The exercise scenario was based on the loss of cargo from a ship in the Severn Estuary, with RAYNET operators "locating" items of cargo and reporting back to Newport EPU at Cleppa Park. The scenario and associated messages were put together by John Brown of Bath & North East Somerset EMU.

Unfortunately, due to the failure of our TTU, located at Celtic Manor, the exercise had to be cut short. At the time, we were not aware of what was wrong, although subsequent radio tests established that the TTU – a Yaesu FT-8100R – had gone "deaf" on the 2m receiver.

There is to be a re-run of the exercise – to be called "Sabrina 5" – taking place on Saturday 13 May, between 13:30 and 17:00hrs.

With the addition of packet radio links, the exercise will follow the same scenario and timings. ■

Radio stars in unusual rescue

(From RSGB "GB2RS" News)

Coastguard and RAYNET members Keith Morgan MW3LFL, Dave Mansell GW8SFT and Iwan Davies MW3ROX, recently took part in an unusual "rescue".

Following a crime committed in Ceredigion, Wales, a heavy safe was dumped down an old mineshaft near Goginan, a few miles to the East of Aberystwyth. The Police wanted to recover the safe for fingerprint evidence and the Coastguard was called in to retrieve it.

The Coastguard team knew that communications would be difficult down a mineshaft and normal Marine VHF would probably not work. However, as radio amateurs, they were able to come up with alternative communication solutions.

Their first idea was to use the UHF amateur band on 433.050MHz with Keith operating as comms. Link at the top of the shaft, while Iwan was lowered into the shaft. This worked well initially but the signal became noisy and barely readable when Iwan neared the bottom of the shaft.

However, the team had already taken this into account and provided a back-up communication method by lowering a long length of "RG58" cable down the shaft. The bottom end of the cable was connected to a small helical aerial, while the top was connected to a handheld transceiver.

This set-up allowed them to communicate on VHF and gave solid copy. The safe was duly winched to the surface and handed over to the waiting Detectives. ■

Exercise "Brunel"

Severn Tunnel, 7/8 January 2006

As mentioned on the first page, there is to be another Exercise at the Severn Tunnel.

Whilst not on the scale of "Avon Express", this latest Exercise is a "familiarisation exercise" for the Emergency Services and will involve the South Wales and Avon Fire & Rescue Services.

RAYNET will be participating and will use this Exercise to attempt communications throughout the entire length of the Tunnel (portal to portal) on 1.2GHz (23cm). We also hope to have an operator aboard a Fire Service vehicle in the Tunnel.

With the assistance of the South Glamorgan RAYNET Group, we will be establishing lineside operating locations at Green Lane RVP and the "Emergency Access Steps" at Caldicot.

We are also likely to have two observers with us; Richard Davies, Emergency Planning Specialist from Network Rail in York, and Peter Storey, who is a Network Rail National Telecoms Engineer based in London. Richard is interested in our activities following his involvement with RAYNET in Yorkshire at the Standedge Tunnel, whilst Peter's interest is from a general comms point of view. ■



"Avon Express" – sunrise over the Severn Estuary from Chepstow Park Wood. (Photo: 2E0DCR)

If you would like to contribute to the content of this newsletter, please contact Kevin (GW7BSC) Email: kevin_bsc@btinternet.com, Telephone: +44(0)7010726248