

Southampton Port Operations

It is very nearly 50 years since Southampton utilised radio and radar systems as part of port operations and 25 years in its current location at Dock Head, what follows is an update but first some background to set the scene.

Prior to availability radio and radar equipment in the 1920's and 1930's the port operations made use visual signalling with light and flag signals, signal stations using flags existed within the docks and at Calshot.

In 1952 a new Southampton Harbour Board lookout was opened at Calshot Castle on the site of a World War 2 air control station previously operated by the Air Ministry which replaced the old port signal station located on Calshot Jetty. In 1953 construction began on a new signal station on top of Calshot Castle which planned to make use of VHF radio and port radar facilities to create port operations in the true sense.

The concept of managing ship movements through a shore side radar station is generally accepted to have first appeared in the Port of Liverpool in 1948/9 to facilitate the boarding of pilots and also at Ijmuiden in 1952. In 1956 the Netherlands established a system of port radio and radar stations for the Port of Rotterdam. It was not until 1985 that the role of VTS (Vessel Traffic Services) in connection with navigational safety, traffic efficiency and environmental protection gained international recognition. This recognition in was in the form of an IMO resolution which constitutes VTS guidelines.

The port radio and radar station at Calshot was inaugurated by the then Minister of Transport in January 1958. The station was part of a communication system between the Harbour Master, Dockmaster, Calshot Signal Station, FMT (Fawley Marine Terminal), BPJ (BP Jetty Hamble) and Southampton Patrol launches (**SHB Triton** and **SHB Neptune**). The 130ft radar tower supported a 25ft radar scanner feeding 3 x 15" cathode ray tubes (CRT) operator positions capable of 5 pre defined screen views.



Patrol launch Prospect photographed off Dock Head callsign when in service 'SP'.

After fourteen years in service a new purpose built building was constructed at a cost of £500,000 at 37 Berth Dock Head in the Eastern or Old Docks complete with a 60m mast to support vhf radio and microwave link aerials with red.green semaphore board signals near the base. The three red and green boards 3 in a vertical line each side of the mast would indicate whether an arrival or departure was imminent on the R. Itchen or R.Test. This new station used the callsign SPR (Southampton Port Radio) which was officially opened on 7th July 1972 but had been in operation prior to this date. It was it the same year that Trio launched its Far East container service with NYK vessel **Kamakura Maru**.

The station adopted the majority of the VHF marine radio channels in use by Calshot Signal Station but incorporated extra channels to enable monitoring of tug operations of Ch71 and Ch74. In common with the station it replaced the radars still had Decca CRT PPI (Plan Position Indicators) displays with an increase to six PPI CRT displays necessitating a

darkened room for viewing, the new station was also equipped with voice tape recording and tide gauge facilities. The new station retained the use of patrol launches whose primary duties are checking navigational aids, anti-pollution and providing escorts to large vessels.

The new station sacrificed a visual element and made use of newer technology for both its radar and radar system in the way of remote or sometimes named satellite locations (nothing to do with space!). A new tower incorporating a HMCG visual lookout was constructed at a height of 35m and a secondary radar mast at Hythe at 30m ASL both connected by fixed microwave radio link equipment. The VHF radio system utilised transmitters on the top of Dock House and receiver aerials at Titchfield connected remotely by landline and UHF radio links respectively.



ABP Pilot
vessel
Hampshire

The changes taking place in the Port of Southampton cannot be described without brief mention of the changes that had taken place in pilotage for the area another story in itself. The IOW pilotage district had been in transition also in line with technology with the move to replace a cruising cutter at the Nab Pilot Station (previously **THV Penda**, **THV Brook** etc being sold out of service) with fast launches operating from Ryde Pier Head, as an interim measure the cruising cutter **THV Bembridge** anchored off Ryde working with the fast 40ft launches **Vigia** and **Versatile** until the Ryde Pier Station was constructed in 1970. The 70 ft fast pilot launches based at the Totland Pilot station **THV Link**, **THV Leader** and **THV Landward** were phased out of service in favour of new 40ft fast launches by 1970, the Totland or Needles Pilot Station was closed in 1977. The use of VHF communications replaced the use of MF (Medium Frequency) radio for relaying of ETA's between pilot vessels on 1662khz as the new Ryde pilot station was equipped with landline controlled VHF radio equipment at high locations at The Needles and Bembridge on the Isle of Wight to cover ships arriving from the west or the Nab station in the east. The pilotage service 'Duty Pilot' was relocated to the 37 Berth building as was the pilot station at Hythe Pier for inward pilots. Eventually all Trinity House coxswains and communications officers would become part of ABP and pilots became self employed.

Internationally it became apparent that there was a need to clarify when VTS might be established and to allay fears in some quarters that a VTS might impinge on the master's responsibility for navigating a vessel in 1985, the International Maritime Organisation (IMO) adopted a resolution A.578 to implement Guidelines for Vessel Traffic Services. The guidelines said that it was appropriate in the approaches and access channels of a port and in areas of high traffic density, movements of noxious or dangerous cargoes, navigational difficulties, narrow channels or environmental sensitivity. The station callsign 'SPR' changed

to become Southampton VTS around this period, and similarly on the R.Thames 'Gravesend Radio' has become London VTS.

In 1988 new radio equipment was installed and the functions previously carried out by a Duty Pilot at 37 Berth were replaced by VTS managed staff. In 1989 new harbour radar was installed at a cost of £0.5m which was inaugurated by HRH Princess Royal during September 1989. Ryde Pilot station at the end of the pier was closed and demolished in 1995 and a base for fast launches was relocated to Camper & Nicholson's in Gosport and latterly to Blockhouse at the entrance to Portsmouth Harbour where pilot vessels built by VT Halmatic are now used having been phased in use since 2003.

2001 saw more upgrades implemented including CCTV (Closed Circuit Television), video and voice digital recording and 4 new radars with an additional scanner located at Eastney for improved coverage of the Nab approaches and deep sea anchorages. A new radar mast at Eastney has only recently been commissioned into service.

A computer system known as PAVIS (Port and Vessel Information System) was implemented. In 2002 HRH returned to re commission the major upgrade.

In 2005 a memorandum of understanding was agreed between ABP and Queens Harbour Master Portsmouth for an area of 7miles radius the Nab Tower can be controlled by Southampton VTS although technically the Port of Portsmouth.

The operations room of the VTS Centre is situated at 37 Berth in Southampton's Eastern Docks and is continuously manned 24 hours a day by a minimum of three people, comprising one VTS Officer and two VTS assistants. A pilot officer and at times Pilot Officer Assistant are also present in the room controlling pilots and pilot boats that are based at Haslar in Gosport working on VHF Ch09. The VTS operations and information service covers the Solent and Southampton Water and Docks, excluding the port of Portsmouth north of a line between Gilkicker Point and Horse Sand Fort, and involves the monitoring and co-ordination of shipping movements.

By using four radar scanner's, its radar service extends from the East Lepe buoy, Western Solent to No Mans Land Fort in the Eastern Solent. In practice, however, because of a scanner located at Eastney the radar coverage is more extensive and continues beyond the Nab Tower in the South East towards the Nab Anchorages. The station maintains a listening watch on VHF channels 12,14 and 16. VHF CH12 is the principal working frequency for communication with VTS, as well as inter-ship communications throughout the area. Harbour radar information and selected harbour operations work of the VHF duplex channels 18, 20 or 22. All vessels over 20m LOA must maintain a listening watch on CH 12 when in the area. Information broadcasts are broadcast for the benefit of small boat owners on CH14 when small boat activity can be expected

A vessel navigating in Southampton harbour radar coverage area can, at any time, on request by VHF to the VTS Centre be supplied with continuous information about her progress relative to navigational marks, other vessels, channel margins and West Bramble and Calshot turns. Alternatively vessels are advised of their position as a distance left of right of the charted radar reference line relative to their direction of progress and as a distance along the line to the navigational mark. The VTS Officer will on request give large vessels a countdown in cables from the Gurnard buoy to assist pilots in the "wheel-



over” point for the West Bramble turn normally on CH20 or CH103.

New more reliable technology continues to be incorporated to support port operations. The backbone for the systems now used is configured to provide diverse transmission routes on link failures. When first commissioned in 1972 the use of uW (microwave links) was restricted to the single links to radars at Calshot and Hythe. Today there are digital ‘datarings’ which inherent in their design support an automatic diverse routes in case of failure and the ability to carry different types of traffic i.e. CCTV, radar or corporate local area network data which enter the network as ‘tributaries’ and are aggregated for transmission to the next site. The uW links are ‘line of sight’ paths so high locations have to be used to link all sites i.e. Portsdown Hill, Needles and Bembridge Downs.

To support the current port operations equipment configuration includes:

- direct landline telephone links to FMT, HMCG, QHM and the pilot station at Blockhouse.
- cameras covering the Bury swinging ground and cameras located Town Quay, 36 Berth Silos, Oil Spill Response Base, Hythe and Calshot.
- tide gauges at 207 berth, 37 berth and Calshot using uW links and landlines
- Tait synthesised VHF radios using a Zetron control system using directional antennas mounted at dock head with remote radio sites for Southampton Pilots sites omni directional aerials at the Needles 110m and Bembridge Fort 103m ASL (above sea level) controlled via uW links. AIS (Automatic Identification System) receive data is also relayed back to VTS via uW links
- 3cm marine band radar coverage from Dock Head 8ft scanner, Hythe 22ft STN scanner at 30metres, Calshot 5.5m Esat scanner at 35metres, a recently commissioned new tower at Eastney 22ft STN scanner at 33metres and shared data with QHM from their site of the old Gilkicker Signal Station 22ft STN scanner at 12metres.
- Other radio equipments includes the ability to switch on Nav aids at Calshot Float and the Hook buoy, weather information ‘Bramblenet’ from the Brambles Bank and digital global positioning information transmitted from VTS for use in dredging and port survey operations together with tidal information.