Ensuring Lone Worker Safety
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In March 2014 Chatterbox, an approved supplier for Thames Water for over seven years, installed CALM+ (Chatterbox Alarm Location Monitoring) at Walton AWTW (Advanced Water Treatment Works), a system they have developed using their years of experience and industry knowledge.

Thames Water’s Walton AWTW covers over 15 acres. It incorporates a Victorian pump house, modern blocks housing processing areas, decommissioned sand beds and smaller ancillary buildings.

Thames Water’s previous solution for achieving communication coverage throughout this extensive site comprised three elements: operational personnel used analogue two-way radios supplied by Chatterbox to communicate with other colleagues working inside on site. For communication outside, where two-way radio coverage was not achievable, personnel also carried mobile phones. Finally pagers were used with a SCADA (supervisory control and data acquisition) system to raise alerts on equipment failures etc.

Through discussions with Thames Water, Chatterbox identified an opportunity to streamline and improve the existing three-part system, to improve worker safety and achieve cost savings. Thames commissioned the proposed CALM+ solution.

A MODERN, STREAMLINED SOLUTION

Using Bluetooth beacons in internal areas and the GPS facility on the Hytera X1p and X1e hand portables for external areas CALM+ achieves the required coverage using just radios. It dispenses with the need for mobile phones, removing the ongoing cost of mobile phone contracts.

The text function of the Hytera X1p has also made the SCADA pager system redundant as messages can now be received on the radios. Additionally the radios allow a longer message than the pagers so standard alerts are less abbreviated and more readily understood.

Using CALM+, personnel at Walton now carry one compact, robust two-way radio instead of three communication devices.

“The Hytera radios are very simple to operate - if you can use a mobile phone you can use one. Chatterbox took time during the installation to ensure that our operatives were familiar with the system so that it could be used as soon as it was installed”.

Richard Huley, Operations Liaison Engineer, Thames Water.

- Improved worker safety
- Accurate worker tracking
- Cost savings
“The new system is a godsend. The previous system was far less accurate in terms of location of workers. This one offers real peace of mind”.

Ian Privett, Process Controller, Thames Water

**CENTRAL CONTROL**

Inside the control room CALM+ integrated software shows three key visual displays of the system:

- The location of the two-way radios covered by the system is shown on-screen on two plans of the works, one for internal areas (covered by beacons) and one for the external areas of the facility (covered by GPS). As personnel move around an icon for the radio they are carrying tracks their position on these screens.

- A third display screen shows the communications element. Using this screen and connecting the PC to a microphone allows control room staff to communicate with Thames operators (who use the Hytera X1p) and contractors (using the X1e which has no screen and does not receive alarms). The system allows one-to-many and private calls.

**IMPROVING HEALTH AND SAFETY**

Inside buildings CALM+ automatically tracks personnel movement using Bluetooth beacons picking up radio signal. Unlike GPS tracking, which provides a location in 2D, Bluetooth provides a 3D location making it possible to see which floor the radio user is on. GPS, which tracks operatives outdoors, is automatically disabled within the Bluetooth area and resumes when leaving. The previous internal system required operatives to manually input which one of seven prescribed zones they were working in to their radio. This manual input is no longer required so there is less likelihood of human error.

Following a site survey and working with site plans and Thames Water personnel Chatterbox engineers identified the optimum sites for the system’s beacons to ensure that the location of operatives within the works buildings could be tracked at all times on the PC based software. The facility required 95 beacons in all, programmed by Chatterbox for Thames Water’s requirement.

The new system even achieved coverage in ‘the crypt’, an area situated below the stairwell in the basement of the main pump house where several key services are located. ‘The crypt’ is below ground and very noisy. Previously no signal could be achieved and no conversation would have been audible however the use of beacons and the superior audio quality of the Hytera X1p made communication from here possible, and therefore working in this area far safer.

As operatives are often working alone the Hytera two-way radios have been programmed for lone worker, they sound a regular alarm to which the operatives respond; should they fail to do so an alert is raised.

The radios are also programmed for man down monitoring; an inbuilt mercury switch triggers an alert if the radio is horizontal for an extended period of time. In both situations the alert, including the location of the operative, will be received by CALM+ in the control room. Out of hours CALM+ will send texts and alarm calls to all off site personnel providing cover.

“The new system is a godsend. The previous system was far less accurate in terms of location of workers. This one offers real peace of mind”.

Richard Hulley
Operations Liaison Engineer, Thames Water

“Operatives at Walton work in high-risk areas on a daily basis, often alone. Health and safety is a priority for Thames Water, and we believe that it is important to invest in technology that improves the safety of our staff. The new system tracks where operatives are; we know their safety is covered and they know that we are looking after them”.

Richard Hulley
Operations Liaison Engineer, Thames Water
“The new system means that anyone in any part of the works, whether it is the furthest edges or the deepest part, can stay in communication”.

Mark Collier
Health & Safety Advisor, Thames Water

ACHIEVING MAN-HOUR COST SAVINGS

The control centre at Walton handles in the region of 1700 alerts a day, from SCADA, BMS and operatives, requiring varying responses. At times the site could effectively be manned by one person however, under the original communication system, as routine checks necessitate leaving the control room, a second operative was required to ensure someone was present to receive critical alerts and to page out relevant information so that appropriate action could be taken.

Integrating the Hytera X1p digital radio CALM+ allows operatives to receive SCADA and BMS alerts direct to their two-way radio wherever they are on site so the whole site can be manned by one operative.

CALM+

CALM+ goes beyond the provision of two-way radio communication to incorporate other functions offered by two-way radios and the systems that can be integrated with them. Solutions are bespoke to each customer and their requirements. Experienced Chatterbox personnel consider the customers existing way of working, listen to their requirements, look at the technology available and build a solution appropriate to the customers business needs.

Chatterbox offers customers in depth knowledge of two-way radio communications and related technologies, a range of products from the World’s leading companies in two-way radio communication, and an unparalleled level of service with a committed account team for every CALM+ customer.

WORKING WITH CHATTERBOX

The Chatterbox account team responsible for the installation and continued support at Walton include an account manager and a technical solutions engineer, who has online remote access to the system to provide support to on site operatives.

For a systems evaluation and to discuss what CALM+ could do for you and your business call 0800 387 760. www.chatterboxradio.com

Thank you to Richard Hulley and his team at Walton for their help in collating the information for this case study.

Photos: Peter Crane 2014

“Thicker the Chatterbox team is knowledgeable and helpful and we have developed a good working relationship.”

Richard Hulley
Operations Liaison Engineer, Thames Water

SYSTEM FEATURES

- Hytera X1p two-way radios with GPS and Bluetooth
- Voice recording function (which provides evidence of location when recording was made)
- Indoor location monitoring using Bluetooth beacons
- GPS tracking
- System integration with BMS and SCADA systems
- Integration of radio and telephone systems so that calls can be transferred to radios
- Lone worker and man down monitoring
- Text and phone messaging to offsite personnel
- Online remote access for support

THE HYTERA X1P DIGITAL TWO-WAY RADIO

- Compact (21mm thin), robust design
- Complies fully with European Telecommunications Standards Institute (ETSI) open standard
- Built in Bluetooth
- Complies with IP67 requirements, withstanding up to 1m submersion for 30 minutes or more.
- Large-size Colour Display 1.8” TFT LCD display (65536 colours), allowing good visibility even under outdoor strong sunlight

SYSTEM BENEFITS

- Improved health and safety provision
- A streamlined system - one device instead of three
- Improved radio coverage and sound quality
- Manpower savings