CASE STUDY
APHA
30.08.18

Multi-Site Cold Chain Temperature Monitoring
Protecting Long-Term Research Samples at APHA

Background

The Animal and Plant Health Agency (APHA), a department of Defra, is a key provider of research, scientific evidence and advice in support of policy development for the UK government. Much of APHA's scientific activity is focused on protecting Great Britain against the threat and impact of a wide variety of animal diseases and other species conflicts. Many of these diseases also infect humans.

Part of their role is to detect and respond to exotic diseases, and to identify and assess new and emerging diseases in livestock and wildlife through research into:

- Bovine tuberculosis and development of vaccines and diagnostic tests for badgers and cattle.
- Bacterial diseases and food safety including food-borne bacteria such as salmonella, campylobacter and E.coli, bacterial pathogens such as brucella and mycoplasma, as well as the growing issue of antimicrobial resistance.
- Viral diseases including avian and mammalian viruses such as Newcastle Disease, influenza and classical swine fever, zoonotic and wildlife viruses such as rabies and vector-borne diseases.
- Transmissible Spongiform Encephalopathies (TSEs).
- Wildlife management including wildlife diseases, invasive non-native species, methods development and human-wildlife conflicts.

APHA were seeking a safe and secure method to protect their temperature sensitive reference materials.

The Monitoring Need

APHA identified a compelling need to replace their existing wireless monitoring system. Over time individual work areas had acquired and maintained wireless monitoring systems of varying heritage, some of which were no longer sustainable. The Agency decided to upgrade across its many geographical sites to a consistent product maintained by a single provider.

Such wide-ranging research needs to be backed-up by stored samples with long-term viability; often supporting policy decisions by the government. The loss of such material would represent years of lost research.

Safeguarding and 24/7 365 continuous, uninterrupted monitoring of APHA's valuable tissue, pathogen and reference materials is paramount for their continued progress in their research.

These samples are stored across 23 separate areas in cryo, ultra-low freezers, -20 freezers, fridges, and working ambient and pressure sensitive laboratories as well as incubators and ovens, all of which needed continuous monitoring and to remain compliant.

Multi-Site Project Delivery in a Challenging Environment

This project highlights the technical flexibility of the Tutela system. Defra's IT policy did not permit Tutela access to its computer network. This, against a backdrop of some old building structures (with low signal penetrations), cat 3 high level containment areas, clean room facilities, external sheds with no availability to network and power, meant that GSM (mobile communications) were the chosen method of data communication.

The Tutela project delivery team follows an evolved and tested quality process to deliver all site installation works efficiently and accurately. Controlled under ISO9001:20015 QMS, this Quality Management process is applied to all installation and implementation projects undertaken by Tutela.

"It is an important business need to protect the range of biological materials held by APHA. These samples are required to support answering a number of disease related challenges; in pure research, as positive reference material for existing and developing diagnostic assays or occasional retrospective comparison of new strains of disease. The loss of such material could represent years of lost research and knowledge in this essential area of animal and human health"

Maurice Bardsley FLS,

Head of Pathology Assurance, Biobanking & Laboratory Technical Support,

European Virus Archive (EVA) Global Quality Manager.

Meeting the widest brief and tightest user needs

With in-house Tutela engineers delivering this project, the system was designed to create a hybrid mix of hardwired network signal zones and wireless sensing. This dedicated monitoring network maximises stability and wireless sensing minimises disruption, across the wide and diverse APHA property estate.
Instead of relying solely on wireless signals, the Tutela system strategic design included some hardwired elements between the WARP (wireless alarm receiver panel / system controller) and the difficult-to-reach areas that required stable signalling zones. This setup allows the system to penetrate into challenging signal areas to provide absolute system stability where other systems would have failed.

The Tutela staffed call bureau operate 24/7/365 dedicated to delivering alarm notifications to the responsible personal defined by the probe ID and type of alarm. The notification cascade and routing has been structured by APHA so that the closest person to the issue is informed quickly and efficiently.

Intuitive Bespoke Graphical User Interfaces

The Tutela web user interface is provided for an unlimited number of APHA users, and is specifically set up by the site administrators to allow users access to their departments and probes, with refined permission allowances to ensure that users are allocated the correct permissions.

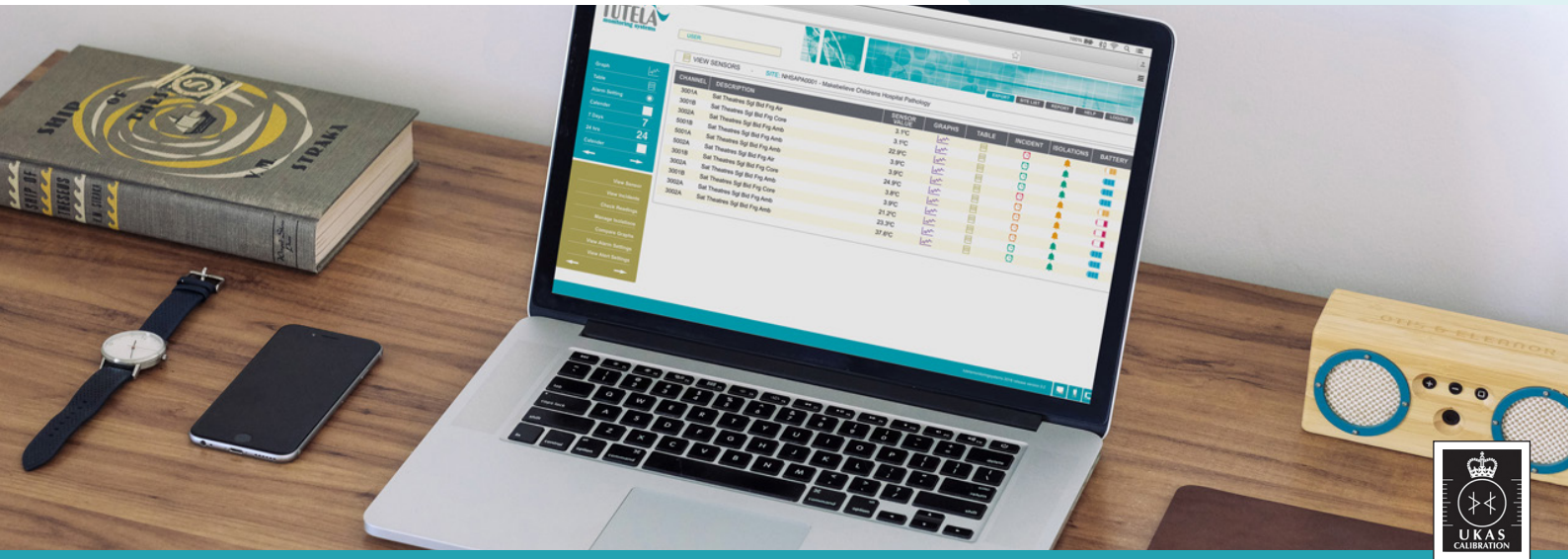
The web interface allows multiple site viewing for central QA reporting and individual local view for system operators.

Extensive Range of Sensor Probes

620 sensor probes of varying types were installed across the sites, from dual purpose ambient and humidity probes to wide range variant fridge, freezer and cryogenic. APHA also use Tutela's power failure and door contact connectors to ensure that the system delivers an early warning to any avoidable incidents.

Summary

- **Remote alarming by real people is crucial for maximum inventory protection.**
- **A technically flexible system enables challenging estates to be monitored and protected.**
- **Secure access to a user interface allows individual, global views, advanced features and insights.**
- **Specialist providers offer more flexible technical solutions.**



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