Hevasure case study: Francis Crick Institute, St Pancras, London

Customer: Laing O'Rourke

Context:

The Francis Crick Institute is a unique partnership between six of the UK's most successful scientific institutions. Its ground breaking research helps find new ways to treat, diagnose and prevent illnesses such as cancer, heart disease, stroke, infections, and neurodegenerative diseases.

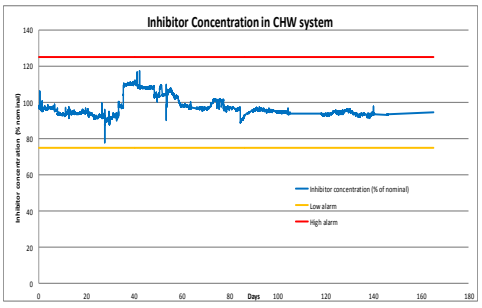
The Francis Crick Institute is about to move into a brand new multimillion pound building in St Pancras, London. The main contractor, Laing O'Rourke, has been keen to ensure that the HVAC systems are commissioned without problem and that there is key data on all critical parameters to support the commissioning process.

Solution:

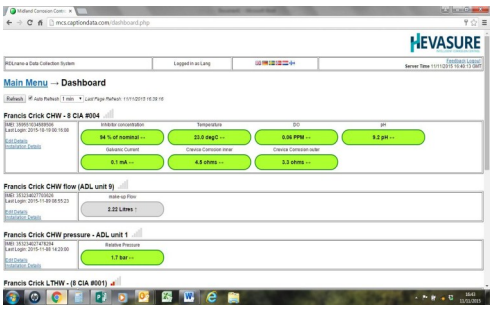
Hevasure's Premier service captures, monitors and interprets data from the building's HVAC system to minimise any risk of failure. During the commissioning phase, this data, obtained every 15 minutes for all key parameters, establishes and proves that the systems are being correctly managed and that they are in a pristine condition at hand-over. In the case of the Francis Crick, Hevasure has been contracted to monitor both the heating and chilled water systems.

Regular reports to the building management team during the commissioning phase provide confidence that all systems are operating correctly and without risk. Of course, if any aspect of the HVAC system starts to approach critical limits, Hevasure's experts will alert the contractor to address the issue before any damage occurs.

On hand-over, Hevasure will be able to confirm that the HVAC systems are in a healthy state. Post-commissioning, the maintenance company are planning to use Hevasure's monitoring service to reduce the on-going risk of failure and ensure that the systems are always operating at peak efficiency.



Remote monitoring ensures that the commissioning of HVAC systems proceed without a hitch and that they are handed-over in a pristine condition. Continued monitoring post-handover reduces the risk of failure during the building's operational life.



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Parameters monitored	
System integrity	
Dissolved oxygen	It is essential that DO is low in a closed system (ideally less than 0.2mg/L). Dissolved oxygen is the main driver of corrosion: without it there is no cathodic reaction. By measuring DO we can ensure the system is airtight and that any oxygen introduced by fresh aerated water is quickly consumed.
Pressure	A closed system must maintain a positive relative pressure at all times to avoid air being sucked into the system. We monitor this at the highest point in the building using a small satellite monitoring system.
Temperature	Measuring temperature checks that the required heat is being produced.
Water make-up	We measure water make-up volume to indicate leaks in the system or inform us on planned flushing activities
Water characteristics	
Conductivity	For inhibited systems, measuring conductivity tells us the concentration of the water treatment products (inhibitors). We will be able to tell if a system is being overdosed or under-dosed with inhibitor.
pH	For systems containing aluminium we check that the pH is not going above 8.5 (otherwise the passive films break down and aluminium components such as heat exchangers can start to corrode)
Biofilm risk	When biofilms form microbial influenced corrosion often occurs and this can lead to wall thinning and pin-holing in metal pipes. We are trialling a sensor that will hopefully enable us to monitor the risk of biofilm formation
Corrosion	
Galvanic currents	We have developed our own sensor to monitor the currents that occur between different metals in the system leading to serious corrosion. In plain water galvanic currents increase in proportion to dissolved oxygen. However, inhibitors when at the correct strength passivate metal surfaces and suppress galvanic currents. By using this sensor we can check that the inhibitor is doing its job effectively, even when there is some oxygen in the system.
Crevice corrosion	This is a very insidious form of corrosion leading to rapid pitting attack and pin-holing. It occurs in localised regions such as weld seams and under debris due to a micro-environment being set-up. We have developed and patented our own sensor to detect this.

Contact us

To find out how the Hevasure Monitoring Service will help you during the critical commissioning phase and reduce risk to valuable building assets post-handover, contact us now !

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