CASE STUDY

Biological Decontamination of a Newly Renovated **Animal Research Facility** using **Hydrogen Peroxide** Vapour

University College Cork (UCC), Ireland

EXECUTIVE SUMMARY

An animal research facility at University College Cork Ireland required high-level decontamination to remove any potential bioburden from the two storey facility after the refurbishment was completed, and before the facility was going live.

The Bioquell Rapid Bio Decontamination Service (RBDS) was chosen to perform a 6-log kill sporicidal reduction with hydrogen peroxide vapour decontamination of the entire facility.

The Bioquell RBDS deployment achieved 100% deactivation of all biological indicators (BIs) and was fully validated and documented for auditing and regulatory inspections allowing UCC to rapidly bring the facility into service after the process was complete. UCC have subsequently purchased a suite of Bioquell equipment to perform regular decontamination cycles within the facility.

BIOQUELL RBDS DECONTAMINATION OF NEW FACILITY PRIOR TO OPENING

Decontamination of **50 rooms** for the **2,500m³** facility in a single cycle was required to prevent cross contamination

Bioquell RBDS commissioned to provide **zone bio-decontamination**

A total of **21 Bioquell hydrogen peroxide vapour generators** positioned on two floors decontaminated the space

BIs* placed in **94 room locations** and Chemical Indicators (CIs) in challenge area for instant indication of **successful decontamination**

Following a seven day incubation period, BIs indicated a **6-log sporicidal reduction** had been achieved

THE 6-LOG SPORICIDAL REDUCTION ACHIEVED RESULTED IN UCC PURCHASING BIOQUELL EQUIPMENT TO PERFORM REGULAR DECONTAMINATION CYCLES

Geobacillus stearothermophilus

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CASE STUDY

Requirements and **Set-up**

University College Cork (UCC), Ireland

BACKGROUND

A newly constructed multi-storey animal research facility in Ireland at University College Cork, was looking to achieve a 6-log sporicidal reduction within the facility to reduce the level of environmental bioburden before the facility went live.

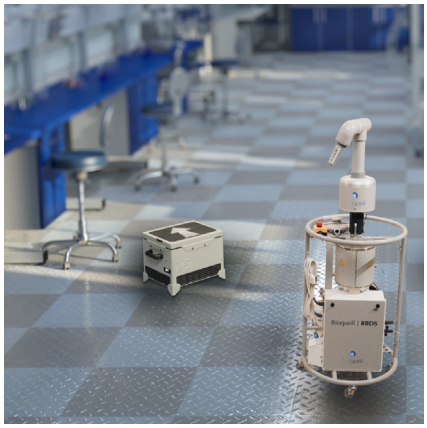
CHALLENGE

- It was essential to decontaminate the entire facility as one discrete zone to prevent any cross-contamination between areas.
- It was crucial that the process was fully documented for auditing and regulatory inspections.

SOLUTION

After reviewing the marketplace for potential bio-decontamination specialists, the Bioquell Rapid Bio Decontamination Service was chosen by UCC to establish a 6-log sporicidal kill on all exposed surfaces.

The chosen strategy was to pass the hydrogen peroxide vapour to the ventilation system prior to decontaminating the facility in an attempt to push potential contamination within the ductwork into the zones in the facility.



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DEPLOYMENT

The multi-storey animal facility consisted of 50 rooms and was 2,500m^3 in volume. To decontaminate the area effectively, 18 of Bioquell's hydrogen peroxide vapour generator units were positioned between both floors.

An additional three generators were also placed in the plant room to push vapour into the HVAC supply ductwork responsible for feeding air into the facility. As shown in image 1, using specially fitted hoses and a custom-made blanking plate, the generators injected vapour directly into the air handling unit which was pulsed to push the vapour into the entire network of ducting as best as possible.

Bioquell Biological Indicators (BIs) were placed in 94 locations within the facility. Bioquell Chemical Indicators (CIs) were also placed in the supply and extract legs of the duct work to estimate the efficacy of the process, as Bioquell does not guarantee the elimination of organisms in HVAC. Bioquell CIs give an instant real-time indication of the success of a 6-log hydrogen peroxide vapour decontamination process.

Following cycle completion, in addition to reactivating the HVAC system, Bioquell's catalytic aeration units placed within the facility were also activated to break down the hydrogen peroxide vapour into oxygen and water, taking place overnight.

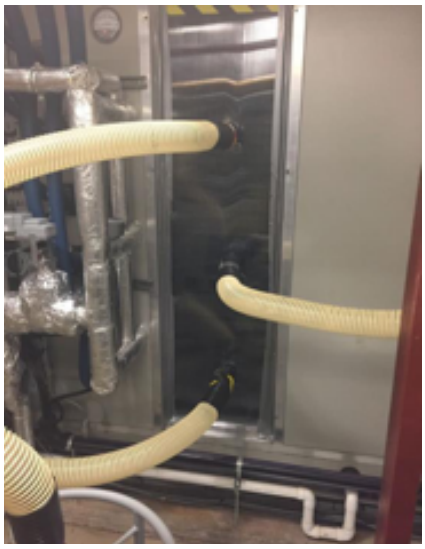
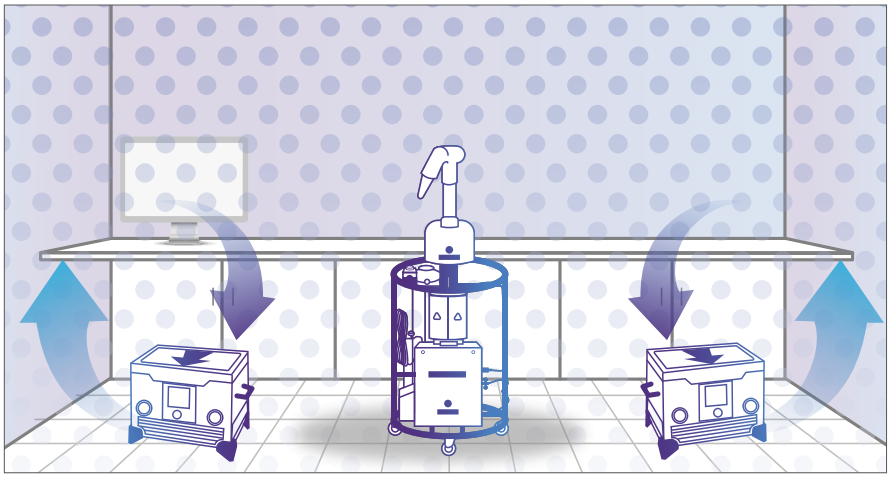


Image 1: hydrogen peroxide vapour injection into the air handling unit



> *"18 of Bioquell's Hydrogen Peroxide Vapour generator units were positioned between both floors."*

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CASE STUDY

Outcomes

University College Cork (UCC), Ireland

RESULTS

Upon completion of the decontamination process, all the CIs placed in the duct work were retrieved and while efficacy is not guaranteed in HVAC, a 6-log decontamination was verified on each CI used. Following the standard 7-day incubation period, no growth was observed in 100% of the 94 BIs retrieved from the suite.

All electronic equipment within the facility was exposed to the hydrogen peroxide vapour, with motorized equipment left running throughout. This equipment was confirmed to be in proper working order following the suite decontamination. There was also excellent compatibility noted with all interior building surfaces.

OUTCOMES

The entire animal facility achieved a 6-log sporicidal reduction. The rapid turnaround of the process, by Bioquell RBDS, ensured that the facility was brought back into service quickly. Following the successful delivery of this project, UCC have purchased a suite of Bioquell equipment to perform regular decontamination cycles of single rooms within the facility.

"Decontaminating a newly constructed animal facility before it goes live is a critical step to reduce the risk of bioburden. The ability of Bioquell RBDS to perform a 6-log decontamination of a facility of this scale and to treat it as one discrete zone is a very useful tool in preparing an animal facility for use."

CHRIS BERRIDGE
BIOQUELL RBDS PROJECT MANAGER

50 ROOMS TREATED A TOTAL OF **2,500m³**

94 BIOLOGICAL INDICATORS FULLY DEACTIVATED

TWO STOREY FACILITY DECONTAMINATED IN A SINGLE CYCLE

Bioquell RBDS is designed to offer **immediate response** in many regions around the world. Visit **bioquell.com** for additional details.

USE BIOQUELL PRODUCTS SAFELY. ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE.

BIOQUELL UK LTD
52 Royce Cl, Andover SP10 3TS, UK www.bioquell.com
EUROPE HEADQUARTERS
Richtistr. 7, 8304 Wallisellen, Switzerland www.ecolablifesciences.com

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