

## CASE STUDY

# Biological Decontamination of a Newly Renovated Animal Research Facility Using Hydrogen Peroxide Sterilant

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 story 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 vapor decontamination of the entire facility including its dedicated HVAC system which took place overnight.

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 **2,500m<sup>3</sup>** facility in a single cycle was required to prevent cross contamination from HVAC ducting

Bioquell RBDS commissioned to provide **zone bio-decontamination**, including HVAC ducts

BIs\* placed in **94 room locations** and CIs in HVAC ducts for instant indication of **successful decontamination**

A total of **21 Bioquell hydrogen peroxide vapor generators** positioned on two floors decontaminated the space and HVAC ducts

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*

## CASE STUDY

# Requirements and Set-up

University College Cork (UCC), Ireland

## BACKGROUND

A newly constructed multi-story 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.

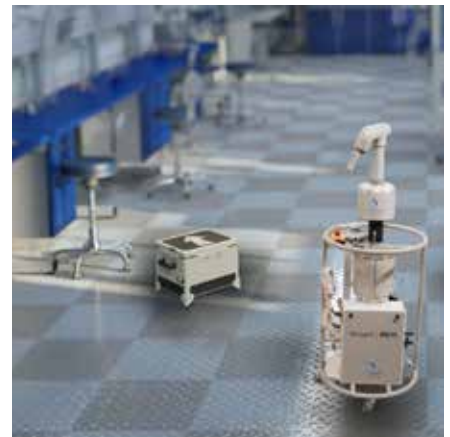
## CHALLENGE

- ▲ It was essential to decontaminate the entire facility as one discrete zone to prevent any cross-contamination between areas. The client also requested to pass the hydrogen peroxide vapor through the HVAC ductwork supplying air to the facility
- ▲ 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 vapor 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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# Requirements and Set-up

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## DEPLOYMENT

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

An additional three generators were also placed in the plant room to push vapor 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 vapor directly into the air handling unit which was pulsed to push the vapor 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. Bioquell CIs give an instant real-time indication of the success of a 6-log hydrogen peroxide vapor 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 vapor into oxygen and water, taking place overnight.

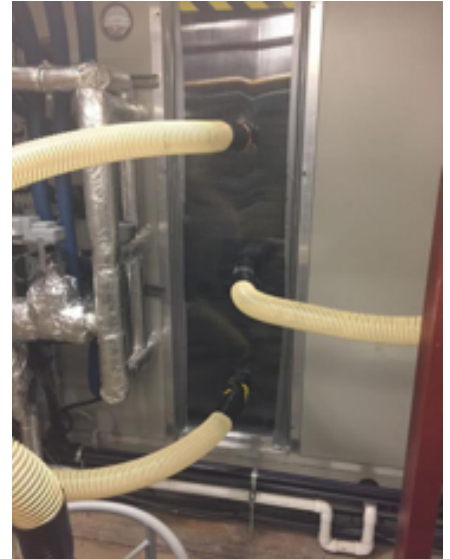
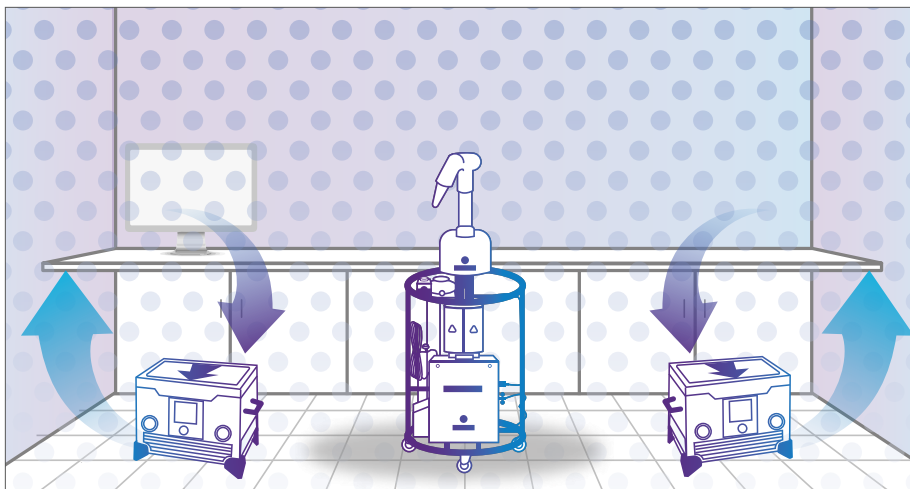


Image 1: hydrogen peroxide vapor injection into the air handling unit



**“18 of Bioquell's hydrogen peroxide vapor generator units were positioned between both floors.”**

## 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 verified that a 6-log decontamination had been achieved. Following the standard 7-day incubation period, no growth was observed in 100% of the 94 BIs retrieved from the suite. This proved that a 6-log sporicidal kill was achieved in all treated areas.

All electronic equipment within the facility was exposed to the hydrogen peroxide vapor, 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 including specific equipment and its dedicated HVAC system 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 **2,500m<sup>3</sup>**



**94** BIOLOGICAL INDICATORS  
FULLY DEACTIVATED



**TWO STORY FACILITY**  
DECONTAMINATED IN  
A SINGLE CYCLE

Bioquell RBDS is designed to offer **immediate response** in many regions around the world.  
Visit [bioquell.com](http://bioquell.com) for additional details.

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

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