



## CASE STUDY

# MODULAR SWITCHROOM TO SPEED UP UPGRADE OF NUCLEAR LABORATORIES AT SELLAFIELD

As part of the Sellafield Replacement Analytical Project (RAP) - a major programme to aimed at modernising laboratory facilities critical to nuclear decommissioning - Actemium has designed a custom-built modular switchroom. By shifting construction off-site and supplying a fully integrated, factory-tested solution, the business accelerates deployment, reduces on-site risk, increases programme certainty, and ensures seamless integration in a highly regulated and complex environment.

**Sector:** Nuclear Decommissioning  
**Location:** Seascale, Cumbria  
**Expertise:** Power management & distribution

**Scope:** LV Switchgear  
Design, Manufacture,  
Installation

# 01

## CLIENT & REQUIREMENTS

The Replacement Analytical Project (RAP) is a strategic Sellafield programme created to replace ageing laboratory infrastructure with modern, high-performance analytical facilities. Existing laboratories - many over 60 years old - were no longer fit for purpose, creating increasing challenges around safety, reliability, and the precision required for critical activities such as plutonium management, waste categorisation, and hazard reduction.

RAP aimed to deliver a future-ready analytical capability by upgrading the National Nuclear Laboratory's Central Laboratory with new Highly Active, Medium Active and Special Nuclear Material facilities, alongside 135 new analytical instruments.

As part of this programme, Morgan Sindall - a Programme and Project Partner member - appointed Actemium to design and deliver a new power distribution solution to support the upgraded facility.

# 02

## THE CHALLENGE

Delivering electrical infrastructure within a live nuclear site introduced several critical challenges:

- **Existing infrastructure constraints:** The original switchroom was located in a congested area scheduled for major construction works
- **Live environment integration:** Maintaining power to existing systems while transitioning to new infrastructure
- **Safety and compliance requirements:** Working within one of the UK's most highly regulated environments
- **Programme risk:** Minimising disruption to ongoing operations and wider construction activities
- **Complex asset transition:** Transferring loads from legacy systems to new infrastructure without impacting performance

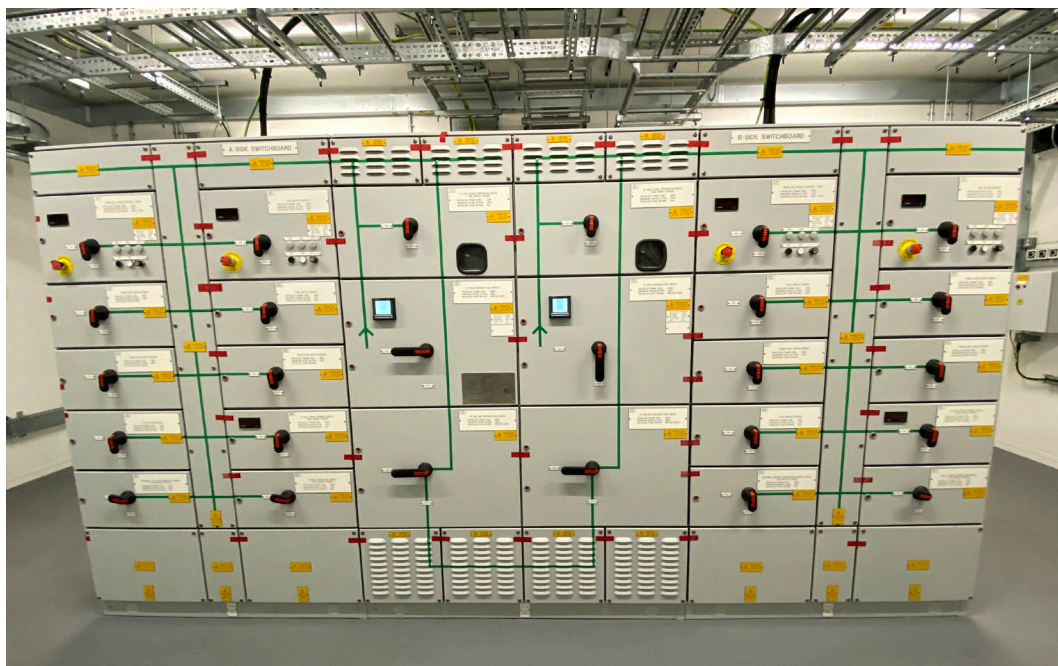
# 03

## THE SOLUTION

Actemium designed and manufactured a **fully integrated switchroom**, providing a complete power distribution solution. It included:

- A 560A Form 4b Type 7, 50kA for 1 second 400V **LV switchboard**
- Integrated **auxiliary transformers and distribution boards**
- Full **lighting and small power systems** via wall-mounted distribution boards - including normal and emergency lighting and power outlets
- **Ventilation system** incorporating inlet/extract fans and stainless steel Coalescers/Mist Eliminators
- Segregated cable management for power and control systems
- Complete **factory installation, wiring, and testing prior to delivery**

Once delivered to site, the new switchroom will enable the safe transfer of loads from the existing infrastructure, allowing the legacy facility to be decommissioned with minimal disruption.



# 04

## THE BENEFITS

The modular switchroom solution provides significant advantages aligned to Sellafield's safety, programme, and operational objectives:

- **Greater programme certainty:** Off-site manufacture and pre-testing reduces delays and improves delivery predictability
- **Accelerated delivery:** The modular approach enables faster installation and commissioning on site
- **Reduced on-site health and safety risk:** Minimised time on a nuclear-licensed site lowers workforce exposure to hazards
- **Seamless integration with minimal disruption:** The solution enables a controlled transition from legacy systems while reducing interfaces with live services in a congested environment
- **Enhanced quality and reliability:** Factory-controlled build and testing ensures consistent, high-quality outcomes

The solution also aligns with Sellafield's approach of reducing on-site activity wherever possible, supporting safer, more efficient delivery across complex nuclear programmes.



Designing a modular switchroom for Sellafield means working to some of the most demanding specifications in the UK. It's not just about housing electrical equipment - it's about engineering a fully assured, safety-critical asset that integrates seamlessly into a nuclear-licensed environment. Every requirement must be justified, evidenced, and delivered with absolute consistency - and we're proud to deliver exactly that for Sellafield's nuclear laboratories, supporting operations for decades to come.

Lee Dainty,  
Sector Manager, Actemium ICS

## DELIVERY PARTNERS



Via

**MORGAN  
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