



CASE STUDY

MODULAR SWITCHROOM SOLUTION FOR NUCLEAR LABORATORY UPGRADE PROGRAMME

As part of the Sellafield Replacement Analytical Project (RAP), a major programme established to modernise laboratory facilities critical to nuclear decommissioning, Actemium ICS designed and manufactured a custom-built modular switchroom to support upgraded electrical infrastructure requirements. The solution was fully integrated, factory-built, and tested prior to delivery, demonstrating how off-site construction can improve quality, reduce on-site risk, and enhance programme certainty in a highly regulated and complex nuclear environment. Although the RAP programme was subsequently paused prior to installation, the completed switchroom provides a validated, deployment-ready solution and a proven reference for modular electrical infrastructure delivery within the nuclear sector.

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

Scope: LV Switchgear
Design, Manufacture,
Factory Test

01

CLIENT & REQUIREMENTS

The Replacement Analytical Project (RAP) was a strategic Sellafield programme intended to replace ageing laboratory infrastructure with modern, high-performance analytical facilities.

Existing laboratories, many over 60 years old, presented increasing challenges in terms of safety, reliability, and the precision required for critical operations including plutonium management, waste categorisation, and hazard reduction. RAP was developed to provide a future-ready analytical capability through new facilities and upgraded supporting infrastructure.

As part of this programme, Morgan Sindall, acting as a Programme and Project Partner, appointed Actemium ICS to develop a new power distribution solution capable of supporting the upgraded laboratory environment while aligning with the stringent safety, operational, and regulatory requirements of a nuclear-licensed site.

02

THE CHALLENGE

Delivering electrical infrastructure to support a major upgrade within a live nuclear environment introduced a number of complex challenges.

- **Constrained site conditions:** A congested location and ongoing construction created access and interface challenges.
- **Live system integration:** New infrastructure had to be installed without disrupting existing operations or power supply.
- **Strict nuclear compliance:** The design needed to meet rigorous nuclear safety and assurance standards.
- **Complex programme delivery:** Multiple stakeholders, dependencies, and work fronts required careful coordination.
- **Legacy system transition:** Loads had to be safely transferred to the new infrastructure with minimal operational impact.

03

THE SOLUTION

Actemium ICS designed and manufactured a fully integrated modular switchroom, providing a complete power distribution solution developed for off-site construction and deployment.

- **Designed and manufactured a modular switchroom** featuring a 560A Form 4b Type 7, 400V LV switchboard with integrated power distribution equipment.
- **Included lighting, small power, ventilation, and auxiliary systems** within a single, fully integrated solution.
- **Implemented segregated cable management** to ensure safe and compliant routing of power and control cabling.
- **Completed factory assembly, wiring, and testing off-site**, improving quality assurance and reducing on-site installation activities.
- **Delivered a deployment-ready solution** designed to support safe load transfer and a controlled transition from legacy infrastructure.
- **Demonstrated the benefits of modular construction** in a highly regulated nuclear environment, reducing programme risk and improving delivery certainty.



04

VALIDATED BENEFITS OF THE MODULAR APPROACH

The completed switchroom demonstrates a number of key advantages associated with modular, off-site construction in safety-critical environments.

- **Accelerated project delivery through modular, factory-built electrical infrastructure**
- **Reduced programme and operational risk by minimising on-site construction activities**
- **Enhanced quality and compliance through controlled factory assembly and testing**
- **Seamless integration with live systems while maintaining operational continuity**
- **Future-ready, repeatable solution supporting nuclear infrastructure modernisation**



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 have delivered exactly that for Sellafield's nuclear laboratories, supporting operations for decades to come.

Lee Dainty,
Sector Manager, Actemium ICS

DELIVERY PARTNERS



Via

**MORGAN
SINDALL**



CONTACT US

T: +44 (0) 1452 713 222

E: reachout@actemium.co.uk

in @Actemium_UK

www.actemium.co.uk

Find out more about our
containerised solutions

