



# Refurbishment Engineering | Electrical Control Panels

For North American Nuclear Power Plants

## **SOLVING THE INDUSTRY'S OBSOLESCENCE CHALLENGES**

Curtiss-Wright has successfully refurbished obsolete electrical control panels critical to the safe operation of a nuclear power plants.

# Solving Obsolescence Challenges In Nuclear Safety Systems

When a North American nuclear power plant faced the growing risk of obsolete safety system control panels no longer supported by original equipment manufacturers (OEMs), sourcing a reliable and compliant solution was critical. The panels play a vital role in reactor safety and must meet stringent regulatory and seismic requirements, leaving no room for compromise.

Curtiss-Wright was selected for its proven expertise in refurbishment engineering, delivering a cost-effective, low-risk solution that restored and upgraded the existing control panels while preserving original form, fit, and function. All refurbishment, assembly, and testing activities were completed in-house to ensure complete traceability, quality control, and regulatory compliance.

## The Challenge

The control panels are a key element of the plant's Neutron Overpower Protection (NOP) Trip system, a safety-critical system designed to protect the reactor from Loss of Regulation (LOR) and Loss of Coolant Accidents (LOCA). The system continuously monitors neutron power levels and initiates an automatic shutdown if operating limits are exceeded. Any failure or delay could impact reactor safety, operational reliability, and regulatory compliance.

With limited OEM support and increasing industry obsolescence, the plant required a trusted partner capable of extending system life without introducing unnecessary design complexity or licensing risk.

## Curtiss-Wright's Refurbishment Engineering Solution

Curtiss-Wright applied its refurbishment engineering capabilities to design and build a set of relay rack mounted cages. The relay cages and relay modules which contain fast response time relays were also procured, installed, and tested within off-the-shelf cabinets, for an overall project cost savings. The scope also included assembly and installation of terminals, cable ducting, and all wiring internal to the cabinet. The dual relay cages provide additional monitoring and protection, while a seismically qualified full control panel assembly ensures compliance with environmental, safety, and seismic standards.

By leveraging existing, proven designs and components, Curtiss-Wright minimized technical risk while ensuring full compliance with current plant requirements.

The completed relay modules also underwent Environmental Stress Screening (ESS) testing, revealing issues that could have been caused through transporting to the utility, further safeguarding this critical equipment.

## Results and Customer Value

Curtiss-Wright has successfully delivered three control panel assemblies to date, and is preparing three additional spares, to further support the plant's continued safe and reliable operation, while considering obsolescence down the road. The panels were provided as refurbished, off-the-shelf solutions, eliminating the need for costly new custom designs and reducing schedule and licensing risk.

Seismic qualification was achieved using the EPRI SQRSTS program; manufacturing and material sourcing were supported by local suppliers-helping to control costs while maintaining the high standards required for nuclear safety applications.

Through refurbishment engineering, Curtiss-Wright delivered a proven, compliant, and cost-effective solution that extends asset life, reduces obsolescence risk, and supports long-term plant operation.



Control Panel