



Nuclear Power Facilities: Repair and Protection of Auxiliary and Plant Systems

Nuclear power facilities rely on extensive auxiliary systems and cooling equipment to support safe and efficient power generation. These systems operate under demanding conditions and include primary and secondary circuits, along with associated plant equipment, all of which play a critical role in maintaining reliable plant operation.

Across non-safety-critical areas outside primary containment, **corrosion, erosion and mechanical degradation** remain ongoing maintenance challenges.

Belzona repair composites and protective coatings offer proven solutions for restoring and protecting plant assets, extending service life and reducing unplanned outages **without hot work or extensive downtime**.



Typical Maintenance Challenges in Nuclear Power Facilities

While the reactor pressure vessel and primary circuit are strictly regulated, nuclear plants operate a wide range of secondary and auxiliary systems exposed to:

- Corrosion from cooling and service water
- Erosion in high-velocity flow areas
- Chemical attack from treatment chemicals
- Degradation of concrete and steel structures
- Leakage at flanges, joints and pipework

Belzona solutions support maintenance and asset protection in **ASTM Service Level II and III areas**, outside primary containment, across both non-safety-critical and safety-related systems.

Quality

Belzona materials are manufactured under an ISO 9001 certified system, ensuring consistent quality and traceability.



Visit us at belzona.com

Company Description

Belzona manufactures **repair materials and protective coatings** for restoring and maintaining industrial machinery, equipment, buildings, and structures.

Safe

ASTM D5144 provides guidance on the use of protective coating standards within nuclear power plants, where coatings are classified into Service Levels based on location, exposure conditions and safety significance.

Belzona solutions are currently applied in **Service Level II and Service Level III environments**, supporting maintenance and life extension activities across non-safety-critical and safety-related systems outside primary containment.

With **over 70 years of experience** across the global energy sector, Belzona materials are trusted to protect and restore critical assets, helping nuclear operators maintain regulatory compliance, operational reliability and long-term plant integrity.

Versatile

Belzona materials support maintenance across many nuclear power facilities, including:

- Pressurised Water Reactors (PWR)
- Boiling Water Reactors (BWR)
- Pressurised Heavy Water Reactors (PHWR / CANDU)
- Advanced Gas-Cooled Reactors (AGR)
- Emerging Small Modular Reactor (SMR) designs

Belzona Know-How *in Action*

Areas of Belzona Applications in Nuclear Power

Cooling Water & Heat Transfer Systems

Protection against corrosion, erosion and microbiologically influenced corrosion (MIC).



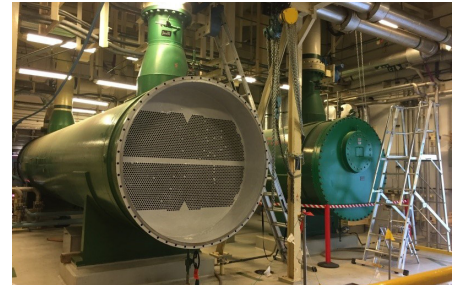
Pumps, Valves & Associated Pipework

In-situ repair of erosion damage, casing defects and leakage, minimising or eliminating the need for equipment removal.



Condensers & Heat Exchangers

Protective coating solutions to improve corrosion resistance and hydraulic efficiency.



Storage Tanks & Bunded Areas

Long-term corrosion protection for fully immersed and exposed conditions.



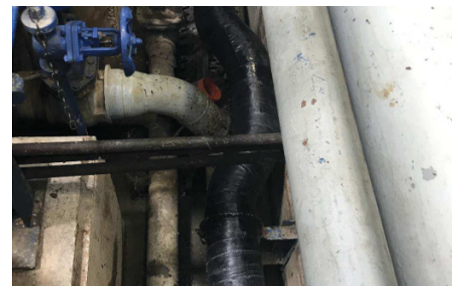
Concrete & Structural Assets

Repair of cracked or chemically attacked concrete and protective coating systems.



Flanges, Joints & Leak Sealing

Cold-applied sealing solutions allowing rapid return to service.



Belzona Solutions

Belzona repair composites and protective coatings are engineered to perform in demanding industrial environments found within nuclear power facilities.

These systems:

- Are applied **cold**, avoiding hot work permits
- Allow **in-situ repairs**, reducing downtime
- Offer long-term resistance to **corrosion, erosion** and **chemical degradation**
- Support **sustainable maintenance** by extending asset life

With decades of experience across the global energy sector, Belzona materials are used to protect and restore critical equipment while maintaining strict site safety and operational requirements.