



**Babcock & Wilcox Canada**

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Nuclear Services

Helping you  
achieve optimum  
performance



# Performance

## Your Partners in Performance

To meet the electrical needs of today's society, your nuclear plant must continue to operate at optimum efficiency with minimal downtime. As a supplier of over 200 CANDU and PWR steam generators worldwide, as well as other major plant components, Babcock & Wilcox Canada (B&W) has the knowledge and expertise to develop innovative solutions for all areas of plant operations—from the nuclear reactor itself to conventional systems, pressurizers, primary piping, critical heat exchangers and steam generators.

### Customer-Focused Services

B&W provides specialized inspection, maintenance, repair and modification capabilities, tailored for each project. We work closely with our customers to provide the best possible solutions for their needs. Our Quality Assurance Program meets the exacting standards of the ASME Boiler & Pressure Vessels Nuclear Codes (N-stamp), ISO 9001, and CSA. B&W's practices are consistent with ALARA (As Low As Reasonably Achievable) principles. And, our services can be provided in a variety of ways: through staff augmentation, for specific scope projects, or on a turnkey basis.

### Industry-Leading Expertise

More importantly, we are leaders in research and development for the nuclear industry. When commercially available systems are not adequate to address current challenges, B&W develops the services, techniques and equipment needed to address or correct the problem.

Quite simply, B&W has the multi-disciplinary capabilities to help you optimize your plant's performance—and ultimately its profitability.



Electrosleeve™ sample



bobbin eddy current probe



Training of inspection personnel improves site activities.



B&W constantly evaluates new technology to bring clients state-of-the-art solutions.



Extensive mockup training and testing ensures successful site execution, consistent with ALARA goals.

# Integrity

## Maintain Your Plant's Integrity

At B&W, we've positioned ourselves at the forefront of nuclear services by focusing on the unique operational realities every plant must face. We specialize in a variety of proactive solutions that help utilities worldwide maintain their plants' integrity.

### Sludge Happens

A minimal amount of sludge can be detrimental to your boiler, even under ideal conditions. Although the water entering a steam generator is very clean, minute water impurities eventually accumulate as sludge inside the equipment. Industry reports clearly illustrate that this build-up substantially affects plant efficiency in terms of megawatts lost, primarily from forced outages due to tube failure.

### Reduce Downtime

B&W's experience with over 2,500 nuclear service projects, together with published data from EPRI and other agencies, have shown us that regular inspections and planned maintenance strategies can ensure your plant provides stable, predictable performance. The net result? While plugging quantities and number of tubes inspected remains constant, forced outages have all but been eliminated, which ultimately helps plant management achieve greater steam generator availability.



**B&W is a world leader in intertube waterlancing for the removal of hard sludge deposits.**



**We can draw on our depth of experience, expertise and capabilities for all your nuclear service challenges.**

# Innovation

## Proven, Innovative Services

B&W nuclear services are designed to ensure that as your plant ages, critical components will continue to meet the design basis.

### Preventative Measures

**Water Chemistry** – B&W water chemistry services include laboratory analysis and sampling, failure analysis and corrosion testing, water chemistry monitor systems, consumable materials control, auditing and training services. For example, in steam generators, proper water chemistry practices can lead to lower contaminant levels, higher pH balances and lower ingress of iron and other solids.

**Performance Engineering** – B&W's performance engineering includes the following: 3D deposition analysis of tube bundles, 3D flow simulation, flow induced vibration analysis, water level optimization, moisture separator performance analysis and thermal transient analysis. B&W's capabilities are primarily geared to steam generators and critical steam supply systems.

**Materials Research** – This knowledge helps us predict potential problem areas in components, allows us to design processes that avoid damage during a cleaning or repair cycle, and ensures that repair components installed are to industry best practices. B&W leads the field in materials research. For example, we have the most experience with thermally treated Alloy 690 tubing.

### Sludge Management

**Waterlancing** – B&W manufactures high-performance intertube waterlance systems for the removal of hard sludge deposits that accumulate on the tubes, tube sheet and tube support structures. Our system is flexible enough to access tight spaces in steam generators, yet powerful enough to deliver high pressure water (up to 10,000 psi) for focused cleaning power to remove hard sludge deposits.

**Chemical Cleaning** – We provide a low temperature/crevice process or our own high temperature process. These methods have been applied on over 90% of the chemical cleans performed in North America. We also offer related services including process qualification, corrosion monitoring and other site or technology support.



rotating eddy current probe

# Experience

## Complete Solutions

**Inspection Services** – Inspection services are used to confirm the integrity of plant components and include valve testing, eddy current testing (standard bobbin and specialty), ultrasonic testing and video inspection. The choice of technology used is based on the component configuration, the type of defects anticipated, and the ultimate needs of the customer.

**Repair or Modifications** – B&W is continually working to develop new and improved repair or modification capabilities for steam generators, valves, electrical breakers and other plant components. We also provide custom tooling design solutions as well as a range of engineering services to support planned upgrades, plant modifications due to changing regulatory requirements, and emergency response.

**Manufacturing Services** – An established supplier to the nuclear industry, B&W can manufacture reactor systems, heat exchangers and pressure vessels to client specifications. Our manufacturing capabilities help clients cost-effectively address plant modifications or correct degradation in key components.

**Training** – At B&W, we recognize that realistic training with accurate mockups improves site operations while lowering personnel radiation exposure. This provides customers with the confidence and knowledge they need to consistently meet ALARA goals.

**Construction** – A major contractor of construction trades, B&W has the infrastructure to manage large site construction activities.

**Nuclear Parts** – B&W will access an extensive network of spare parts inventories to address immediate needs. Parts can also be custom-manufactured or procured to any nuclear quality level.

**Other Services** – B&W has the experience to coordinate complex projects with multiple companies. We've achieved an enviable combination of industry experience and expertise.



As a designer and manufacturer of over 200 nuclear steam generators worldwide, B&W has the expertise crucial for engineering and performing modifications.



Data management software allows B&W to determine the best way to inspect key plant components.



send/receive eddy current probe

# The B&W Nuclear Advantage

## Qualified People Extensive Resources On-site Service

Utilities worldwide have relied on B&W for proven technology, custom engineering capabilities, strict quality control, an ongoing commitment to research and development, and an unmatched level of service and support.

B&W's team of qualified technicians, engineers and other experts boast industry-leading credentials, years of field experience and comprehensive services/programs to help you manage all areas of your plant more efficiently.

We provide you with a total package of nuclear services. Insist on the best. Insist on B&W.

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