Outage & Fuel Management Solutions
Outage & Fuel Management Solutions

Curtiss-Wright Nuclear has a proven track record at nuclear plants worldwide. We are proud of our highly experienced personnel that enable us to supply innovative, custom-designed outage and maintenance equipment and services. Our products are designed to improve safety and reduce critical path outage time and associated radiation exposure to help you achieve your ALARA objectives.

Reactor Servicing –
tooling, heavy lifting equipment and plugs/seals to support reactor disassembly/reassembly, in-vessel maintenance and facilitation of refueling and other maintenance activities

Steam Generators –
a full range of servicing equipment from nozzle dams to closure tensioning and handling equipment including installation services

Specialty Equipment –
specialty shielding, fuel handling equipment upgrades, quick bolts and dry cask storage support solutions
Focused on improving safety and reducing critical path time and radiation exposure

Custom-designed outage and maintenance equipment

**Fuel Management** – neutron absorber products and services such as SNAP-IN® Inserts, BADGER testing, coupon testing, surveillance programs and material qualification

**Remote NDE Applications** – specializing in Pre-Service and In-Service Specialty Non-Destructive Examination services including Fully Encoded Delivery Systems for Phased Array Ultrasonic Testing and Balance of Plant Eddy Current Testing

**CRD Maintenance Services** – all the equipment necessary to perform BWR control rod drive, HCU and undervessel I&C maintenance as well as turnkey and supervisory services for both on-site and off-site CRD rebuild
The Outage & Fuel Management Solutions Group is a combination of three divisions concentrating on Nuclear Plant Outage and Maintenance excellence. Since 1973, we have amassed a highly experienced staff of scientists, engineers, designers, project managers and certified technicians. As part of Curtiss-Wright Nuclear, our accumulated expertise in nuclear plant operations enables us to supply custom-designed outage and maintenance equipment using proven technologies. Above all, our products are designed with you and your plant’s requirements in mind.

Engineered Products
We improve Nuclear Plant Outage and Maintenance activities by providing innovative solutions and quality services led by Subject Matter Experts. We provide value to our customers by improving critical path outage time, equipment reliability and improving worker and nuclear safety while reducing personnel radiation exposure.

Advanced NDE Solutions
We have a successful history of providing NDE services to the majority of the US Nuclear Fleet for over three decades, most notably the delivery of fully encoded Phased Array Ultrasonic Testing of piping and components.

Fuel Management
Providing safe, innovative solutions that address neutron absorber performance issues is one of our specialties. We use our extensive experience to provide effective neutron absorber product solutions like NETCO SNAP-IN® Inserts and service offerings including in-situ and laboratory testing of neutron absorber material as well as criticality safety analyses.

Scientech
Anatec
LMT
NETCO

Putting the needs of our customers first

Quality Programs
Our fully approved Quality Assurance Programs, in conformance with 10CFR50 Appendix B and NQA-1, demonstrate Curtiss-Wright Nuclear’s commitment to complying with industry regulations, codes and standards for providing reliable products and services. Our audited quality programs have been accepted for design, product fabrication, off-site maintenance and on-site field services.

SG and BOP Eddy Current Testing
Our experts deliver the latest procedures, program support and services to help ensure safe operation, equipment reliability and compliance with industry and regulatory codes and standards. Development of the IM-2 Manipulator system provides a flexible, reliable solution where remote operations are required. Our remote data center offers a cost-effective and efficient approach to data analysis.
**Products**

**Above Vessel Reactor Servicing Equipment**
- Blade Guides
- CEA Handling Tool
- Control Rod Blade/Fuel Support Piece Grapples
- Control Rod Blade/Blade Guide Storage Racks
- Drywell Head Alignment Pins
- Fuel Channel Handling Tool
- ICI Cutting and Withdrawal Tools
- LPRM Bending Tool
- Multiple Instrument Dry Tube Strongback
- Multiple Instrument Storage Container
- Neutron Source Retrieval Tool
- Radiation Shield and Strongback
- RCCA Handling Tool
- Reactor Disassembly/Wet Lift Tooling
- Reactor Head Tensioner Carousel/Strongback
- Refuel Floor Auxiliary Bridge
- RPV Head O-ring Storage Container
- RPV Closure Component Storage Rack
- RPV Service Platform
- RPV Stud Lifting Devices
- RPV Stud Storage Racks
- Segmented RPV Head Alignment Pins
- Shroud Head Bolt Wrench
- Temporary Reactor Head

**BWR CRD Undervessel Maintenance Equipment**
- CRD Exchange/Rebuild Tools
- CRD Handling System
- CRD Shipping Containers
- CRD Storage Racks
- HCU Water Accumulator Handling Cart
- IM-2 Manipulator System
- NDE Qualification and Certification Training
- Remote Data Center
- TIP Tubing Quick Disconnect Modification
- Undervessel Mock-up
- Undervessel Platform Upgrade

**Fuel Management**
- Criticality Analysis Software
- NETCO BADGER Equipment
- NETCO PINserts
- NETCO Smart Store System
- NETCO SNAP-IN® Inserts

**Plugs and Seals**
- Core Flood Nozzle Plugs
- Drywell Vent Plug
- ICI Plugs
- Insulation Port (Sandbox) Covers
- Nuclear Instrumentation Port Covers
- Recirculation Outlet Nozzle Plugs
- RPV Drain Line Plug
- RPV Inlet/Outlet Nozzle Plugs
- RPV Stud Covers
- RPV Stud Hole Plugs
- Segmented Reactor Cavity Seal

**Steam Generator (SG) Servicing Equipment**
- Channel Head/Manway Mock-up
- Fastener Cleaner
- FME Covers
- HydraNuts
- Manway Cover Handling Devices
- Manway Diaphragm Roller Set
- Manway Flange Protector
- Manway Multi-stud Tensioning Systems
- Nozzle Dams
- Nozzle Dam Analog and Digital Support Consoles
- Nozzle Dam Storage Cabinets
- Quick Bolts
- Radiation Shield Doors
- Single-stud Tensioning Systems
- Stud Elongation Measurement Devices
- Studs, Nuts, Spherical Washers
- Zero Entry Nozzle Covers
- Zero Entry Nozzle Dam Enhancements and Tooling

**Specialty Equipment & Services**
- Cask Service Platform
- Dry Cask Storage/ISFSI Specialty Equipment
- Fuel Handling Equipment and Fuel Transfer System Upgrades
- Fuel Transfer Tube Quick Closure Modifications
- Quick Bolts
- RPV Bio-Shield Doors
- Sacrificial Shield Wall Door Handling Tool Sets
- Storage Baskets

**Services**

**Fuel Management**
- BADGER Testing
- Criticality Analyses
- NETCO SNAP-IN® Insert Installation
- Neutron Absorber Qualification Testing
- Surveillance Coupon Programs and Testing

**Outage Maintenance**
- BWR CRD Exchange
- BWR CRD Rebuild (on-site and off-site)
- BWR I&C Maintenance
- HCU Maintenance
- HydraNut Support and Installation
- LLR/ILR Services
- PIP Refurbishment
- Plug and Seal Installation and Removal
- Product Installation and Training
- SG Closure Services
- SG Nozzle Dam Installation and Removal
- SG Nozzle Dam Refurbishment
- TIP Tubing Quick Disconnect Upgrades
- Training

**Innovation**
- Innovation Team Programs
- Outage Optimization Walk-downs

**Nondestructive Testing**
- Advanced Phased Array Ultrasonic Testing
- FAC and NDE Inspections
- In-Service Inspection
- NDE Qualification and Certification Training
- Remote Data Center

**Phased Array Ultrasonic Testing (PAUT)**
- PAUT of Dissimilar Metal Welds, Weld Overlays
- PAUT Sensors and Motion Control Application
- PAUT Technique and Procedure Development Qualification

**Eddy Current Testing Services**
- Auto Analysis Software
- IM-2 Manipulator System
- BOP Heat Exchanger Tubing Inspection
- SG Eddy Current Testing Independent Data Analysis
- Data Acquisition/Management and Tube Repair

**Quality Services**
- ASME NDE Program Development and Review
- Quality Control Inspections
We strive for the best solutions, from innovative design using leading-edge technologies to world-class manufacturing – delivering compelling value to our customers.
Contact Us

outage&fuel@curtisswright.com