

Reactor Coolant Pumps (RCPs) Products & Services

Background

As an original equipment manufacturer (OEM) of RCPs, Westinghouse is uniquely qualified to provide full-scope and technical advisory service for all facets of pump and motor field maintenance and repair. With over 60 years of quality service and technological knowhow, we perform dozens of jobs for utilities worldwide each year. In addition to providing routine and full-scope services, technological expertise and customer commitment has made Westinghouse the vendor of choice in critical emergency repair situations. Field services for routine maintenance and emergency repair use the extensive resources of the Westinghouse network of pump- and motor-related facilities and personnel.

These resources include design, manufacturing, decontamination, and equipment modifications and upgrades. Also included are machining, field disassembly, repair, re-installation and “hotshop” repair, safety Class 1E motor repair, and other safety-related component repair.

Benefits

Having performed well over 250 RCP and motor field services, Westinghouse customers receive the following benefits:

- OEM design and field engineering expertise for evaluation of anomalies, inspection results, and recommended upgrades for increased reliability of equipment
- Special tooling that can greatly minimize dose, schedule, reliance on operation activities, and system drain-down conditions
- Ability to integrate all aspects of RCP and motor services, including field services, factory services, and spare parts
- A program to integrate pump and motor parts with full-scope services
- Continual investment in training programs for Westinghouse and utility personnel, which are relevant to RCPs and motors
- Continual investment in customer-driven technology and development programs, which will result in outage optimization, reduced utility operations and maintenance (O&M) costs, and improved availability

Full-Scope Capabilities

Westinghouse's full-scope of RCP and motor field services is designed to help minimize downtime. To this end, it includes:

- Outage planning support
- Outage preparation
- Pump and motor field services
 - One-year motor inspections
 - Five-year motor inspections
 - Motor disassembly, reassembly
 - Seal inspections
 - RCP internal changeouts
- Parts kits
- Post-outage report preparation

Outage Planning Support

During outage planning, a Westinghouse coordinator develops a preliminary-scope service plan and conducts an onsite review with utility personnel to verify that objectives are being satisfied. The coordinator integrates the plan into the utility outage schedule and is responsible for the preparation of any specified revisions to the plan. The coordinator also identifies all support functions and determines which parts will be required for the work.

Outage Preparation

During this stage, the coordinator selects the appropriate administrative and crew personnel for all designated activities. The chosen crew receives extensive classroom and hands-on training.

At the same time, the coordinator reviews the exact job scope, schedule, ALARA considerations, and any potential areas that might cause significant delays. To minimize interference with utility logistics and avoid delays during the outage, all training takes place at the Westinghouse Waltz Mill Service Center. Crew members train on RCP motor and GE recirculating pump motor and seal mock-ups. The actual, sitespecific configuration of the RCP cubicle is simulated as closely as possible to familiarize all crew members prior to departing for the site.

In addition to training, the crew checks out all necessary equipment and prepares it for transportation to the site, readiness and reviews are conducted, and the crew and equipment are mobilized.

Field Services

Following is a brief synopsis of typical procedures performed during each of the identified field services.

Seal Inspection

- Motor disconnects removal, then installation and reconnects
- Seal disassembly, reassembly
- Seal inspection
- Upgraded parts installation
- Motor-to-pump alignment
- Balancing

One-year Motor Inspection

- Stator polarization index
- Bearing insulation check
- Oil lift system inspection, cleaning and testing
- Motor lubricating oil replaced
- Bolt torque check
- Motor exterior inspection
- Bearing clearances measurement

Five-year Motor Inspection

- All one-year activities
- Partial motor disassembly
- Stator inspection
- Rotor inspection
- Bearing clearances adjusted
- Fly-wheel in-service inspection

RCP Internals Changeout

- Motor removal, installation
- Seal removal, installation
- Main flange stud removal and tensioning
- Pump removal and installation

Parts kits are supplied for specified field work. The kits are planned and assembled to meet customer requirements and arrive at the site pre-packaged for the specific maintenance activities. Each kit contains the correct paperwork and includes site-specific revisions and upgrades.

Post-Outage Reports

After completing all field procedures, the coordinator provides the utility with a permanent record of pump and motor field work performed. The report details personnel and logistical demobilization as well as figures for equipment refurbishment and calibration. Based on years of field experience, recommendations are also provided for necessary upgrades.

Technical Advisory Services

In addition to full-scope field work, we offer a complete line of technical advisory services designed to maximize current and future pump and motor performance factors. Trained, experienced personnel can provide technical direction to utility personnel; recommend replacement, repair, or reinstallation of components; thoroughly inspect the condition of RCP seal and motor components; perform RCP balancing services prior to start-up; and recommend necessary upgrades, parts changes, and corrective actions for future outage consideration.

Proven Leadership & Experience

Being the best means the ability to establish the standards that others follow. Remaining at the top means consistently providing service standards of excellence while constantly engineering new technological advances. Westinghouse has successfully done both. Our comprehensive RCP and motor field services can help utilities meet the operating demands of today and be better equipped to meet the challenges of tomorrow.

