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## TYPICAL PROJECTS

To illustrate the kinds of work WCEL does, here are some details of some of our recent projects.

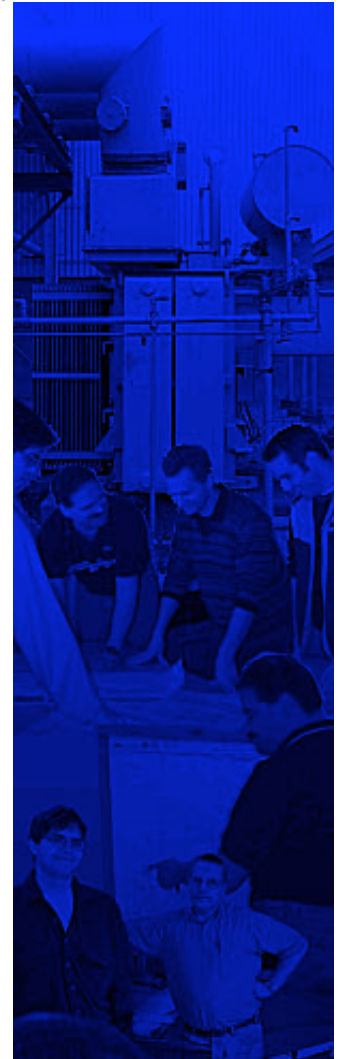
- **450 MW Supercritical Power Plant Predictive Maintenance**

WCEL provided engineering specialist services in establishing baseline data database in different diagnostic categories including thermography, vibration analysis, oil analysis, winding resistance testing, insulation resistance testing, acoustic testing, etc. WCEL also developed detailed performance procedures for predictive maintenance (PdM) and diagnostic testing.

- **600 MW Power Plant Turnaround Management**

WCEL provided engineering specialist services, detailed scope preparation and complete turnaround management using WCEL's Unique Project / Turnaround Management System. Outage was completed well ahead of schedule and 20% under the budget, with full scope completed.

- 300 MW (400,000 hp) Turbine Repair and Inspection
- 2 66 MW Turbine Repair and Inspection
- 2,000,000 BPH Boiler Repair and Inspection
- Feedwater / Condensate Modification and Repair
- Electrical Repair and Modification
- Instrumentation Repair and Upgrade
- Balance of Plant Repair



- **HP Heater Replacement**

Project management, engineering, design, direct construction supervision, commissioning and performance testing for simultaneous replacement of 2 vertical shell and tube heat exchangers (73" OD x 41ft, 4000PSI/700PSI), addition of flash vessel, high energy piping modifications, regulatory approvals, HP flash vessel modifications, heaters and pressure vessels fabrication inspections.



- **High Temperature Fasteners Replacements**

Project management, engineering, and construction supervision for replacement of HT fasteners on 380 MW turbine HP governor valves, IP stop valve and IP governor valves.

- **Ash Slurry System Refurbishment**

Resolved the problem and provided project management, engineering, design, construction supervision and commissioning for the refurbishment of 8-800Hp ash slurry pumps and associated systems, pipeline, ash lagoon distribution and re-circulation lagoon floating pump-station.



- **Turbine House 110 Ton Crane Controls Upgrade**

Resolved the problem and provided engineering services, project and construction management, commissioning for the purchase and installation of upgraded controls and mechanical components, as well as load testing of the 110 Ton Provincial Turbine Hall Crane.

- **Flow Assisted Corrosion (FAC) Survey of High Energy Steam and Condensate Piping**

Project management, engineering, survey activities, piping stress analysis and the final report / recommendations.



- **Excitation Transformer**

Project management, engineering, procurement and installation of a 3600 KVA excitation transformer.

- **Generator Protection Upgrade**

Project management, engineering, design, installation supervision, commissioning and performance testing of new multiprocessor relay system to upgrade the protection of a 35-year-old 150 MW generator.



- **New Waste Oil Plant and Oily Water Treatment Plant**

Project management, engineering, design, construction supervision, commissioning and performance testing for a new plant capable of satisfying all environmental regulatory requirements for release of treated water into the lake.

- **Refurbishment of 2 - 600HP Extraction Pumps**

Resolved the problem and provided project management and engineering for replacement of 2 bowl assemblies with new type and refurbishment of pump heads for 2 - 600 HP vertical turbine condensate extraction pumps.

- **2,000,000 pph Steam Drum Inspection and Repair**

Performed a complete crawl-through of the Steam Drum, inspected the circular seam welds, the longitudinal seam welds, nozzle underliners, condition of nozzle welds and associated heat affected zones, the steam drum doors, and the downcomers. Steam Drum repaired and re-certified as required, and returned to service in time for scheduled Breaker Open date.

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Page Updated August 28, 2005