



Black&McDonald

Primary Heat Transport Pump Motor Replacement

CLIENT

Ontario Power Generation

LOCATION

Courtice, Ontario

PROJECT DESCRIPTION

The Darlington Primary Heat Transport (PHT) Pump Motors (1, 2, 3, 4-33130-PM1 to PM4) have been degrading over the last 25 years. Therefore, these motors have been identified as requiring replacement or refurbishment during the Darlington Refurbishment scheduled outages (D1632, D1711, D1831, D1841, D1941 [Winner of Outage Cup], DNRU2).

B&M SCOPE OF WORK

Black & McDonald's (B&M) scope of work for the turbine outage was the removal, cleaning and reassembly of major and minor components of the Unit 4 Steam Turbine and Generator. Turbine components included low pressure turbine Stages 1 and 3 consisting of all major blade carriers and over 800 carrier studs. Generator components included hydrogen seals, diffusers and generator end doors. Additional components and equipment included were pressure stop valves, motor control valves, steam chests and six shaft bearings. The scope also included component replacements and repairs for supporting systems such as lube oil, seal oil, stator cooling water, moisture separators and reheaters, and the condenser hot wells.

During execution of the maintenance program B&M owned all confined space monitoring and Foreign Material Exclusion (FME) for the project, including during the inspections phase to maintain both worker safety and integrity of the critical components.



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UNIQUE PROCESSES

B&M's work spanned multiple outages as a critical or near critical path evolution. SAT, along with installation, frequently required extensive troubleshooting and the use of previous lessons learned. It was critical to the success of the project to maintain key trade support teams in order to ensure that OPEX is utilized. In order to execute the schedule of a critical or near critical path activity, around the clock work operations were routinely put in place.

Material handling of equipment the size of a PHT Pump Motor requires extensive preparation and expertise in order to ensure the safety of the people and the station equipment. Critical lifts, which nearly 100 were executed, were planned out extensively while maintaining frequent communication with all other work groups which may be impacted. This included performing critical lifts during shift changes of other work groups as a complete vault closure was required.