A Rockwell Automation Company

Tolko Industries
Slave Lake Greenfield OSB Plant Control

The Client:

Tolko Industries Ltd. is a private Canadian-owned forest products company based in Vernon, British Columbia, that manufactures and markets specialty forest products to world markets. With manufacturing operations across Western Canada, Tolko is a major producer and marketer of lumber, plywood, veneer, oriented strand board, and kraft papers. The company's woodlands operations in British Columbia, Alberta, Saskatchewan, and Manitoba have received third-party certification of their sustainable forest management systems.

The Requirement:

Tolko selected Hinz as their electrical and control consulting partner. Hinz was responsible for providing the electrical/controls engineering services for the construction and commissioning of a Greenfield Orientated Strand Board plant. The new plant is designed to produce 7500 million square feet of 3/8" OSB per year. The process consists of two log ponds, two drum debarker lines, two stranders, two green bins, two hot oil energy systems, two drum dryers, three dry bins, one wax & resin system, two drum blenders, one OSB forming line, continuous press & finishing line, and one plant-wide pneumatic dust system.

Hinz's scope of work involved project management of all aspects of the electrical/controls, as well as hardware and software design. Included within the scope, was the co-ordination of equipment vendors who were supplying their own PLC programs and HMI graphics.

Hinz was responsible for the detailed design and developing the PLC and HMI programs for the following process areas:

- Woodroom
- Wax and Resin System
- Pneumatic Conveying System
- Plant Water Distribution System
- Pollution Control System
- Process Water System

The Design Solution:

Hinz provided complete electrical and controls engineering services. The design phase included working with the client to select major electrical and controls hardware, power and electrical design, instrumentation design, specification and supervision of control systems provided by others, HMI configuration, programming of PLC systems, and complete documentation. The construction phase included construction and commissioning supervision.

The control system configuration incorporated an individual PLC for each process area. Plant control for each area was achieved using Rockwell ControlLogix processors. Communication between PLC and HMI was accomplished by using an Ethernet network with a one gigabit fiber-optic backbone. A dedicated ControlNet network was used for PLC to PLC communication. Each PLC system had a ControlNet network that was used for processor to I/O rack communications. In addition, each PLC system had a dedicated DeviceNet network that was used to interface to the VFDs and motor starters in the MCCs. The Human Machine Interface (HMI) is based on Wonderware's Industrial Architect software (IAS) and InTouch 10 software. The plant was controlled and monitored from a central control room.

The plant has over 830 motors with a connected load of 30,000HP. The incoming 25kV power supply was supplied by ATCO. The 25kV power was distributed to ten 2.5 MVA 25kV/600V transformers and one 10 MVA 25kV/4160V transformer. The medium voltage MCC contained two 1500 HP RVAT starters and 11 FVNR starters. There are 37 low voltage MCCs with a total of 380 vertical sections. All the VFDs and motor starters with the MCCs were pre-wired and configured at the MCC factory. This task reduced wiring errors and expedited the installation process.

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System Specifications:

- 12 – Rockwell PLC ControlLogix processors.
- 13 - Wonderware HMI Stations
- Plant wide ControlNet system for PLC to PLC communications
- 1 - gigabit Ethernet system for the PLC to HMI communications
- DeviceNet System for PLC to VFD and motor starter communications
- Ethernet-based Process Camera System

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com