



A Rockwell Automation Company

## West Fraser Timber Co. Ltd. Conversion of PLC 3 program to CLX program

### The Client:

West Fraser Timber Co. Ltd. operates a number of pulp and paper mills including Slave Lake Pulp. Slave Lake Pulp began producing high quality BCTMP in 1991 for use in printing and writing papers, board and

selective tissue applications. The surrounding forests provide hardwood and softwood which sustain the mills 210,000 ADMT annual capacity.

### The Requirement:

Slave Lake Pulp's control system consists of a Provox DCS connected to several Allen-Bradley PLC 3s. The existing control system had sufficient capability for the plant and little expansion of the existing functionality was required. However these PLCs are outdated systems and have served their useful life span. Allen-Bradley is also gradually phasing out support of these controllers because of both the cost and the difficulty of servicing older equipment. The requirement was to replace all of the PLC 3s with controllers that could

interface with both the Provox DCS and the 1771 I/O that was being used by the PLC 3s. Maintenance Staff also wanted all existing internal and external program documentation to line up with the old program so they would have an easier time adapting to the new programming software.

Slave Lake Pulp has limited manpower and downtime, consequently, they chose to replace one PLC per shutdown.

### The Design Solution:

An Allen-Bradley 1756-L55 ControlLogix Controller was selected to replace the PLC 3 CPU. A 1756-DHRIO module was added to communicate with the ten 1771 I/O Racks using Allen-Bradley Remote I/O and the rest of the PLCs on the DH+ network. In addition to these modules a 1756-ENBT module was also used for both a programming interface to the maintenance staff as well as a future method of passing information from controller to controller.

The DCS interface to the CPU on the PLC 3 was a RS232-25pin serial interface which was directly converted to a RS232-9pin connection so that it could be connected to the available port on the 1756-L55 ControlLogix CPU. Once an interface was established to the PLC, Hinz was able to use the ControlLogix I/O mapping interface to manipulate and monitor I/O from the DCS. A routine was also developed to convert the hexadecimal words to decimal words.

The structure of the PLC 3 ladder logic is quite similar to the ControlLogix PLC but there is no automatic

conversion so the code was converted manually. Several commands needed to be reworked because of slight differences. Inter-PLC communication blocks were changed to the new ControlLogix standards so that both the PLC 3 and the ControlLogix processors could communicate over the DH+ network. The database was extracted and manipulated so that it would work with ControlLogix.

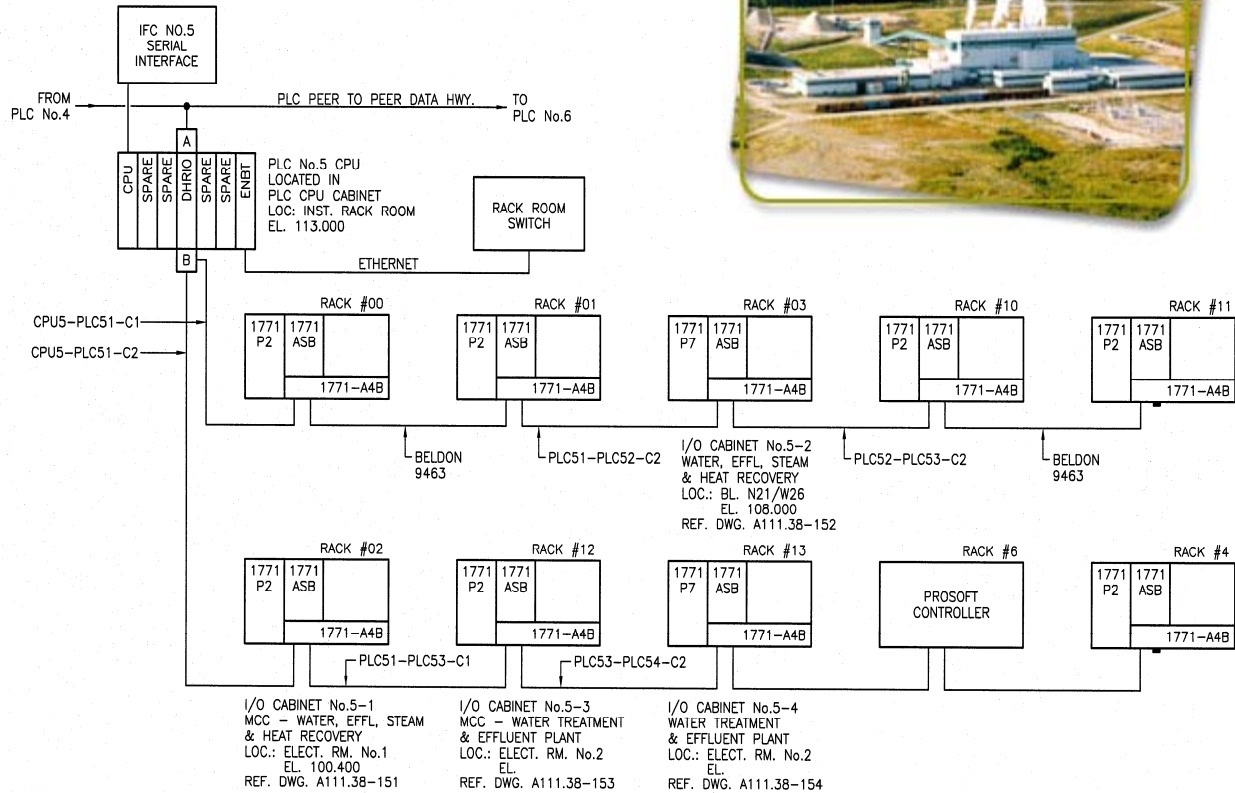
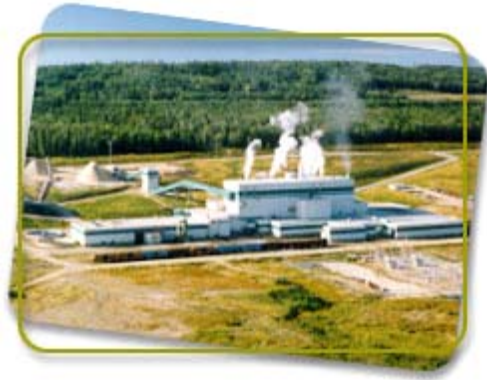
The PLC 3 and the 1771 I/O used hexadecimal addressing, and because the maintenance staff requested that the internal and external program documentation be similar to the old PLCs, ControlLogix aliases were used to make the program look like it was addressed hexidecimally when it was actually decimal.

Startup of the control system went smoothly with no lost production time due to the PLC change out.



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### System Specifications:

- Rockwell ControlLogix 1756-L55 CPU
- 1756-ENBT Ethernet Communications card
- 1756-DHRIO Data Highway/Remote I/O card
- 1771 remote I/O Software
- RSLogix 5000
- Distributed Control System
- DeltaV/Provovx

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

[www.hinz.com](http://www.hinz.com)