



A Rockwell Automation Company

Westspur Pipelines Estevan SK Submaster Upgrade

The Client:

Enbridge Pipelines (Saskatchewan) Inc., formerly Westspur Pipelines, is a wholly owned subsidiary of Enbridge Pipelines headquartered in Estevan. Westspur operates a light and medium crude oil

gathering system in Southern Saskatchewan linking to the main Enbridge Pipeline via the tank farm at Cromer and Enbridge Pipelines (North Dakota) Inc.

The Requirement:

As part of their recent integration with Enbridge, Westspur needed to replace their existing SCADA system with a HP/UX RTAP system.

Their existing system included a master system in Estevan, and three sub-masters at Midale, Steelman and Alida. These sub-masters polled the RTUs and PLCs in the field over direct cable connection, radio modem, and dial-up modems. Master to sub-master communication was done over leased telephone lines.

The systems were based on custom software that was becoming difficult to support.

The new system will fit the same model, with the master in Estevan communicating to the sub-masters, which in turn poll the field. IPL/Enbridge supplied redundant masters, while Hinz was to supply the three submasters.

The Design Solution:

The new masters replaced the existing masters at the Estevan control center. The new masters were based on HP/UX and ran IPLs version of RTAP.

SaskTel's Hyperstream technology was to provide the Ethernet backbone for communications between the masters and sub-masters via TCP/IP. The communication protocol was chosen to be DNP V3.00, Level 3.

The new submasters were Dell PCs running Intellution FIX32 V6.15. Screens were developed for the sub-masters, even though they were destined to be stand-alone machines. In the event of communications failure with the masters, local operators could exercise pipeline control from these screens.

Intellution does not have a DNP slave driver, so a driver compatible with DNP V3.00 Level 3 was developed based on Triangle Microworks' libraries. The tag cross-reference between FIX32 database tags and DNP points is defined in the FIX32 database for open access and configuration. Configuration tags for

the driver itself (station addresses, timeouts, etc) are also defined in the FIX32 database.

Direct connect and radio modem RTUs and PLCs were moved from the old system to the new system without modification. RTUs that were previously connected via dial-up modems were re-routed through the Hyperstream using point-to-point tunneling protocol over TCP/IP.

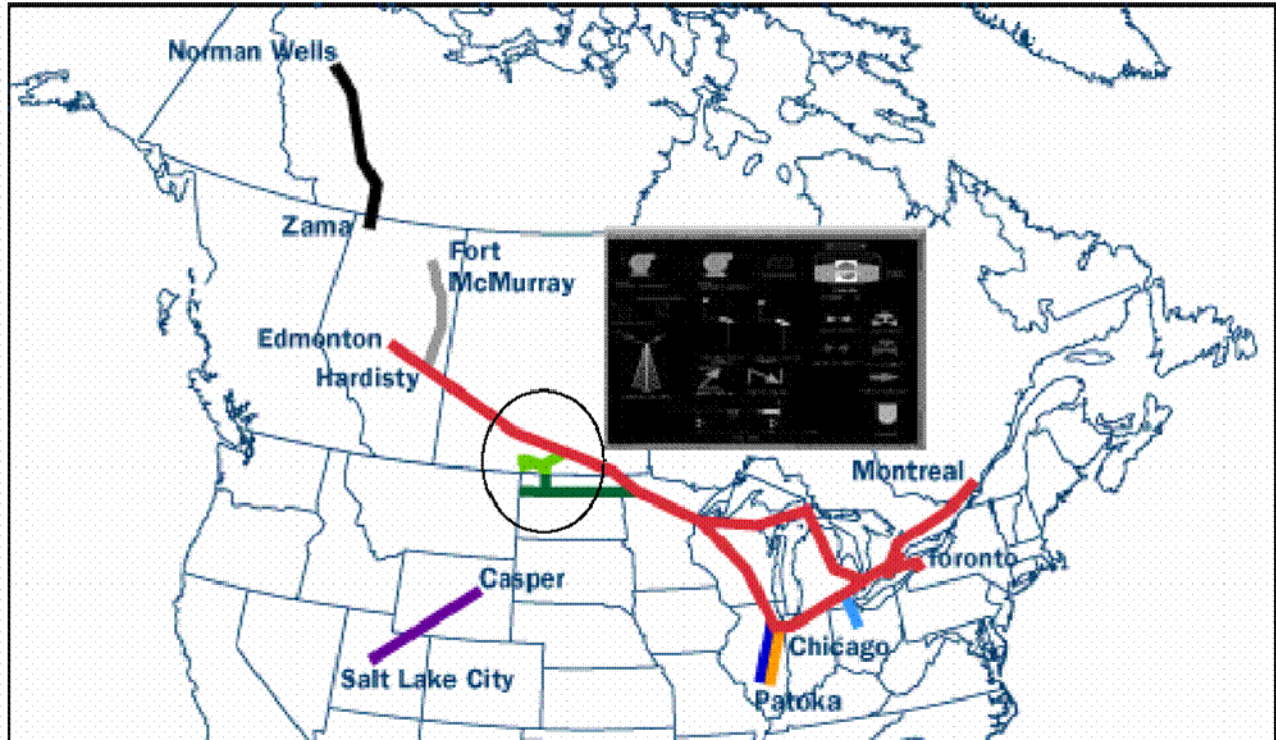
All database points were comprehensively tested end-to-end during commissioning.

For ease of maintenance, PCAnywhere and modems were installed on all the sub-masters. The DNP driver also had remote maintenance capability over the Hyperstream. These features have proved invaluable during the post-commissioning phase of the project. Many small changes and fixes have been done over the modem from Estevan and Calgary.



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System Specifications:

- HP/UX Masters Running IPL RTAP
- Dell PC Sub-Masters Running Intellution FIX32 V6.15
- Hinz DNPV3.00 L3 Slave Driver For FIX32
- SaskTel Hyperstream For Ethernet TCP/IP Comms
- Existing Modicon RTUs And PLCs
- Existing Radio Modem Comms
- Point-To-Point RS-232 Comms Over TCP/IP
- PCAnywhere Remote Access

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

www.hinz.com