



A Rockwell Automation Company

## Husky Oil Battle River Pump Station (VFD)

### The Client:

Husky Oil is a major oil supplier in Alberta and Saskatchewan. Husky's headquarters are in Calgary, Alberta and their field operations are in Lloydminster, Alberta. Husky is a leader in the production of heavy oil and operates the Bi-Provincial Upgrader and Refinery in Lloydminster.

Husky also ships oil via its own mainline pipeline from Lloydminster to Hardisty, Alberta where it connects to IPL's pipeline system.

### The Requirement:

Due to increased field production, Husky's Mainline Pipe Line throughput needed to be increased. This required the addition of a new intermediate pump station located approximately seventy (70) kilometers down stream of the injection terminal at Lloydminster. The main constraint of this project was portability and an in service date of June 30, 1997 (fifteen weeks after project start date). The project team was centered at the Hinz Edmonton office where all project activities were coordinated. Team members consisted of Hinz, SNC Lavalin, GP Technologies, and Robicon. In order to meet the project milestones a fast-track project approach was required. All material needed to be procured quickly, and shop floor time had to be promptly reserved to ensure timely assembly of station skids and piping assemblies.

The geographic location of the site on the Alberta electrical grid resulted in a poor electrical supply to the new station.

Costs of a new transmission line to serve the station were prohibitive. Therefore the new station was designed to use a VFD as a soft start to eliminate the need for "across the line" starting of the large 2500HP Motors. Additionally, the station pressures were controlled by the speed of the VFD unit rather than a pressure control valve. To avoid the use of dual VFDs a hot synchronous transfer control philosophy had to be developed by Hinz. The control system soft started the first pump. To start the second pump the control system would synchronize the first pump to the utility supply, transfer the unit to the utility supply, and then soft start the second pump.

The station was integrated into Husky's SCADA pipeline control center in Lloydminster. A local control operator interface was also included for local operation and to assist maintenance in troubleshooting and general maintenance.

### The Design Solution:

The project team managed, designed, procured, and directed construction on behalf of Husky. The project team developed a fast track plan to procure all materials to meet the very tight (15 week) project schedule. Materials included: two 5KV/2500 Hp motors, 2 centrifugal pumps, all station valves and piping skids, Modicon Quantum programmable control system, Wonderware InTouch graphic operator interface system, Robicon Harmony 2700Hp VFD, 5kV switch gear, 480 V motor control center, electrical switch-gear building and a 5kV distribution center, both skid mounted.

Hinz's design scope included electrical, instrumentation, control and commissioning services. The electrical design included the addition of a 5MVA - 25KV/5KV station transformer with a secondary isolation switch and station main circuit breaker. This equipment along with the VFD output reactor and station services 480V transformer were mounted on a portable skid package constructed in Edmonton.

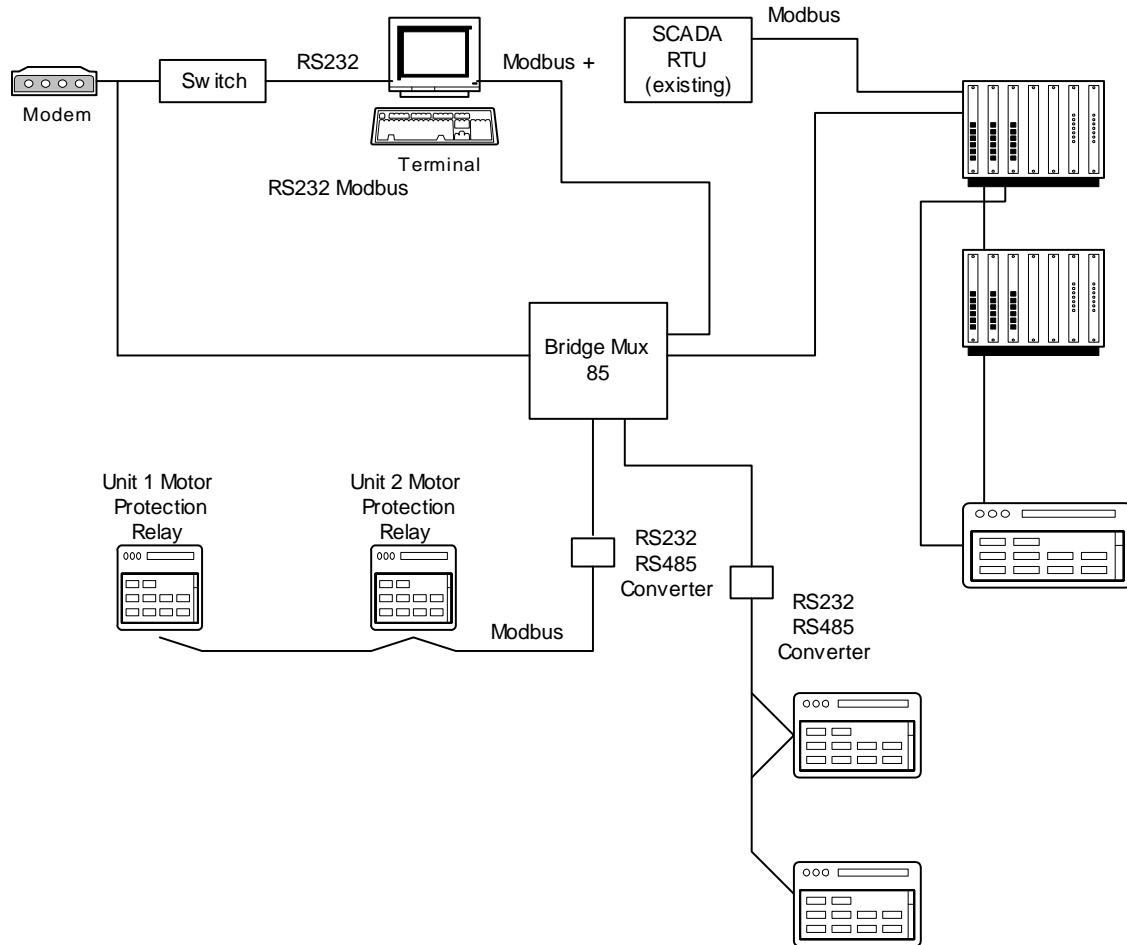
A portable electrical switch-gear building was also designed which included the 2700 HP air cooled Robicon VFD, 480V MCC, 5kV-400 Amp switch-gear, cable tray and station control systems. Hinz also developed the station operator interface and Modicon Quantum programmable logic control system. Special control logic was developed to synchronize the VFD to the utility power and initiate up and down transfers of the pumping units. A Wonderware InTouch NT based graphical interface was developed for the local operator interface thus providing maintenance personnel a window into the station control system. Hinz provided the SCADA system gateway and assisted Husky SCADA personnel in attaching the new station to their system.

The team members had weekly meetings to ensure all important project commitments were being met to complete the aggressive project schedule. The station was put into service on 1997, June 30, on schedule, and on budget.



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### System Specifications:

- Robicon VFD (Harmony) 2700HP
- Modicon 424 Quantum Programmable Controller
- Wonderware InTouch (NT 4.0)
- Modicon BM-85 Modbus Multiplexor
- Multilin 269+
- Westinghouse 2 - 2500HP motors
- 2 Sultzzer Bingham 3 stage pumps (1100psi head)

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

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