



A Rockwell Automation Company

## Westerner Park Association Centrium Arena Ice Plant Control System Upgrade

### The Client:

The Westerner Park Association is a not-for-profit organization that manages the day-to-day operations of the Westerner Exposition Park in Red Deer, Alberta (population 65,701). Part of their operations includes the Centrium Arena. Built in 1991, the Centrium is a

modern facility with a seating capacity of 5,735 and standing room for another 1,000. It is home to the Western Hockey League's (WHL) Red Deer Rebels and hosts many other sporting and entertainment events.

### The Requirement:

The Centrium Arena Artificial Ice Plant is an ammonia ( $\text{NH}_3$ ) compressor-based system. The chilled  $\text{NH}_3$  passes through a brine chiller to cool a brine solution. The brine solution is pumped through the many coils embedded in the ice rink floor slab, which in turn keeps the ice frozen on the rink surface. Rink temperature is monitored and controlled by a floor slab temperature sensor. Rink temperature must be controlled within  $0.1^\circ \text{C}$  of set point. This fine control is critical for good ice during professional hockey games and even more important for the sanctioned curling events the Centrium holds.

The original control system, installed in 1991, consisted of a Delta Controls Intelli-Con microprocessor and an IBM 286 DOS based clone PC c/w a 14" monochrome monitor. A dot-matrix printer connected to the PC provided function and alarm reporting. As there was no technical support locally and the equipment was getting near the end of its life cycle, the management of Westerner Park contacted Startec Refrigeration Services Ltd. for a solution. Hinz was contracted to provide a solution.

### The Design Solution:

Hinz made an initial site visit to obtain details on the existing system. After a review and consultation with Westerner Park and Startec, Hinz recommended a PLC-based control system with a PC-based Human Machine Interface (HMI).

The existing control and operations of the Ice Plant was duplicated in the new control system. The new HMI provides a more graphical look and enhanced trending capabilities. The existing dot-matrix printer was replaced by a color ink jet printer capable of alarm printing as well as screen and trend printouts. The design solution had to be very cost effective to meet the Westerner Park's operations budget. Hinz did this project as a "fixed price" contract.

An Allen-Bradley SLC 500 PLC and Rockwell Software RSView32 running on a Dell Pentium PC was specified. This system will be easily supported by local companies or by Hinz out of Calgary/Edmonton. To keep costs down, the RSView32 communicates via RS232 to the SLC 5/03 PLC.

Hinz provided this new system as a turn-key package. As the Ice Plant had to run during the conversion, a maximum time of 8-12 hours was all that was permitted for the changeover. A Startec Refrigeration mechanic monitored and ran the Ice Plant manually during this period.

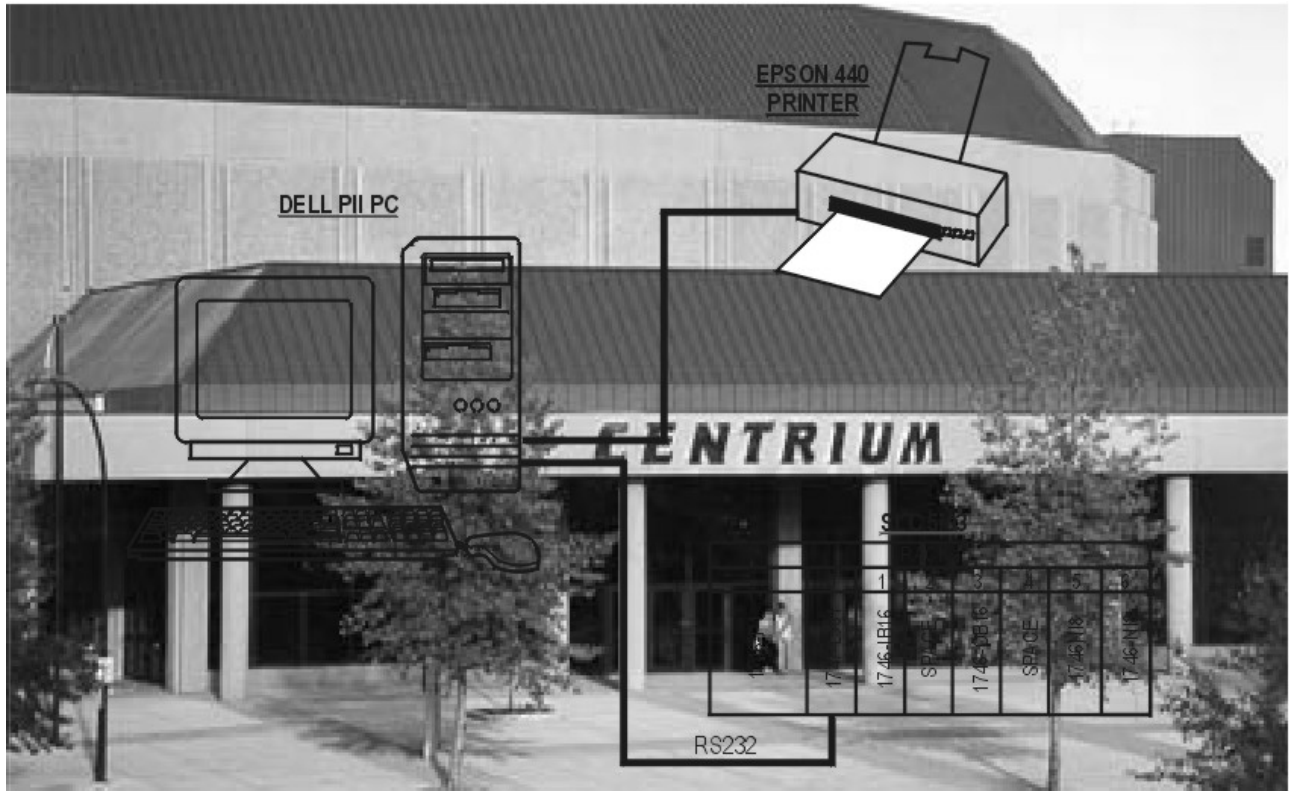
In order to reduce the downtime, Hinz contracted a Calgary-based control panel manufacturer to construct an enclosure to house the PLC and required hardware, terminals etc. This new enclosure had to fit in the same location as the existing Delta Controls panel.

Westerner Park Management and Operations were both pleased with the results of this retrofit. While the initial thrust of the project was to replicate the original control system, the enhanced graphics, reporting and trending provided with the new system made the control system easier for the Ice Plant staff to operate.



A Rockwell Automation Company

## Westerner Park Association Centrium Arena Ice Plant Control System Upgrade



### System Specifications:

#### Allen-Bradley SLC 500 based PLC system c/w:

- 1747-L531, 8K memory processor
- 1746-A7, 7 Slot Rack
- 1746-P1, 120VAC Power Supply
- 1746-NI8, 8 Point Analog Input Modules (Qty. 2)
- 1746-IB16, 16 Point, 24VDC Discrete Input Module
- 1746-OB16, 16 Point, 24VDC Discrete Output Module
- Rockwell Software RSView32 150 Tag

Runtime.

#### Dell P2 PC @ 333MHz c/w:

- 64MB RAM
- 8.4GB HD
- 15" Color Monitor
- 32X CD Rom
- 100MB Internal Zip Drive
- Windows 98 Operating System
- Epson 440 Color Ink Jet Printer

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

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