



A Rockwell Automation Company

Foothills Pipe Lines Ltd. Jenner Compression Station Unit #2

The Client:

Foothills Pipe Lines Ltd. is a major Canadian natural gas transmission company which delivers approximately one third of all Canadian gas exports to the United States. The Foothills Pipe Line begins just south of Caroline, Alberta. The east leg continues southeast through Alberta and Saskatchewan to Monchy Saskatchewan where it ties to the Northern

Border Pipeline Company. The east leg contains 7 compressor stations, and the west leg begins just south of Caroline, Alberta, and continues southwest through Alberta and British Columbia to Kingsgate, British Columbia, where it ties to Pacific Gas Transmissions.

The Requirement:

The original Compressor Station utilized a Siemens PLC for the unit control functions. It controlled a Siemens 25 MW motor driving a Cooper compressor. The PLC was becoming unreliable, difficult to troubleshoot and had limited local support. It was decided to replace the PLC with a GE Fanuc Series 90-70. GE Fanuc is now the standard at all compressor stations. The primary goal of the unit control panel

upgrade was to :

- Provide an updated efficient control system
- Reduce the risk of equipment failure
- Utilize industry standard hardware and software products that are readily available, modular, flexible and expandable.

The Design Solution:

Hinz was contracted by Foothills Pipe Lines Ltd. to provide engineering and integration services for this project. The contract included assisting the engineering team in control panel checkout and testing, PLC programming, HMI configuration and testing, commissioning and startup. The operator interface uses DMACS NT version. It communicates with the PLC via a high speed low cost Ethernet link.

The existing control panel steel was used to house the new PLC equipment. Therefore, the PLC I/O was pre-mounted, wired and tested on back panels. These pre-wired panels were then terminated to the field devices. This helped to reduce the field installation time.

Unit controls consisted of GE Fanuc 90/70 781 PLC with Genius discrete, analog and RTD blocks. Vibration monitoring and shutdown is performed with a Bentley Nevada System 3300. The PLC communicates serially to the Bentley to display current value, alert and trip set points. Trip relays are used to

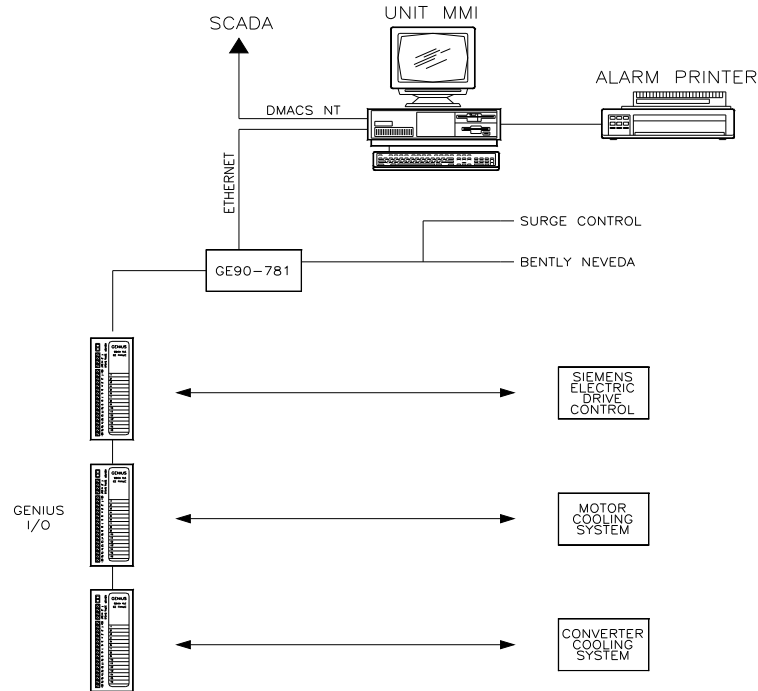
detect and shutdown on excessive vibration.

The unit control panel functions are to control the unit valves, recycle valve, vent valve, pressurizing valve, control lube and seal oil systems, detect vibration, protect from and respond to compressor surge conditions, speed control of the Siemens Electric Drive Control (EDC), Motor Cooling System (MCS) and Converter Cooling System (CCS). The PLC is used to monitor for high temperature on the EDC and compressor. The unit PLC communicates to the station PLC through the Genius communications bus. A SCADA computer polls information from the unit PLC serially over the GE Fanuc CMM module. This is a dual unit station and has provision to operate both units in series.



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System Specifications:

- GE FANUC Series 90 - 70 PLC
- Genius I/O
- Intellution DMACS NT Operator Graphics
- SCADA System Communications
- Bentley Nevada Vibration Interface
- Compressor Controls Corp Surge Controller Interface
- Electric Drive Control
- Motor Cooling System
- Converter Cooling System

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

www.hinz.com