



A Rockwell Automation Company

IMC Kalium IMC Kalium Water Control

The Client:

IMC Kalium is a multinational fertilizer Company operating seven potash mines throughout North America. Two of the largest producing mines are IMC Kalium K1 and K2, both located outside of Esterhazy,

Canada. They are both underground operations and have a combined production of over 8 million tons per year.

The Requirement:

IMC Kalium has an ongoing water incursion problem that requires a continuous pumping of inflowing water to the surface so that it may be disposed of down injection wells. The water inflow rate fluctuates, but can occasionally be as high as 9,000 gallons per minute. An updated control system was needed to make the control of the pumping system more flexible and to provide better reporting. The pumps were to be controlled from both mines. The project consisted of supplying a new PLC control system to control 18 positive displacement pumps and 3 booster pumps which together comprised the de-watering system at IMC Kalium. Each of 3 headers are feed by a booster pump. Six of the positive displacement pumps are

located on each header. The operator needed to control the pumps from a terminal located at K2 and optionally from a backup terminal located at K1. The terminal needed to have standard start/stop templates , show running status, and display run time totals for each pump. The booster pumps would need to shut down on low suction pressure and high vibration, and the positive displacement pumps would need to be interlocked to their respective booster pump.

The Design Solution:

The control system configuration chosen for this application is a Modicon Compact PLC network and PanelMate 2000 operator terminals. The PLC monitored and controlled the following equipment. ·

- 18 - 575 Volt National Pumps ·
- 3 - Warman Booster Pumps ·
- 10 - Additional National Pumps ·
- 8 - Pressure Sensors ·
- 5 - Vibration Sensors ·
- 2 - Level Transmitters ·
- 1 - Shaft Flowmeter

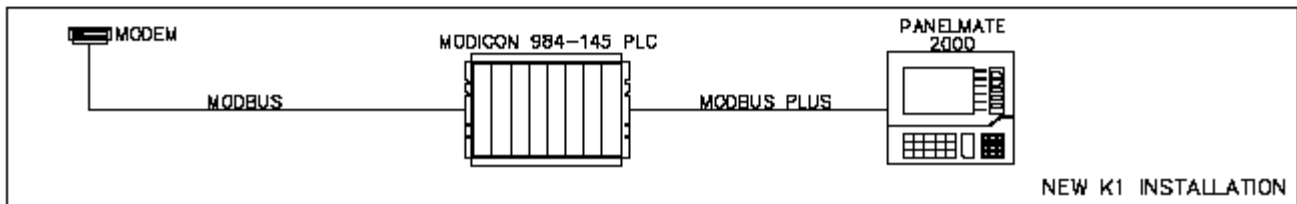
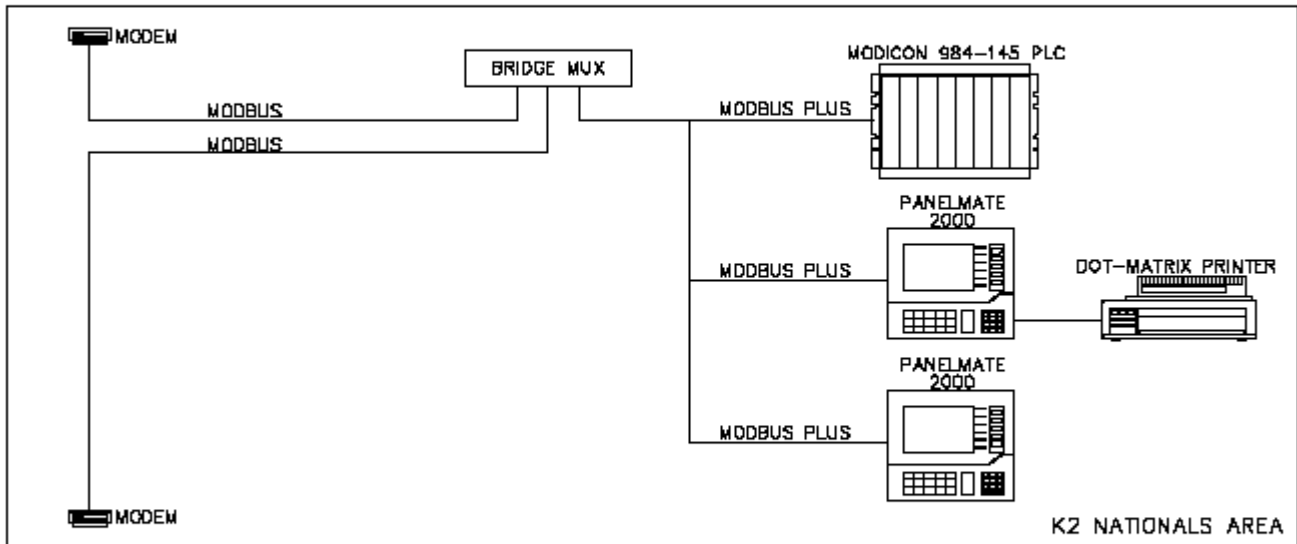
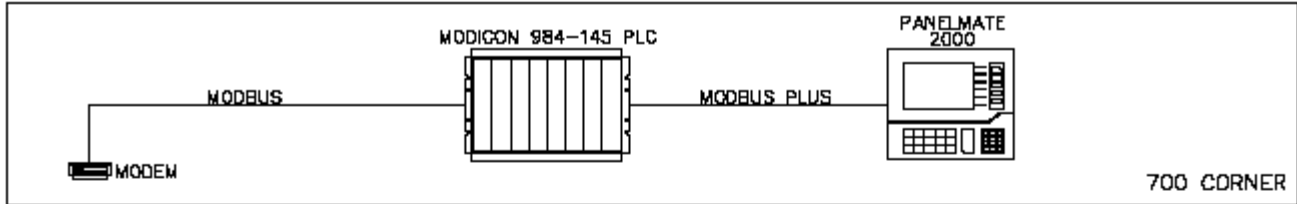
Operator controls are provided by four Modicon PanelMate terminals. The two existing terminals were

replaced with newer models and two additional PanelMates were added to the system. The final configuration is made up of 15 page PanelMates located at 700 Corner and at K1, and two 100 page PanelMates located at K2.



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System Specifications:

- PLCs : Modicon 984 Compact PLCs
- Total I/O Count
- · 56 Analog Inputs
- · 10 Analog Outputs
- · 64 Digital Inputs
- · 104 Digital Outputs
- HMIs : PanelMate 2000

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

www.hinz.com