



A Rockwell Automation Company

IMC Kalium K1 / K2 Dispatch Consolidation

The Client:

IMC Kalium is a multinational fertilizer manufacturing company operating seven potash mines throughout Canada and the United States. Two of the largest producing mines are IMC Kalium K1 and IMC Kalium

K2, both located outside of Esterhazy, Saskatchewan, Canada. They are both underground operations and have a combined production of over 8 million tons per year.

The Requirement:

Prior to the implementation of this project, K1 and K2 each had a separate dispatch control room and dispatch operator, located on the surface at the respective mine. The dispatch operator monitors and controls the operation of a number of underground processes and is the coordinator for the movement of personnel underground. The desire was to connect together the underground control systems for the two mines to a single control room located at K2. This consolidation will streamline the operation, improve efficiencies and enhance the overall operation of both mines.

The consolidation requires a communication system to link the two Allen-Bradley PLC-based control systems with the new PC-based HMI system. The proposed HMI system will use RSVIEW32, the latest operator

interface software available from Rockwell Software. It runs on PC workstations running the Windows NT 4.0 operating system. The two existing HMI systems are based on older versions of packages similar to RSVIEW32; namely Advisor, ControlView, and WinView. Therefore the screens and databases from the two existing dispatch HMIs were used as the basis for the development of the consolidated dispatch system.

RSLinx Gateway is used as the main interface between the HMI and PLC systems. With RSLinx Gateway connected via A-B KTx communication modules into the four separately existing PLC networks, it allows any of the RSVIEW32 stations direct access to data in any of the DH+ networks.

The Design Solution:

The system includes a TCP/IP Ethernet LAN backbone (fiber and 10baseT), a server located at each mine, the main dispatch workstations located at K2 and a number of other workstations that have access to the RSVIEW database. These other workstations include the Ventilation Tech., and mine engineer at K1 (for the ventilation control system which is being developed in parallel to this project), and engineering workstations at both K1 and K2. This configuration allows the users at K2 to access information from the K2 server and the users at K1 to access information from the K1 server. If one of the servers fail, then the other server can be accessed through the fiber optic LAN connection.

The fiber optic LAN resides on a SONET fiber network in a counter rotating ring topology. This fault tolerant ring configuration allows any one of the fibers to be damaged and maintain full communication to all

nodes on the network.

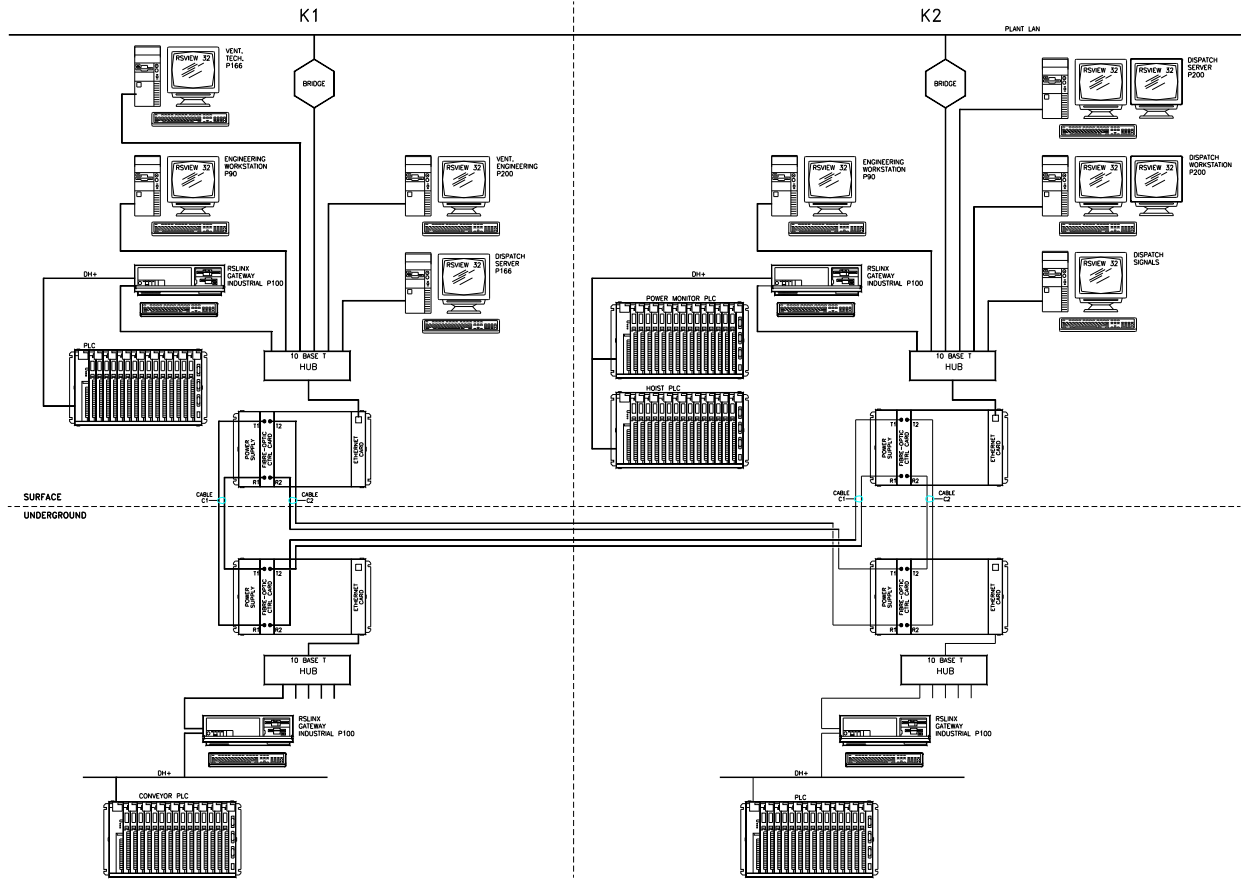
Located at each of the four fiber LAN nodes, is a Gateway server which connects to the PLC Data highway. This gateway allows users on the LAN to access data on the data highway. It will also allow remote programming of any PLC on the Data highway from any workstation on the LAN. This configuration keeps the four data highways separated, which minimizes the amount of data traffic on each, thus maximizing performance. The ability to program any PLC from the LAN will reduce the number of trips underground to make minor PLC program changes.

Future expansion of the fiber network will include live video feeds from the mining machines to the dispatch office, as well as expanded voice and data traffic.



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System Specifications:

- 4 RSView Works Development packages
- 4 RSView Runtime packages
- 8 RSLinx OEM installations
- 4 RSLinx Gateway installations
- 6000 database tags
- Hardware:
- Opcom Fiber Optics Control system with Ethernet access
- 4 Pentium industrial computers c/w Allen-Bradley KTx modules
- 8 Pentium desktop computers
- 4 10 base-T hubs
- 2 LAN bridges
- 4 independent Allen-Bradley DH+ networks

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

www.hinz.com