



A Rockwell Automation Company

Westroc Industries Ltd. Mud Mixing Batch System

The Client:

Westroc Industries Ltd. is a world leader in the production of gyproc board and associated building products. Of the six large Westroc Industries manufacturing plants in Canada, two have mud mixing facilities. One mud mixing facility is in Montreal and the other is in Calgary.

Westroc is committed to competing with the other major gyproc board producers in the United States and Japan.

The Requirement:

Westroc Industries' Calgary Mud Mixing Plant has been in operation for over a decade. Much of the control to date has been in the hands of operators who controlled the process manually. A new automated system was needed to allow for increased production and improved quality control.

The process includes the transfer of dry powders to the mud mixers, the precise addition of four liquids and

the careful control of mixing times. A MMI (Man Machine Interface) view node allows the operator to choose from a number of recipes, to see at a glance the process in each of its steps and deal with alarms as they occur. A SCADA node in the supervisor's office allows for supervision of the process as well as capability to refine recipes.

The Design Solution:

The packaging end of the process was already being controlled by an Allen-Bradley SLC 5/02. This was updated to the SLC 5/04 and the program modified to deal with a new mixer. The new mud mixing control scheme is controlled by a new 13 slot rack using an SLC 5/04 processor. What little interface there is between the existing SLC and the new SLC is handled by direct wiring between the two processors.

The MMI chosen was Intellution's FIX MMI with Recipe Builder. It interfaces the SLC 5/04 using a Data Highway Plus connection. The SCADA and the view nodes interface over an Ethernet connection. The View node is housed on the plant floor inside a dust-free box. An industrial mouse is all the operator needs to control the process.

Two screens were developed. The Main Screen shows an overview of the process from the dry ingredient mixer through the dry powder transfer into one of three mud mixers and to the outlet pipes to packaging. The MMI indicates the batch number. The status of each of the valves, gates, motors, and pumps is animated for

easy monitoring of the process. The operator can choose a number of pop-ups to select recipes, start the process, acknowledge prompts, resume the process after alarms, and indicate the last batch of the day.

The Liquids Screen shows the status of the four liquids pumps and the valve status of each of the valves into the three mixers. The Liquids Screen indicates the volumes of liquids being added for each batch as they are being added as well as keeping a total volume to date of three of the liquids. The Liquids Screen is where calibration of the six liquids flow meters can be accomplished.

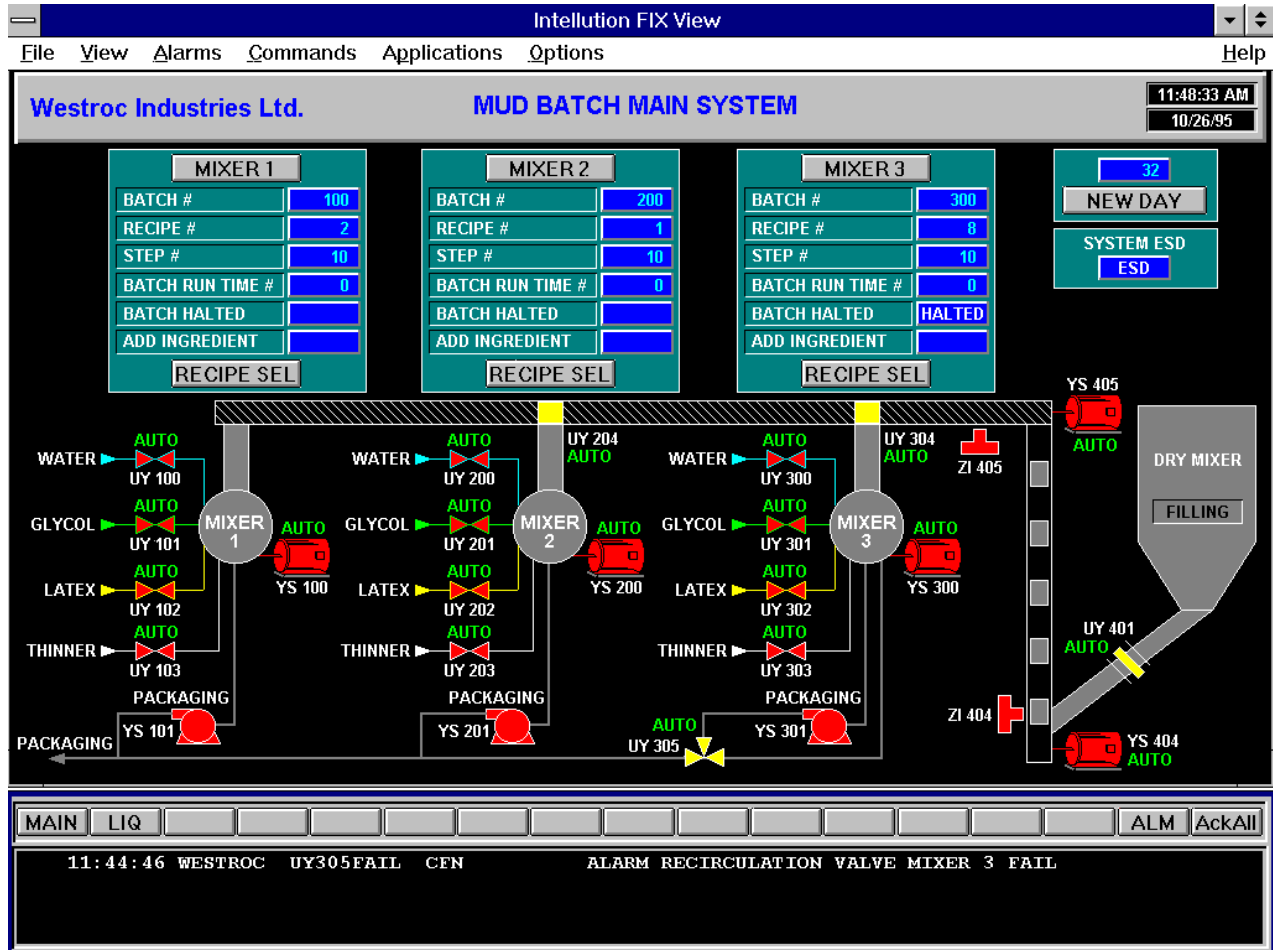
Each device that is controlled by the mud mixing process can be manually controlled by clicking on the symbol displayed on the two screens.

The overall control scheme makes the operator's job simpler, the batch control more accurate and increases the production potential.



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System Specifications:

- 3 Mud Mixers
- Dry Ingredients Transfer System
- 4 Liquids to Control
- Intellution FIX MMI Programming Software with Recipe Builder
- 1 SCADA Node and 1 View Node
- Ethernet Interface Between Nodes
- 2 Allen-Bradley PLC 5/04 Processors
- Allen-Bradley Advanced Programming Software
- Data Highway Plus
- 1 New 13 Slot Rack
- 11 I/O Modules
- 32 Discrete Inputs
- 48 Discrete Outputs
- 6 High Speed Counter Modules

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