



A Rockwell Automation Company

## Lafarge Corporation Kiln PLC Upgrade

### The Client:

Lafarge Corporation, based in Herndon, Virginia, and its Canadian subsidiary, Lafarge Canada Inc., based in Montreal, Quebec, are leading suppliers of construction materials in North America. Lafarge has cement manufacturing facilities located in Richmond

and Kamloops British Columbia. Lafarge Kamloops is part of the Western Canada working group, supplying cement to the interior of British Columbia.

### The Requirement:

In an effort to increase efficiency and productivity, the Kiln used at Lafarge Kamloops was repaired and upgraded. This involved adding a section to the middle of the Kiln and some rework on the outlet. The company also embarked on an upgrade program to

modernize their plant PLCs, beginning with the cement handling line. To accomplish this goal, the GE Series Six PLC was to be replaced with a GE 90-70 processor.

### The Design Solution:

Hinz was retained to convert the existing PLC program and make all necessary changes to the ten existing Cimplicity HMI stations. A GE 90-70 CPU was used in conjunction with a Horner Electric Series Six I/O adapter. An Ethernet card was installed so that the Kiln PLC could communicate to the HMIs over the Ethernet network. Programming of the PLC was carried out using GE's Logicmaster 90-70 software with Cimplicity being utilized for operator interface of the Kiln.

The Series Six program was converted using Softech's GETools conversion software. An extensive review of the Series Six program was required due to the large number of Genius modules that were addressed in the Series Six as auxiliary I/O and would need to be addressed as real-world I/O in the 90-70 program. A variety of conversion factors needed to be taken into consideration while setting up the conversion. Special attention was required when mapping auxiliary I/O and analog signals. Once this had been completed the conversion software handled the PLC conversion flawlessly, converting all of the logic that directly transfers to 90-70 equivalents with out any problems. Logic rungs that do not have an equivalent instruction in the 90-70 processor are flagged for review. The programmer converts the flagged rungs of logic manually for completion of the conversion process.

The use of the Horner Electric Series Six I/O adapter allowed the existing Series Six I/O to be wired directly into the 90-70 processor. This minimized wiring and commissioning time and allowed the use of a single 90-70 I/O rack, in conjunction with the existing Series Six I/O racks used to control the Kiln. The only wiring required was cabling between the Horner Adapter and the old Series Six I/O. Two Genius Bus controllers were used. One to pass global data between the Kiln PLC and the three other PLCs used in the plant, the second to connect to the Genius I/O field blocks.

The Cimplicity HMI stations required some modification to allow access to the new information from the 90-70 processor. New network connections were set up and new addresses were entered into the database. The client/server nature of the Cimplicity HMI allowed for a quick change over to the new addressing and network connection. The transfer of global data between the four plant PLCs was modified as well. With the change of the Kiln PLC to a 90-70, the existing Series Six bus controllers had to change the way they addressed the Kiln global data.

Commissioning of the new program and HMI setup was conducted over a couple of days, with no major revisions necessary to the converted program.

