

System 800xA

Beyond beer production: Environmental stewardship and sustainability



External view of fermentors

A measure of success as a business lies not only on the quality of the beer, but also on the contribution to the community and environment.

Cervecería Boliviana Nacional (CBN) has set this target for itself. To achieve this, it laid down a blueprint for evolving its elaboration control system. System 800xA, through system integrator Latin Control S.A., steps up to the challenge.

Bolivian brewery Cervecería Boliviana Nacional, a principal subsidiary of Luxembourg-based holding company Quilmes Industrial (QUINSA) S.A., holds the distinction of cornering 80% of the Bolivian beer market.

But it looked beyond this metric – the company mapped an action plan to bring greater efficiencies to its brewery operations, increase capacity and quality, and protect the environment.

Forming an integral part of this plan was automating CBN's processes utilizing the latest systems to allow it to have reliable and repeatable control processes. Relevantly, CBN was also keen to maintain critical data it has built up over the years. In 2005, it awarded the control system project to Latin Control S.A., the main distributor and solution provider in instrumentation and control systems of ABB Automation Technology.



Brewhouse control room

Constraints and challenges

In any developing country such as Bolivia, monetary considerations are high on the business agenda. CBN is no different. Before starting with the first automation project using System 800xA, the company was barely automated (mostly manually controlled).

CBN had an investment plan to expand plant capacity; thus a control system with enough flexibility to grow with was required. It was also necessary for the control system to be equipped with a set of features that will allow CBN to implement batch control to all production processes and other services such as CIP cleaning, in addition to also having a powerful reporting system and connectivity to the SAP ERP system.

One-stop-shop solution

Automating beer production is complex. It involves the control of milling, transporting, cooking, fermenting, diluting, filtrating, blending, water plant, services, water treatment (effluents), and CIP as applied to beer production. For this project, Latin Control was contracted for CBN's Santa Cruz de la Sierra City brewery – the largest plant in the country with year-round production.

Argentina-based Latin Control leveraged its extensive experience across diverse industries – ranging from food

and beverage, pulp and paper, power generation, cement, to technology. As turn-key operator for this project, it provided system HW and SW, networking, cabinets, mounting, engineering, programming, FAT, SAT and commissioning services to control beer elaboration and auxiliary processes of the brewery.

“We now have the ability to optimize utilities KPIs, due to the sharing of information between generation and consumption of energy and fluids. Additional benefits include standardization of hardware and minimizing stock.”

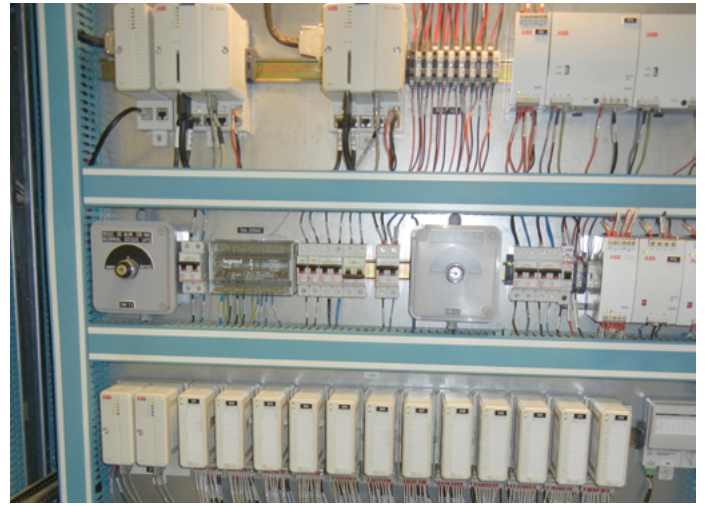
**- Hugo Violante, Project Manager,
Cervecería Boliviana Nacional**

Latin Control's policy for CBN was to have one type of control system in a plant. It installed Batch and Information Managers as well as the connection driver to SAP.

According to CBN's engineering standards, Latin Control employed redundancy at the control level in all the control units (i.e., processes and services). Additionally, it integrated existing PLCs into the plant control system (i.e., PCs), as well as I/Os into the system via fieldbus technology (i.e., PROFIBUS DP and PA, ASI bus).



Brewhouse control board



Milling control board

Key results with “Green” credentials

The CBN project was commissioned in 2008.

In 2010, CBN published that it has reduced its water usage by 15.38% for 2009, a significant reduction in one year. Furthermore, it reduced energy consumption per hectoliter by 7.35% and cut CO2 emissions per hectoliter of production by 0.2%.

CBN has plans to expand operations with a brand-new brewery and other production and service areas. For 2011, the plant’s control system will be expanded to be used in new grain and filtration plants.

These results attest to CBN’s unwavering pursuit of operational excellence and stewardship of the world in which we live.

ABB’s supply

- Servers: System servers, information server and redundant batch
- Controllers: 6 Redundant AC800M Processors
- Workstations: 9 Single Monitor Station , 3 Dual Monitor Station and 2 Large; 42” screens
- Engineer stations: 3
- I/O: more than 4500 devices integrated via Profibus DP, Profibus PA, As-i and 410 direct I/O
- Control network: Ethernet TCP/IP 10BaseT
- Operation network: Ethernet TCP/IP 100BaseT



Workstations at brewhouse control room

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