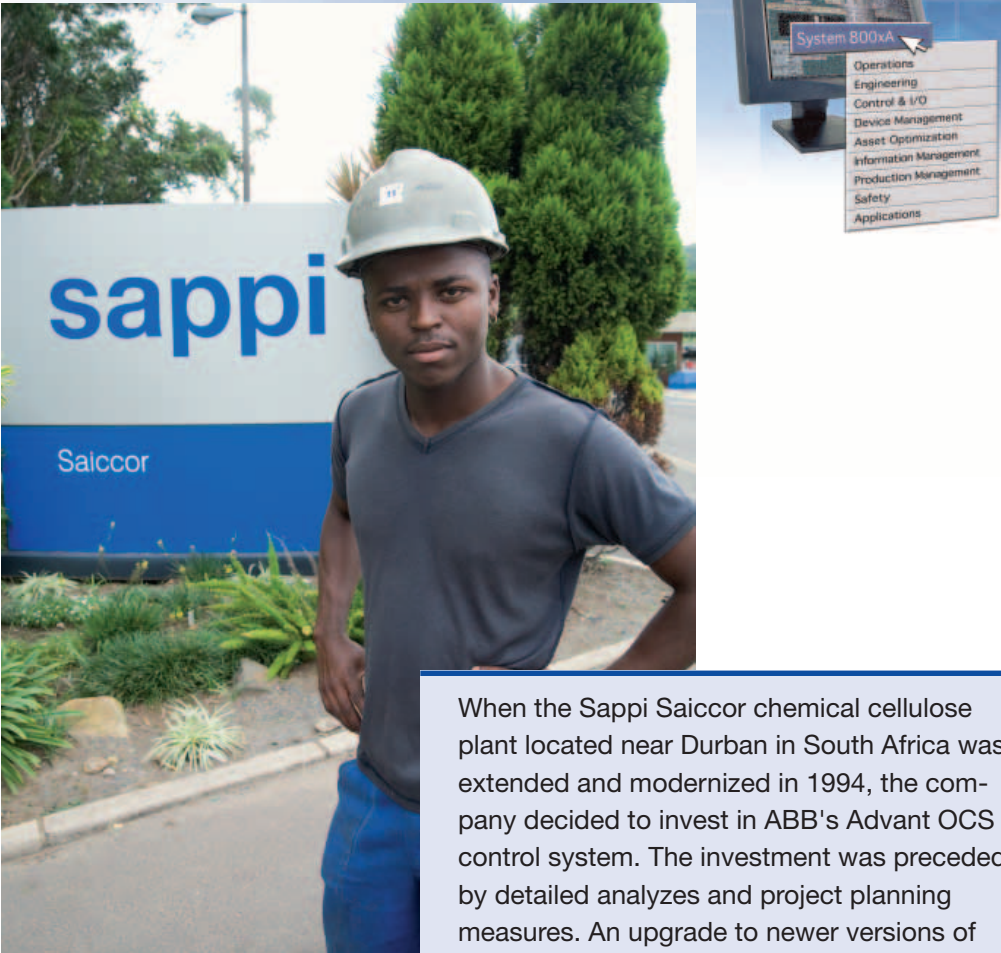


New Application Solutions at Sappi Saiccor with System 800xA

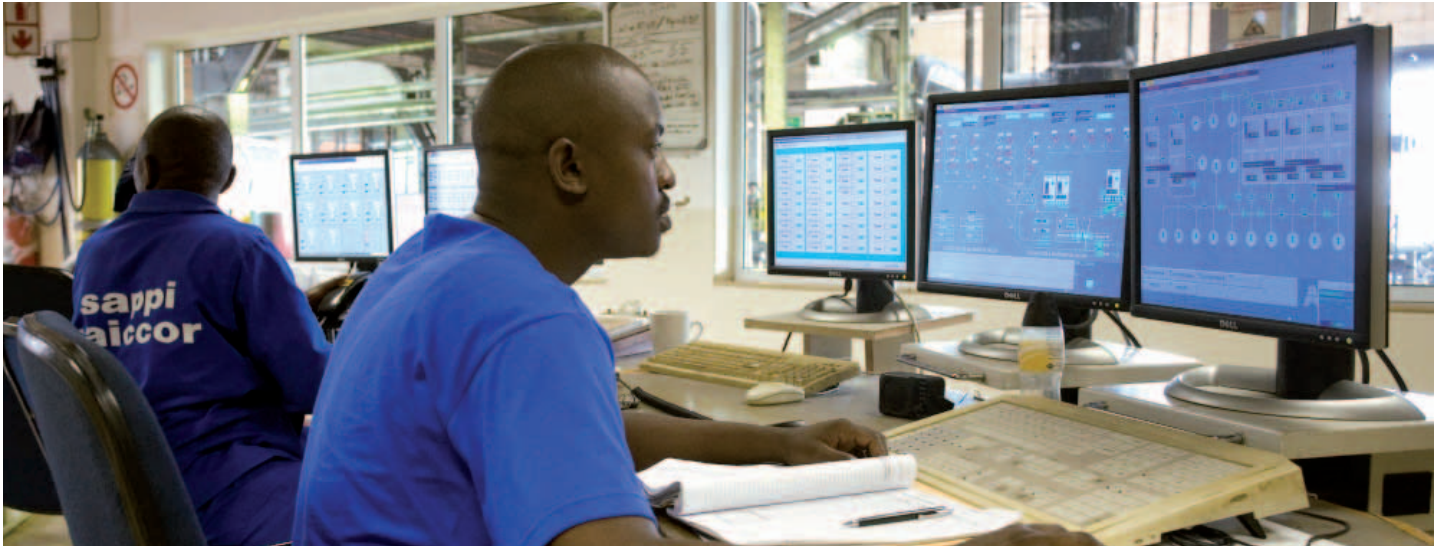
An Expansive Cellulose Plant with Industrial Automation.

Project Report



When the Sappi Saiccor chemical cellulose plant located near Durban in South Africa was extended and modernized in 1994, the company decided to invest in ABB's Advant OCS control system. The investment was preceded by detailed analyzes and project planning measures. An upgrade to newer versions of the installed control system took place five years later; the process is continuing to this day, and recent years have seen a change to the Industrial^{IT} Extended Automation System 800xA, ABB's new automation platform.

Five control rooms have received new operator systems based on System 800xA



Located at Umkomaas on the KwaZulu-Natal south coast just 50 km south of the port of Durban in South Africa, Sappi Saiccor is the world's largest producer of chemical cellulose. The chemical cellulose is used to manufacture fabric, cosmetics and pharmaceuticals, detergents, cellophane and high-quality plastics for tools.

Sappi Saiccor has the capacity to produce approximately 600,000 tons of Elemental Chlorine Free (ECF) chemical cellulose per annum. Almost 100% of the pulp produced is exported to countries in Europe, the Americas and Asia. Saiccor developed in the 1950s. Construction of the chemical cellulose manufacturing mill began in 1952, with the first

plant and machinery installed in June 1955. Saiccor's first viscose pulp bales were produced in December 1955. The plant was the first mill to produce chemical cellulose from Eucalyptus - an important milestone that has revolutionized the industry. Sappi, the international saw paper giant, bought the company in 1988, which was followed by a successful integration of the mill into the Sappi culture.

Reducing the Environmental Footprint

In 1994, Sappi Saiccor invested more than \$250 million in the expansion and upgrading of the mill's facilities. This increased pulp production capacity from 450,000 to 585,000 tpa and enhanced product quality. In addition, the

Sappi Saiccor is the world's largest producer of chemical cellulose.



The control system have 7,500 I/Os and 8 controllers.



The plant was the first mill to produce chemical cellulose from Eucalyptus.



upgrade enabled the introduction of Elemental Chlorine Free (ECF) bleaching, significantly reducing the mill's environmental footprint.

In 2001, ABB secured an Industrial^{IT} order worth approximately ZAR 2 Million from the Sappi Saiccor. This includes the supply engineering and delivery of a mill-wide Inform IT system which signifies the acceptance of new technologies by the South African market. These new technologies will allow customers to make realistic responses to market opportunities.

An Outstanding Platform

The Sappi-group decided in 2006 to undergo an environmental impact assessment for an R3.4 billion expansion, its largest investment in South Africa in the past 20 years. This project will increase the plant's pulp capacity from about 600,000 tons per year to approximately 800,000 tons.

In combination with this project, ABB has received a \$32 million order from Sappi. In utilising all of its in house products, ABB will serve as a single-solution provider

and offer Sappi Saiccor a multiplicity of automation and control equipment via the Amakhulu Project. The control system will be based on System 800xA. It will have 5 redundant AC 800M controllers for 2,500 S800 I/O channels and 10 Process Portal operator workplaces. Profibus communications will be used extensively. There will be 2,700 smart instruments and approximately 600 smart motor controllers. The control system package from ABB also includes Information Management, Asset Management and DTM functionality

Ken Toward, Divisional Engineer - Instruments at Sappi Saiccor, praises the flexibility and software design of the system and the fact that it is so easy to configure and run. In terms of price, he believes that Sappi Saiccor has obtained a lot for its money compared with other systems on the market. "Since we have been using ABB's control systems, we have seen an improvement in the availability and reliability of our control systems" says Ken Toward, who describes the automation platform as "outstanding".

Ken Toward is highly positive towards the possibilities of storing, displaying and retrieving process data and historical data.

ABB's 800xA system makes it possible to maintain continuous contact with all parts of the process in real time, and all the data are stored for future documentation and traceability.

Ken Toward says that his cooperation with ABB – "from management to the men on the factory floor" – has always run very smoothly.

"We have been working together since 1994, but the technicians from ABB do not try to control us, and we really work as a team", he says. "We always know to whom we can turn if ever a problem occurs. The service technicians are always really professional".

The process lines at Sappi Saiccor have been controlled by ABB's automation systems since 1994.



Ken Toward, Divisional Engineer Instrumentation, Sappi Saiccor.



Sappi Saiccor has the capacity to produce approx. 600,000 tons of chemical cellulose per annum.



Meeting the Future

The new application solutions are based on the latest version of System 800xA, and they have the capacity to handle future expansion of the plant. Open standards make it easy to integrate new systems, which Sappi Saiccor regard as a major advantage. The ability to undertake upgrading in stages minimizes the risk of operating breakdowns and it also saves money.

The system change-over is proceeding remarkably smoothly. The various systems at the plant are operated in parallel. Several generations are running at the same time – without any disruptions.

The previously installed Advant controllers and the new AC 800M controllers are operating side-by-side. Five control rooms of eleven have received new operator systems based on System 800xA. The other control rooms will be equipped step by step.

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