

## Uninterrupted Medical Oxygen Production with FAST/TOOLS Monitoring

### VERIFYLAB

**Location:** Bogotá, Colombia  
**Order date:** 2009  
**Completion:** 2011  
**Industry:** Pharmaceutical

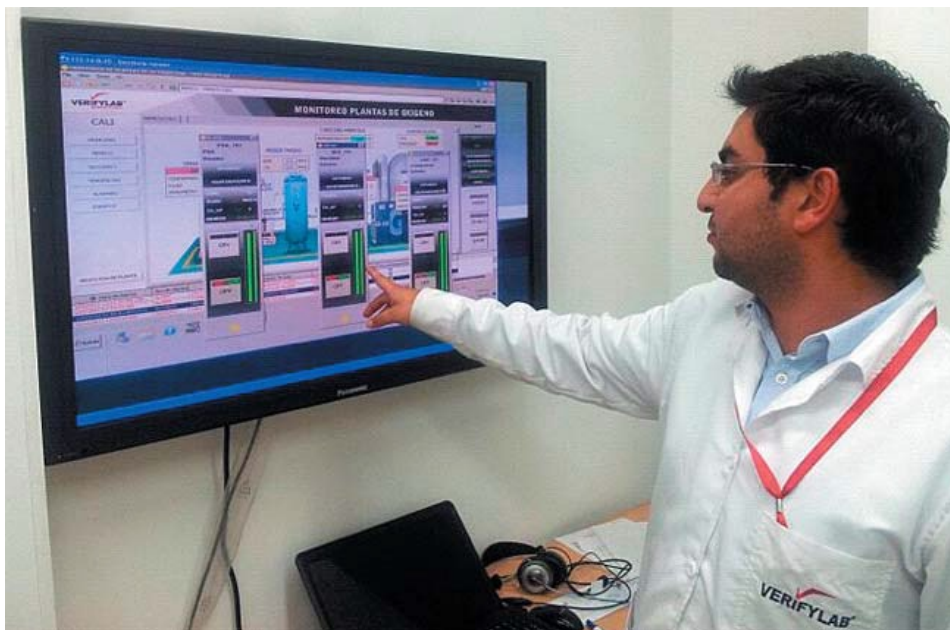


#### Executive Summary

The medical gases department of MTE Verifylab provides air and medical oxygen to hospitals and clinics. Their plants at these medical facilities are relied on to provide a steady and uninterrupted supply of medical oxygen. Recently, MTE Verifylab completed a project for 10 clinics operated by one of Colombia's largest healthcare providers. Their innovative solution called for centralization of the data acquisition and the quality reporting functions at a telemetry facility in Bogotá, thereby eliminating the need for technical staff at each location. This reduced monthly operating costs 25%.

To ensure an uninterrupted 24/7 supply of medical oxygen, MTE Verifylab employed a two-level contingency system in addition to their main PSA generation supply system: cryogenic tanks and oxygen manifolds. As the operating costs for this PSA technology are up to 55% lower compared to these other contingency systems, a main goal is to maximize its use without incurring any risk of a cutoff in the supply of medical oxygen to the patients at these facilities. This requires real-time monitoring of every variable and automated switching between supply systems.

Yokogawa Colombia successfully installed a FAST/TOOLS SCADA system at the Bogotá facility and integrated it with the FCJ STARDOM controllers that automate operations at each of the 10 clinics' oxygen plants and with the MTE Verifylab MES system that generates the production and quality reports needed to audit the supply mechanism and certify compliance with standards established by local authorities.



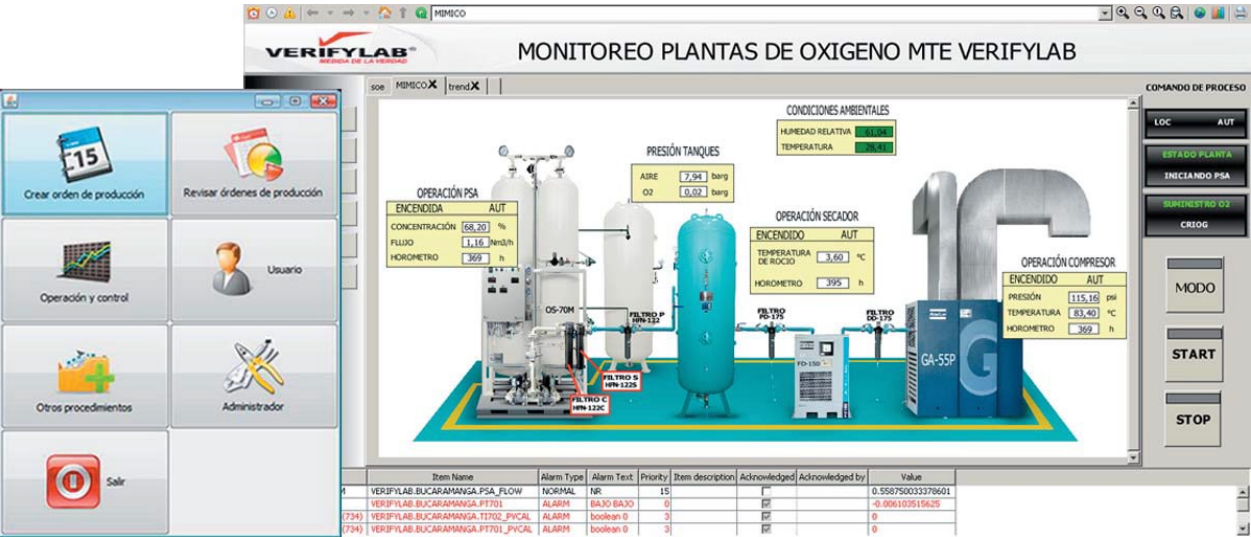
Remote monitoring and automated reporting on operations at 10 medical oxygen production plants

# The Challenges and the Solutions

## 1. Automatic supply, real-time monitoring, and MES integration

INVIMA, the National Food and Drug Monitoring Institute, is responsible for certifying that the production and supply of medical oxygen is being done according to the guidelines on good manufacturing practices (GMP) set out in the 32<sup>nd</sup> report of the OMS. Audits are performed periodically, requiring traceability and the keeping of historical records for all batch production activities. This in turn requires i) real-time acquisition of all process data, ii) comparison of acquired data with product specifications and the performance of any necessary corrections, and iii) quality report generation. This is all done in accordance with the government's current quality specifications.

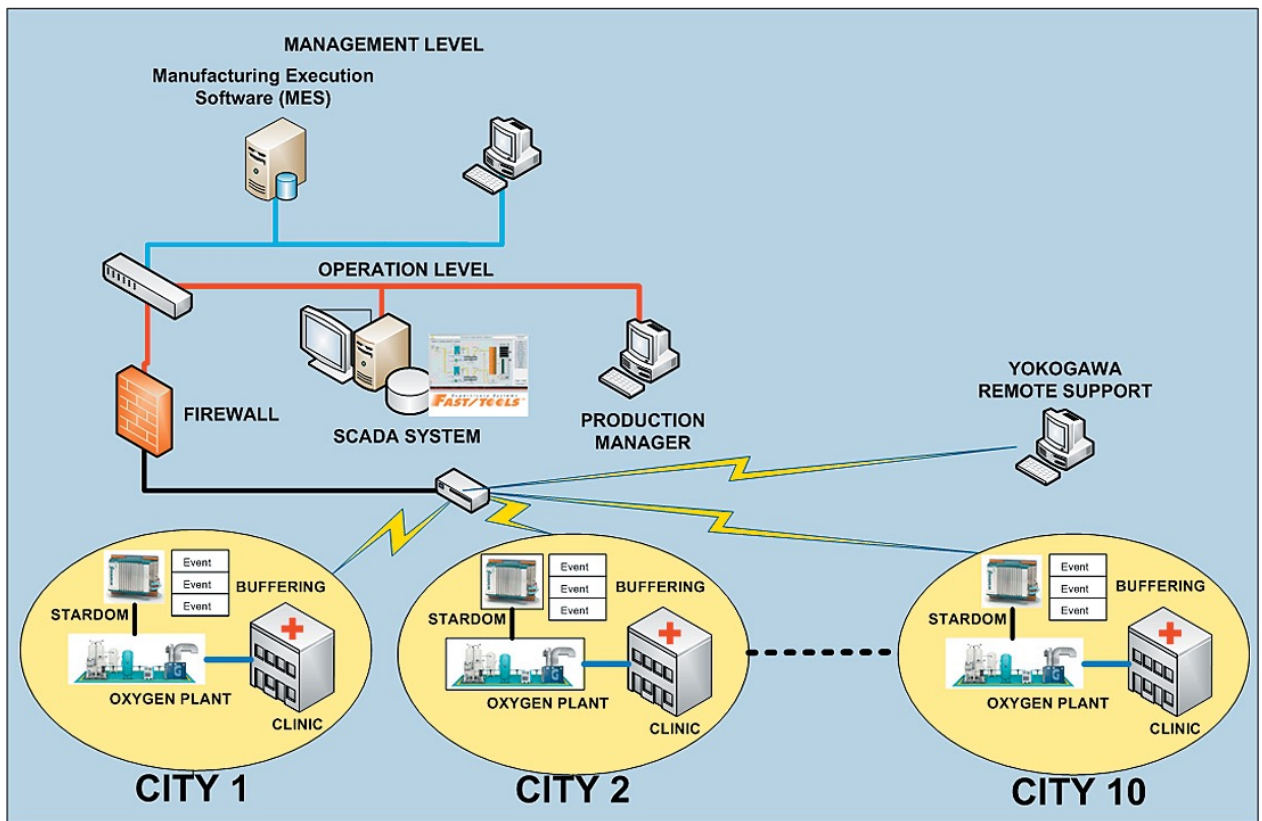
Yokogawa's solution employs a STARDOM FCJ controller at each plant for the acquisition of process data (using protocols and standard AI, DI, and DO) and to automatically control switching between the PSA, cryogenic, and manifold supply mechanisms to ensure uninterrupted availability. The control of operations at each plant is based on the acquired process data and the desired product specifications. The acquired data is sent to FAST/TOOLS, which, in addition to providing the operator interface and handling historical data, relays this data via an OPC interface to MES software that automatically generates batch records and schedules maintenance, thereby ensuring GMP.



SCADA and MES integration

## 2. No loss of data even when the communications link is broken

The stable provision of medical oxygen to the patients at these hospitals is literally a matter of life or death importance. Yokogawa's event buffering function for FAST/TOOLS and STARDOM guards against the loss of data and ensures that complete batch records can be kept even if there is an interruption in communications between a plant and the central monitoring room, thereby preventing any interruptions in oxygen production. This also has the benefit of reducing MTE Verifilab's operating costs. These were major reasons why Yokogawa's solution was selected for this project.



## Customer Satisfaction

John Gallo, main technical director for this project, says, "The management of all medical oxygen production and its associated documentation, in an automatic and remote fashion, breaks a paradigm in the pharmaceutical industry, which by norm requires the permanent stationing of a pharmaceutical chemist and an assistant at such facilities. Today, for production supervisors and technical directors, it is easier to measure and process data, and there are now fewer errors in the filling out of reports."



MTE Verifilab's production, engineering, and technical departments are proud of this application.

From the left: David Espeleta (Production Assistant) and Fabian Cote (Engineering Director)

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