



OIL&GAS

Implementation of a Redundant Monitoring and Control System for the reactivation of a critical ethylene production line.

Optimization of the Ethylene Manufacturing Process: Implementation of a Robust Monitoring and Control System with the Redundant Server Architecture of atvise® SCADA.

INTEGRATOR :  **SEDICOSA**

CLIENT : **PEMEX**

Project

Sedicoso successfully reactivated an ethylene production plant for PEMEX. With cutting-edge ABB equipment and the atvise® SCADA system, Sedicoso managed to overcome critical challenges and achieve tangible results. This document provides a detailed overview of how the technical challenges were addressed, the key functionalities implemented, and the benefits achieved in operational efficiency and plant safety.

Solution

The choice of atvise® as the SCADA system was key to the success of the ethylene plant reactivation project. With its web client-server architecture, remote access from any device, unlimited historian, advanced graphical features, and accurate reporting capabilities, atvise® provided a flexible and comprehensive solution. In addition, its ability to integrate with JavaScript libraries, interoperability with ABB devices, and high availability ensured efficient monitoring across all system layers. In summary, atvise® proved to be the ideal choice by providing a reliable and adaptable platform that exceeded the engineers' expectations.

Client & Partner



www.sedicoso.com.mx

With over 15 years of experience, Sedicoso is a leading Mexican company in comprehensive solutions to improve safety, quality, and productivity in industrial processes. With a presence in both the local and international markets, they specialize in industries such as Oil & Gas, Pharmaceuticals, Energy, Automotive, Food, Chemical, and Electronics.

PEMEX, Petróleos Mexicanos, is Mexico's main state-owned company and one of the largest oil and gas producers in Latin America. Founded in 1938, PEMEX is responsible for the exploration, production, refining, and marketing of hydrocarbons in the country. With extensive infrastructure and experience, it has contributed to economic development and energy supply in Mexico.

Do you want to be an official atvise® partner?

Unlock benefits with our Integrator Program: license discounts, atvise® SCADA training, brand visibility through joint marketing, developer licenses, and more!

Become a partner

Goals

- ❑ **Improve Operational Efficiency:** Optimize processes to increase productivity and reduce costs.
- ❑ **Enhance Process Safety:** Implement alerts to prevent critical situations.
- ❑ **Ensure Continuous Availability:** Establish redundant architecture and high availability.
- ❑ **Enable Remote Access:** Monitoring and control from any device and remote location.
- ❑ **Facilitate Report Generation:** Obtain comprehensive reports on production balance.
- ❑ **Perform Predictive Maintenance:** Detect anomalous behaviors in equipment to reduce unplanned downtime.
- ❑ **Optimize Data Visualization:** Use advanced graphical features for clear and detailed visualization.
- ❑ **System Adaptability and Scalability:** Flexible platform prepared for future needs and growth.

Challenges

- ❑ **Reuse of Obsolete Equipment:** Integration and interoperability with new technologies to ensure efficiency.
- ❑ **Meeting Tight Deadlines:** Delivery within a 180-day timeframe with efficient planning and execution.
- ❑ **Implementation of Redundant Architecture:** High availability and operational continuity through the SCADA system and the establishment of a secure network.
- ❑ **Adaptation to New Technological Standards:** Upgrading the ABB 800xA control system to the new atvise® SCADA.
- ❑ **High-Criticality Monitoring:** Robust system for safety and efficiency in ethylene production.
- ❑ **Generation of Accurate Reports:** Solution for detailed and customized production reports.
- ❑ **Compatibility with ABB Devices:** Smooth interoperability with ABB equipment through OPC UA and OPC DA standards.
- ❑ **Predictive Maintenance and Anomaly Detection:** Advanced algorithms to reduce downtime and optimize operation.



Results

- 🔧 **Improvement in Operational Safety:** New alert systems allow for quick interventions in critical conditions, increasing plant safety.
- 🔧 **Accelerated Project Delivery:** Completed 35 days ahead of schedule, facilitating quick commissioning and revenue generation.
- 🔧 **Efficient Maintenance:** The system facilitates a predictive maintenance approach, reducing unplanned shutdowns and improving overall efficiency.
- 🔧 **Optimization of Raw Material Use:** More precise monitoring of inputs like ethane and steam, improving efficiency in resource utilization.
- 🔧 **Enhanced Remote Monitoring:** Ability to supervise critical process parameters from any location, providing greater operational flexibility.
- 🔧 **Improvement in Traceability and Reporting:** More efficient report generation and complete traceability of production, facilitating regulatory compliance and data-driven decision-making.
- 🔧 **High System Availability:** Thanks to redundancy in the SCADA system and network, high availability was achieved, minimizing risks associated with monitoring losses or system failures.

Background

Facing increasing demand for ethylene from various customers in the region, **PEMEX was challenged with reactivating a previously unused production plant.** The need to meet market demands and seize business opportunities drove **Sedicosa to seek an integrated solution that would restore the plant's operations in an efficient and reliable manner.**

“When needing to quantify all product inflows and carry out balances, it was important to produce specialized and reliable reports; atvise® met those needs”.

- Elizabeth Lopez, Operations Manager at Sedicosa.

Reactivating an abandoned plant was no simple task. In addition to incorporating new equipment and technologies, an automation solution was needed to optimize the monitoring, control, and management of the production process. To accomplish this, Sedicosa chose the atvise® SCADA solution, which provided the technical and commercial capabilities needed to overcome this challenge.

With atvise®, a robust and highly reliable system was implemented, ensuring constant monitoring of the plant and guaranteeing quality and efficiency in ethylene production. In this way, PEMEX was able to seize market opportunities and meet the growing demand for ethylene, establishing itself as a reliable and competitive supplier in the Oil and Gas industry.

Solution

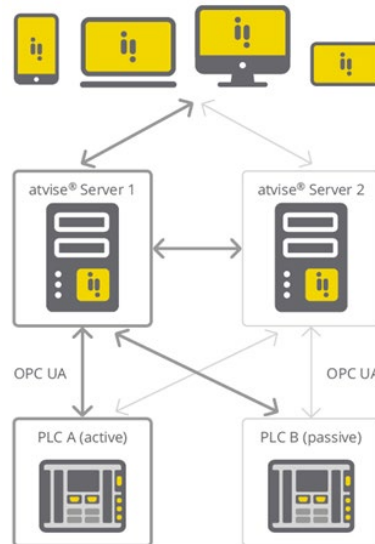
Sedicosa, as a specialist in automation and control, offered a comprehensive solution for successfully reactivating PEMEX's ethylene production plant, executing the following elements:

- ii **Infrastructure Assessment:** Comprehensive analysis of the plant and ABB equipment to determine the requirements for the redundant system.
- ii **Redundant Architecture Design:** Development of an architecture that ensures high availability with compatible ABB equipment and atvise® SCADA with hot stand-by redundancy.
- ii **Equipment Integration:** Smooth integration between existing and new ABB equipment to ensure effective communication.
- ii **atvise® SCADA Configuration:** Design of an application tailored to the plant's needs with interfaces, alarms, unlimited historian, and report generation.
- ii **Testing and Commissioning:** Exhaustive tests to verify the system's functionality, redundancy, communications, and alarms.
- ii **Training and Technical Support:** Providing ongoing training and technical support to PEMEX staff.
- ii **Successful Project Delivery:** Project delivered in 180 days, backed by the experience of Sedicosa and Vester Business, the atvise® supplier.

“The simplicity in configuration, versatility, and the ability to integrate different communication languages allowed for a quick and agile implementation of the redundancy system with atvise®”.

- Elizabeth Lopez, Operations Manager at Sedicosa.

Considering the technical needs of the project, an architecture was proposed with ABB brand PLC controllers and the atvise® SCADA monitoring software with redundant architecture.



To achieve efficient communication with ABB AC 800m PM864 family equipment, connectivity was configured based on the OPC UA and OPC DA standards. This ensured direct integration between the atvise® SCADA system and the ABB devices, guaranteeing stable bidirectional communication. Thanks to this interoperability, precise monitoring and control of the equipment were achieved, facilitating real-time data analysis and the detection of anomalous behavior for implementing predictive maintenance. Connectivity with the ABB equipment was key to optimizing efficiency and safety in the ethylene production plant.

Thanks to the choice of atvise®, the integration of PLC data into the SCADA was quick, direct, and stable, eliminating the need for manual variable addressing, due to the browsing functionality of OPC UA and atvise® mirroring.

“At all times we had support and technical assistance from Vester Business; their team helped us solve each of the problems that arose”.

- Elizabeth Lopez, Operations Manager at Sedicoso.

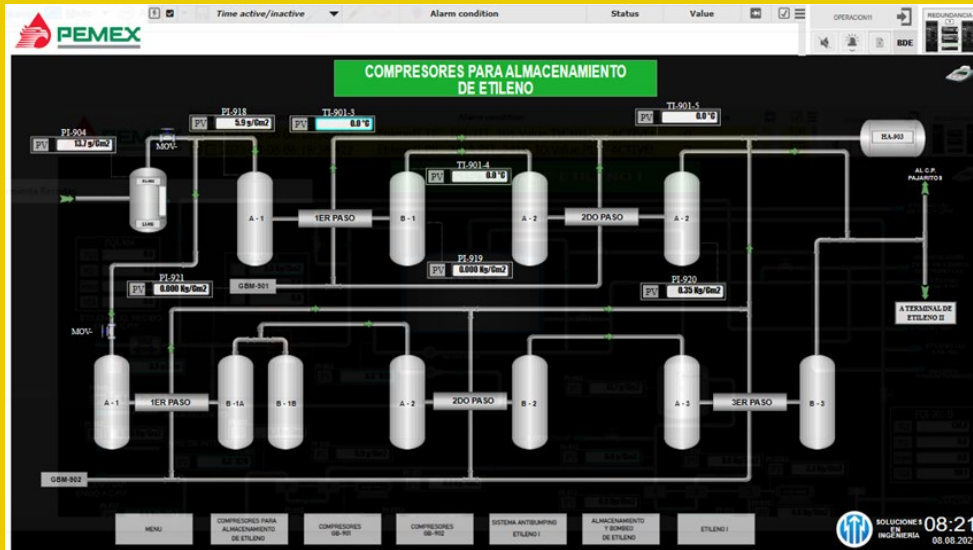
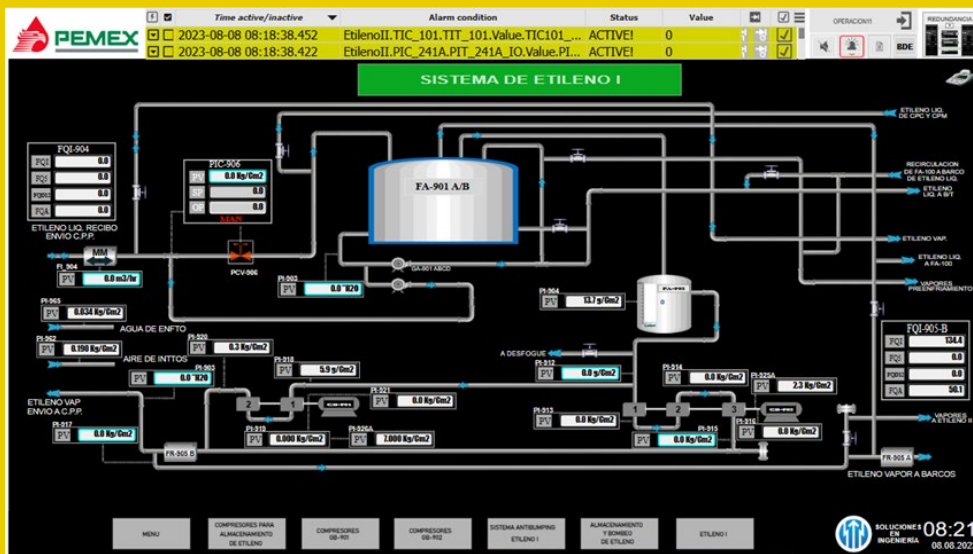
The user interface implemented with atvise® SCADA meets the particular needs of this ethylene manufacturing area by fulfilling the requirements for precise and reliable process monitoring. **After less than three months of implementation, the following operational benefits have been obtained, among others:**

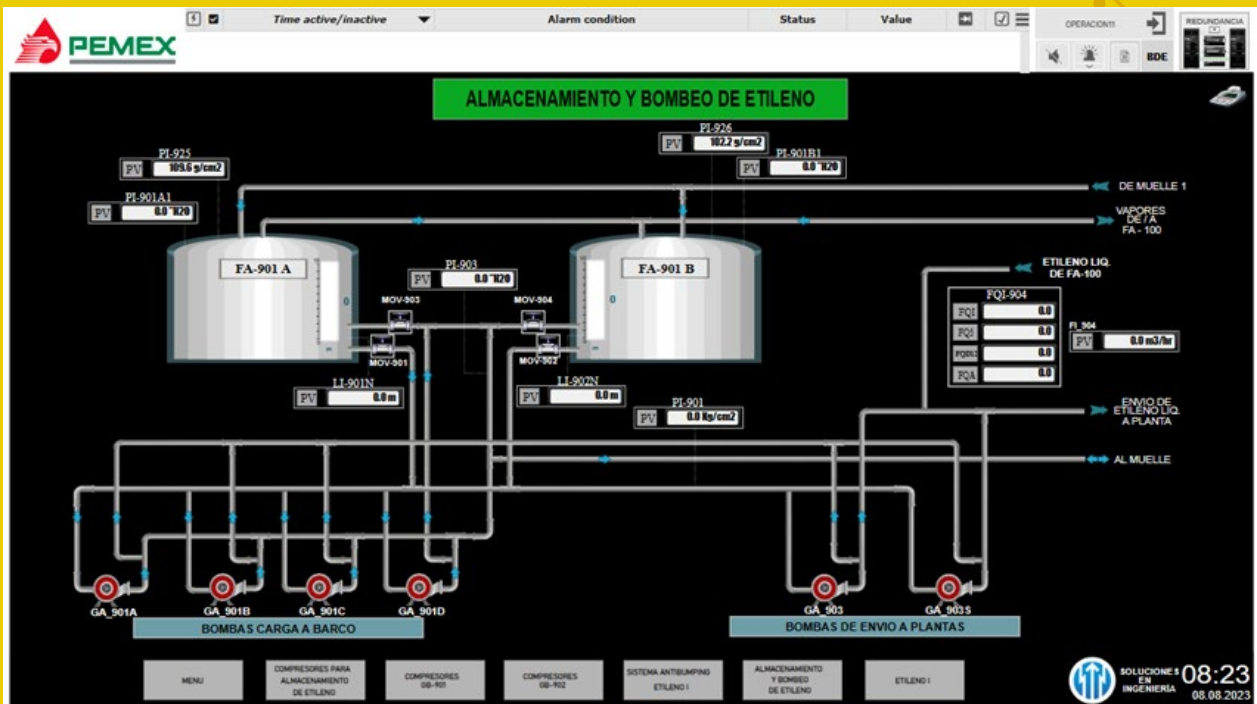
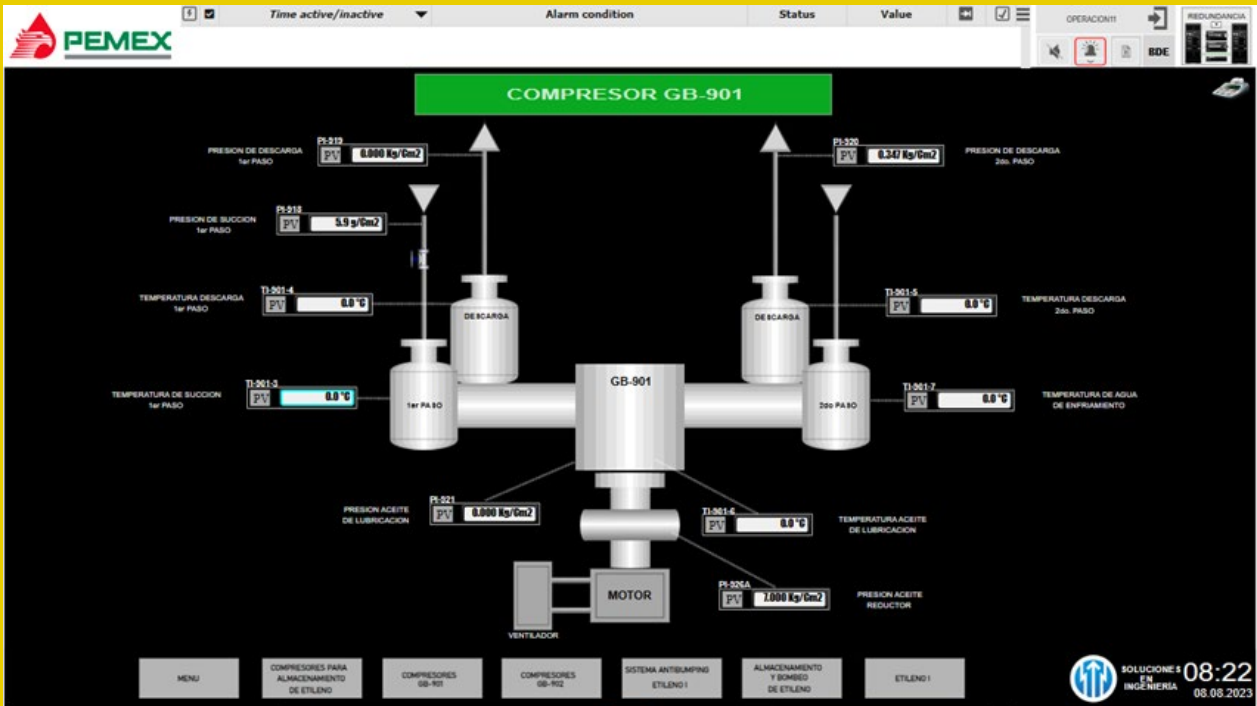
- ii **High Availability with Redundancy:** Implementation of a redundant SCADA system to ensure continuous monitoring and prevent interruptions in plant operations.
- ii **Increased Safety with Alerts and Alarms:** Quick response and informed decision-making in critical situations through the use of alerts and alarms.
- ii **Improved Traceability with Databases:** Data sent to databases for detailed production tracking.
- ii **Predictive Maintenance:** Early detection of anomalous behaviors in equipment to prevent corrective maintenance.
- ii **Efficiency in Remote Monitoring and Control:** Remote access and responsive interface for efficient monitoring and control from any location.
- ii **Resource Optimization and Decision-Making:** Comprehensive data visualization, accurate reports, and trend analysis for effective decision-making and efficient resource use.

“Thanks to the positive results obtained, the implementation of redundant monitoring and control systems in other areas of PEMEX is being considered”.

- Elizabeth Lopez, Operations Manager at Sedicosa.

From its inception, Sedicoso's main focus was to strengthen both production efficiency and the guarantee of the company's safe operations.





atvise® SCADA

SCADA SOFTWARE FOR INDUSTRY 4.0

The first HMI SCADA software built on Industry 4.0 fundamental basis: Pure Web Technology and OPC UA.

FREE DOWNLOAD atvise® SCADA



Highest Security



Responsive Design



Pure Web Technology



OPC UA



Multiplatform



Contact

info@vestersl.com
www.atvise.vesterbusiness.com

Vester Business USA

4855 W Hillsboro Blvd STE B3 Coconut Creek, FL 33073, EE. UU.

☎ +1 (754) 755 0009

Vester Business France

672 Rue du Mas de Verchant, 34967, Montpellier CEDEX 2, France

☎ +33 (0)4 13 68 01 06

Vester Business UK

☎ (+44) 161 660 3241

