

Case Study

Marsori Liquefied Gas Terminal Sets Industry Benchmark with Honeywell Technology



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- Hugo Fonseca, Project Supervisor, Grupo Marsori

Background

Marsori Group (Grupo Marsori) provides gas storage and transport facilities for Petróleos Mexicanos (PEMEX), Mexico’s state-owned petroleum company. It developed a liquefied gas terminal in the port of Tuxpan (Veracruz, Mexico), the first facility on the Gulf of Mexico to receive liquefied gas by vessel mainly from Europe and transport it via pipeline. The Tuxpan terminal can receive gases such as liquefied petroleum gas (LPG), isobutane, butane and butylene, among others, and dispatch tankers carrying gas products to locations throughout Mexico.



Safeguarding oil & gas installations from external and internal hazards has become imperative in many countries, especially those with significant operations vital to their national economic wellbeing.

For terminal owner/operators, full automation of their plants is imperative to achieve greater efficiency, lower operating costs and reduced risk of incidents/accidents.

Facilities such as the Tuxpan LPG terminal have found that today’s advanced video surveillance systems holding the key to

optimizing both plant security and process monitoring. They improve situational awareness for operators, enable fast access to process- and security alarm-related videos, and support a high level of plant availability and reliability.

Benefits

At the Tuxpan LPG terminal, Honeywell technology provides distributed process control, access control, product receiving and shipment automation, inventory movement and management, and safety for fire & gas and emergency shutdown. These solutions are both integrated and scalable to help reduce overall risk, accelerate production schedules and improve business performance.

Thanks to its state-of-the-art automation capabilities, the Tuxpan terminal can run with only four operators per shift. The site has maintained 100% availability since startup without any critical failures. Billing systems are integrated with company administrative systems, allowing real-time information to be shared from the process, personnel, vessels and tanker vehicles to support correct decisions. With enhanced security, operations can also be maintained without concern about product losses. Financial expectations for the plant automation and safety/security solutions have been exceeded, since operating and maintenance costs are under predicted values and return on investment will be achieved much sooner than originally projected. In addition, Honeywell’s service and support programs have been instrumental in helping the Tuxpan site meet its operational objectives while establishing a path to future technology upgrades.

The Tuxpan operation has become a benchmark for the best-instrumented terminal in Mexico, and has experienced a year of continuous operation without major problems. It will serve as a

model for future liquefied gas terminal projects throughout Latin America. This includes the expanded use of remote monitoring with Digital Video Manager (DVM) to improve supervision of the region's gas storage and dispatching facilities.

Grupo Marsori was recently awarded a contract by PEMEX to operate a 230 km gas pipeline connecting the Tuxpan terminal in Veracruz with Atotonilco Estado de Mexico. This project will make use of the same Honeywell control and security technology.

Challenge

Grupo Marsori sought to establish a fully automated liquefied gas terminal on the port of Tuxpan, with the ability to ensure safety across various facilities. This included automated processes for product receiving and dispatching. The terminal also wanted the ability to receive gas from vessels and store it in the most secure way possible.

The Tuxpan terminal is located in a high-risk area of Mexico, and as such, it must be operated in a discrete and controlled manner to meet industry standards and avoid situations that could put employees and assets at risk. The terminal's operational requirements dictated reliable automation of plant processes, integrated with an access control system and advanced video surveillance—all tied to billing and administrative systems.

For More Information

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Solution

After evaluating a number of major suppliers, Grupo Marsori determined Honeywell was uniquely qualified to integrate best-in-class gas measurement and control systems, security systems, and process monitoring and management solutions at the Tuxpan terminal, utilizing a single, user-friendly interface that eliminated the need to implement systems from different suppliers.

Honeywell's broad scope of delivery included the Experion® Process Knowledge System (PKS), C300 controllers, Digital Video Manager (DVM), Safety Manager for fire & gas detection and emergency shutdown, XLS-3000 fire detection panels and suppression equipment, Experion Industrial Security (EIS), Temaline access control system, field instrumentation, and filling and measurement skids. The automation systems are tied to enterprise resource planning (ERP) and other administrative systems.

The DVM solution was chosen for this project due, in part, to its ability to utilize different types of cameras, using various protocols, from different suppliers. For example, the system relies on pan-tilt-zoom (PTZ) pressurized cameras to handle the region's aggressive marine environment. These cameras are able to expand the field of vision with 35X zoom lenses. The DVM system is tightly integrated with Experion PKS for improved decision-making, and offers a solution for controlling tanker access to the terminal grounds. System databases are linked to information and images of every vehicle admitted to the facility. The position assigned to each tanker for docking is validated remotely, and the images of operators are associated with their assigned vehicles.

The proximity and landing of ships entering the terminal are also supervised remotely with DVM at the operator station. This is done using the PTZ cameras, which are operated from a control room located 1.2 kilometers from the dock. The system works in both darkness and inclement weather conditions. The same cameras are used to monitor the facilities and entrances for security purposes.

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