

Chemical Facility Integrates Security and Process Control to Reduce Risk and Increase Safety



"Having the security system totally integrated with process control is what makes this project best in class. If there is ever an incident on site, everyone [security and process employees] knows about the incident in real-time. We are now able to get the right information out to the right people quickly and go into action immediately. This reduces risk, enhancing not only security, but safety."

Bill Lessig, Plant Manager, Honeywell Specialty Materials, Geismar

Benefits

Honeywell Specialty Materials has implemented an unprecedented security system at the Geismar facility and has taken a holistic approach to the needs of security and process operations. By integrating process control, automation and security systems at the facility, it boasts one of the most advanced integrated systems deployed today, reducing risk and increasing safety preparedness. Current capabilities and benefits include:

- **Identify and control who enters and exits the facility**
- **Track movements of building occupants and assets**
- **Control access to restricted areas**
- **Track and locate equipment, products and other resources**
- **Track the location of personnel on site in the event of an incident**
- **Integrate control and security systems for greater speed and efficiency**
- **Protect process automation networks and systems from cyber threats**
- **Integrate vital waterway and dock monitoring through a radar system**
- **Respond proactively to alarms and events**
- **Share data to generate cost savings**



Honeywell integrates security and control

Background

The Honeywell Specialty Materials facility in Geismar, Louisiana, was constructed in 1967 and is located on the Mississippi River. The site comprises 1,900 acres and is occupied by Honeywell, as well as four other companies with Honeywell as host to provide services such as power. Honeywell employs approximately 275 at the site, with another 85 contractors on site at any given time. Counting the other companies, employment at the site is more than 1,000. As host, Honeywell is responsible for the perimeter security of the entire site, as well as the security of the Honeywell facility itself. Honeywell produces several chemical products at the site including hydrofluoric acid, fluorocarbon refrigerants and Alcon™ Resin.



Honeywell chemical plant in Geismar, Louisiana

Challenge

One of the top priorities for plant managers at any chemical plant is safety—not only the safety of workers in the plant, but also the people living within the surrounding community.

In recent years, the concept of safety has expanded beyond safe production to include security. In early 2004, the U.S. Department of Homeland Security (DHS) advised that refineries and chemical plants were, and continue to be, potential terrorism targets. The new reality of the post-9/11 world has given momentum to industry and government initiatives aimed at enhancing the security of industrial facilities in ways that meet non-traditional threat scenarios for physical plant security as well cyber security.

"Before 9/11, security meant that I was concerned about keeping valuable tools from walking out of the plant. Now my security concerns have shifted to thinking about threats from external sources—to assure business continuity, to minimize impacts in the event of an attack and to make sure the surrounding community is safe," said Bill Lessig, Geismar plant manager.

Honeywell, like other large chemical manufacturers, reexamined the strategies they were previously using to secure the facility. Before 2001, Honeywell complemented established emergency response procedures with local first responders and an around-the-clock security force. After 9/11, perimeter security, access controls and communication systems were increased, and background checks were run on all employees. But given the importance of the facility and the type of materials produced, Honeywell decided that a further upgrade was warranted. It was determined the best solution would be to integrate security with process control.

Prior to this, the site had a very small third-party security contract to maintain its perimeter fence and to provide basic monitoring of people coming and going. Control room operators and security officers used telephones or portable radios to communicate with one another. Integration of security systems and personnel with plant operations was virtually non-existent.

Further impetus for change came from the government. The Geismar plant is located on the Mississippi River with a dock for ocean-going vessels. Because of the direct access to this key waterway, it had to develop a plan in compliance with U.S. Coast Guard regulations. Once involved with the Coast Guard, Honeywell discovered an opportunity to apply for a DHS grant that could help with the cost of adding new security upgrades.



Advanced radar technology for waterway security

"The goal at Geismar, like other chemical facilities, was to enhance safety and security to match the increased risk levels of the plant. Honeywell realized it was in a very unique position in the industry. As a chemical manufacturer, and as a process control, security and building controls supplier, it was in a position to take a look at securing the site in an innovative way," said Lessig.

Solution

Honeywell leadership decided to develop a layered solution that connects process control with physical security at the plant, creating visibility at the enterprise level and the line of sight necessary to meet new threat prevention and response requirements. "We were in a unique situation to use Honeywell's own products and services, and apply open technologies to achieve a true industrial-strength security solution," said Lessig.

The first step was a Site Vulnerability Assessment to determine possible gaps in the plant's overall security. The general outcome was a recommended layered security approach—physical security (access control/perimeter protection), electronic (video surveillance/intrusion detection) and cyber.



Honeywell Command and Control Interface

Since Honeywell's building and process control systems share the same distributed server architecture, the company was able to tightly integrate physical and cyber security with process control. This scalability can work in all sizes of facilities with different types of hazards and risk levels.

After the 16-month project, Lessig said the site now has an excellent way to reduce risk and improve the safety of the entire facility and surrounding community. At the same time, the security personnel at the Geismar site now have the best technology possible to prevent, detect, deter and respond quickly to a wide range of security threats and breaches.

Because of Honeywell's unique combination of businesses and integrated architecture, Geismar has become a test bed for industrial security products and services. The solution at Geismar is the prototype of what many believe is the next generation in plant security—a fully integrated process and security solution that improves response times to safety and security incidents.



Access control

Honeywell's plant security solution can be viewed in four ways based on the ability to detect, deter, prevent and mitigate security concerns.

After the initial investment in access controls, perimeter protection and surveillance, Honeywell assessed what advanced security technology could be applied to enhance security, improve safety and provide a real return on investment.



Perimeter monitoring

Lessig continued, "The real challenge after implementation was figuring out how to measure ROI from an integrated security solution. We developed a solution that communicates in real-time. It merges data to create more robust knowledge that enables faster, more efficient actions with fewer resources."

When a facility has tighter security and only allows those people with the appropriate skill level in the areas to which they are permitted access, then liability risks are decreased. Integrated systems detect incidents earlier, so abnormal situation response time is improved. And since the system has the same look and feel, engineering and training costs are reduced.

In addition to keeping track of human assets, the system monitors mobile physical assets continuously throughout the facility. This helps reduce theft and loss of intellectual property and decreases lease and capital expenditures by continuously tracking the real-time location and utilization rates of high-value equipment. The solution also increases process uptime and helps to improve regulatory compliance by ensuring that



Explosion-proof camera

equipment can be located for scheduled maintenance or recalibration.

Since all the systems come from a single architecture, maintenance costs are generally lower and product evolution is consistent, resulting in lower installation and upgrade costs.

When considering an automation system, Honeywell believes that areas key to security include a platform with documented best practices for a secure system configuration, a secure network architecture, a focus and process that provides up-to-date security hot fixes, qualification of anti-virus software, a policy that focuses on high security and established cyber security services.

From the physical perspective, Honeywell recommends an integrated solution that facilitates automated processes, such as mustering, giving users the ability to detect, deter, prevent and mitigate physical security threats.

For More Information

To learn more about Honeywell's integrated plant safety solutions, visit www.honeywell.com/ps or contact your Honeywell account manager.

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Summary

Ultimately, security is the responsibility of everyone in the plant. Working with a vendor like Honeywell, with a focus on security and an established track record, can be of tremendous value in your security efforts.

Honeywell is in a unique position to help shape industry best practices for securing critical infrastructure because of its broad expertise:

- Maintains its own chemical plants and understands the importance of securing these facilities
- Draws on four decades of experience in the process and automation control business
- Leverages the most sophisticated off-the-shelf radar technology from its aerospace business
- Is the only company that has successfully integrated advanced security systems with advanced process control systems, making the Geismar solution the first of its kind

The position as a customer, developer, and supplier with expertise in both process control and security allows Honeywell to deliver realistic and affordable solutions to help keep people, industrial facilities and the environment safe.