

PROCESS SAFETY MATTERS

Safety is a priority for any sustainable production efforts, and process manufacturing has unique challenges.



Protecting workers and equipment is essential for maintaining productivity and competitiveness. Therefore, safety is a key component of any sustainable production initiative, whether discrete or process manufacturing. Human and capital asset protection helps maximize uptime, improve brand integrity, and control maintenance costs. It also helps to minimize regulatory risk.

A focus on safety also enhances a firm's position as a responsible manufacturer with cleaner, safer, more efficient and more competitive operations. Consumers are demanding socially responsible processes.

>> Process Safety Requires Reliability, Availability

Investing in more integrated platforms for safety and process controls provides a common infrastructure that mitigates production risk, simplifies asset management and reduces costs. Rockwell Automation offers Allen-Bradley® process and machine safety products and process safety solutions from ICS Triplex, a Rockwell Automation company.

ICS Triplex process safety solutions include highly scalable platforms from small fail-safe to high-availability, fault tolerant safety and critical control systems to help keep workers, equipment and communities safe from hazardous failures.

The integration between ICS Triplex safety platforms (safety instrumented systems) and the Rockwell Automation PlantPAx™ process control system (basic process control system) is ideal for petroleum, heavy chemical and other applications that require separation between process safety and process control, but also want to leverage the benefits of a single network, architecture and information platform.

For more information, visit www.rockwellautomation.com/go/tj10pr.

Performance-based safety standards require an understanding of instrumentation.

Optimized and profitable production requires well-trained personnel and an automation system that operates machinery and processes in the most efficient way possible. This provides even more motivation to consider employee, equipment and environmental safety as an integral part of any sustainability program.

Unique Challenges

The process industries face intriguing safety challenges. These not only include the normal safety elements in the workplace such as hazardous materials handling, recycling and disposal; regulatory compliance; efficiencies in complex facilities; effective Clean In Place (CIP) methods; and cGMP requirements. It also maintains continuous processes safely and efficiently, often running process equipment close to its maximum-designed parameters for years at a time.

Process efficiency maximizes profitability. Therefore, keeping a process running efficiently but safely has put increased demands on the performance of process safety systems.

For many years, process safety was implemented based on prescriptive processes and standards that instructed engineers what to do, but not necessarily how to do it. "Many safety systems have been implemented using general-purpose PLCs based on these 'do this' standards and processes," says Pete Skipp, senior product engineer with ICS Triplex, a Rockwell Automation company (www.icstrip.com).

"Since the introduction of performance-based safety system standards,

such as IEC61508 and IEC61511, engineers now must understand what to do, why they're doing it and what performance criteria to meet. This is essentially a new discipline, and many engineers have not yet grasped what they're now expected to be able to produce," Skipp explains.

These performance-based safety standards might also require an understanding of instrumentation — something that was previously handled by different disciplines.

"The performance standards focus on safety performance, which helps ensure that a plant or process will always be made safe — shut down — when an unsafe or error condition arises," he adds. "Users, however, don't want unnecessary shutdowns,

so there's a balance between ensuring the safety system performance is met and defensive measures are incorporated in the design to keep unwanted shutdowns to a minimum."

Special Demands of Deep Sea Process Safety

Specific industries also have specific safety demands. For example, the specialty chemical industry faces increasingly stringent safety and compliance mandates and aging plants and equipment.

Another example is particular safety challenges in subsea process applications. An underwater process system can't practically be maintained. A failure requires a ship, people, a submersible robot and enormous

amounts of money to recover the unit for repair, according to Skipp.

"Also, the available space and environment in which the equipment operates is much more extreme than traditional installations," Skipp says. "And, the instrumentation certified for subsea installations is very different from instrumentation used in typical process installations, so adapting the design and understanding the requirements is a challenge."

Consider a subsea compression pilot project at the Ormen Lange gas field, about half-a-mile below sea level off the coast of Norway. The Ormen Lange field is the first large-scale offshore field with all production stations on the seabed. Since the site doesn't use conventional offshore platforms,



Bridging the Communication Gap!



Anybus[®]

Communicator



Connect your serial RS232/422/485 device to all leading industrial networks!

X-gateway



Connect Allen Bradley PLC's and networks to any other leading industrial network!



Visit us at Automation Fair Booth #309

compression facilities are required to maintain required production levels and maximize gas recovery.

Initiated by Norway's StatOil Hydro, the Ormen Lange subsea development project is one of the largest and most demanding industrial projects ever carried out in Norway. ICS Triplex was asked to implement its AADvance safety and critical control system for Aker Solutions as part of the pilot project. The AADvance system provides anti-surge and safety control for the subsea compression units.

"Our involvement originally was to provide the anti-surge protection for the compressor, but has now expanded to include the subsea safety shutdown portion and the nucleonic level-controller system," Skipp explains.

"The safety and level were added because the existing technology available for subsea applications doesn't

meet the required safety performance required by the customer. This project is pushing the boundaries of technology in all aspects — nothing like this has ever been attempted before," he adds.

Visit <http://bit.ly/kg0BI> for more information about the Ormen Lange project.

Safety is a Key Part of Sustainability

No matter what the process application, manufacturers should have process control and process safety systems that communicate directly with each other and share important data, such as diagnostic information, system status, alarms, events and other critical information.

"This helps improve productivity, minimize troubleshooting time and provide faster recovery from interrup-

tions without compromising safety or security," Skipp says.

A sustainable operation allows a process to be maintained, at a certain level, indefinitely. Production processes and technologies must minimize energy and resource usage, minimize waste, protect equipment and people, maintain product integrity, and leave future production capabilities unhindered.

Sustainable practices, including effective safety initiatives, enable companies to meet present needs without compromising the ability of future generations to meet their own needs. □

Rockwell Automation Sustainable Production Solutions

www.rockwellautomation.com/go/tjsustain

Rockwell Automation Process Solutions

www.rockwellautomation.com/go/tj10pr

ADVERTISERS INDEX

Company	Web Address	Product	Page
Advanced Micro Controls	www.amci.com	Industrial Controls	24
Apex Dynamics	www.apexdynamics.com	Gear Boxes	9, 47
Burkert Fluid Control Systems	www.burkert-usa.com	Flow Controllers	46
CalAmp Wireless DataCom	www.calamp.com	Modems/Routers	20
Elwood Corp.-Gettys Group	www.elwood.com	Explosion Proof Servo Motors	47
EPLAN Software & Services LLC	www.eplan.us	Electrical Design CAD Software	15
FieldServer Technologies	www.fieldserver.com	Communication Modules	25, 47
Fluke Networks	www.flukenetworks.com	Test Tools	11
Grace Engineered Products	www.grace-eng.com	GradePort R Series	3, 47
Hardy Instruments, Inc.	www.hardyinstruments.com	Process Control Technology	46
Helm Instrument Company, Inc.	www.helminstrument.com	Process Control Systems, Force Transducers/Software	47
HMS Industrial Networks Inc.	www.hms.se	Network Gateway	49
item North America	www.itemamerica.com	Structures	37
Longwatch	www.longwatch	Video Surveillance	46
Matrikon Inc.	www.matrikon.com	Software – Remote Alarm Notification	37
Online Development Inc.	www.oldi.com	Enterprise Transaction Modules	35
Pepperl+Fuchs	www.pepperl-fuchs.com	Process Automation	21
Phoenix Digital Corp.	www.phoenixdigital.com	Optical Communications Modules	10
ProSoft Technology, Inc.	www.prosoft-technology.com	Communication Modules	52
Rockwell Automation	www.rockwellautomation.com/go/sitj	Solution Provider Program	12
Rockwell Automation	www.rockwellautomation.com/go/tj10pr	PlantPax Process Automation System	34
Rockwell Automation	www.automationfair.com	Automation Fair Event	51
Roxtec Inc.	www.roxtec.com	Cable Entry Seals	17
Spectrum Controls	www.spectrumcontrols.com	I/O Hart Modules	6
SyTech Inc.	www.sytech.com	XLReporter	46
TCl, LLC	www.transcoil.com	AC/DC Driver Peripherals	46
Wittenstein	www.wittenstein.com	Gearheads	2, 46