

By: STEVE ARENDT
Vice President, Organizational
Performance Assurance
ABS Consulting

And By: WILLIAM BRADSHAW
Senior Engineer
ABS Consulting

And By: JACK MCCAVIT
JL McCavit Consulting LLC

Overview of risk-based process safety — The next generation PSM

Process safety practices and formal safety management systems have been in place in some companies for many years. Process safety management (PSM) is widely credited for reductions in major accident risk and in improved chemical industry performance.

Nevertheless, many organizations continue to be challenged by inadequate management system performance, resource pressures and stagnant process safety results. To promote PSM excellence and continuous improvement throughout industry, the Center for Chemical Process Safety (CCPS) created Risk-Based Process Safety (RBPS) as the framework for the next generation of process safety management. ABS Consulting, working with the CCPS RBPS subcommittee chaired by Jack McCavit (formerly of Celanese), is nearing completion of these guidelines with an anticipated publication of April.

The RBPS guidelines provide tools that will help process safety professionals build and operate more effective process safety management systems. It provides guidance on how to: 1) Design a process safety management system, 2) Correct a deficient system or 3) Improve process safety management practices.

Risk-Based Process Safety approach

The RBPS approach recognizes that all hazards and risks are not equal; consequently, it focuses more resources on greater hazards and higher risks. The main emphasis of the RBPS approach is to put just enough energy into each activity to meet the anticipated needs for that activity. In this way, limited company resources can be optimally apportioned to improve both facility safety performance and overall business performance.

Three RBPS criteria should be considered to improve a PSM system, which include an understanding of the hazards and risks of the facilities and operations; an understanding of the demand for (and resources used in) process safety activities; and an understanding of how process safety activities are influenced by the process safety culture within the organization.

CCPS is establishing four accident prevention pillars, which should be implemented at a risk-appropriate level of rigor.

> Commit to process safety — the cornerstone of process safety excellence. A work force that is convinced the organization fully supports safety as a core value will tend to do the right things, in the right ways, at the right

times — even when no one is looking.

> Understand hazards and evaluate risks — the foundation of a risk-based approach. An organization can use this information to allocate limited resources in the most effective manner.

> Manage risk — the ongoing execution of RBPS tasks. Organizations must 1) Operate and maintain processes that pose the risk, 2) Keep changes to those processes within risk tolerances and 3) Prepare for, respond to, and manage incidents that do occur.

> Learn from experience — metrics, incidents, audits and management reviews provide direct feedback on the workings of RBPS systems. When an element's performance is unacceptable, organizations must use their mistakes — and those of others — as motivation for action.

Risk-Based Process Safety elements

The 20 elements listed below expand upon the original CCPS PSM elements to reflect 15 years of PSM implementation experience, best practices from a variety of industries and worldwide regulatory requirements.

The RBPS system may encompass all

Commit to Process Safety

Process Safety Culture
Standards, Codes,
Regulations and Laws
Process Safety
Competency
Workforce Involvement
Stakeholder Outreach

Safe Work Practices
Asset Integrity and
Reliability
Contractor Management
Training and Performance
Assurance
Management of Change
Operational Readiness
Conduct of Operations
Emergency Management

Understand Hazards and Evaluate Risks

Process Knowledge
Management
Hazard Identification and
Risk Analysis

Learn from Experience
Incident Investigation
Measurement and
Metrics Auditing
Management Review and
Continuous Improvement

Manage Risk

Operating Procedures

process safety issues for all operations involving the manufacture, use, storage or handling of hazardous substances or energy. However, each organization must determine which physical areas and phases of the process life cycle should be included in its formal management systems, based on its own risk tolerance considerations, available resources and process safety culture.

For more information, e-mail sarendt@absconsulting.com or call (281) 673-2914. □



Turnaround Specialists

At Repcon, we believe our existence and continued success as a service business is dependent on providing an unmatched level of quality and value while maintaining the highest regard for safety. The key to providing quality service is capable, dedicated and caring employees — our company's greatest assets.

Specialty Services

- EXCHANGER SPECIALTY SERVICES
- TOWER SPECIALTY SERVICES
- HF ALKY SPECIALTY SERVICES
- PIPE FABRICATION & INSTALLATION
- WELDING SERVICES (ASME CODE CERTIFIED)
- TOTAL PROJECT MANAGEMENT



Repcon, Inc.

P.O. Box 9316 • Corpus Christi, TX 78469

(361) 289-6342

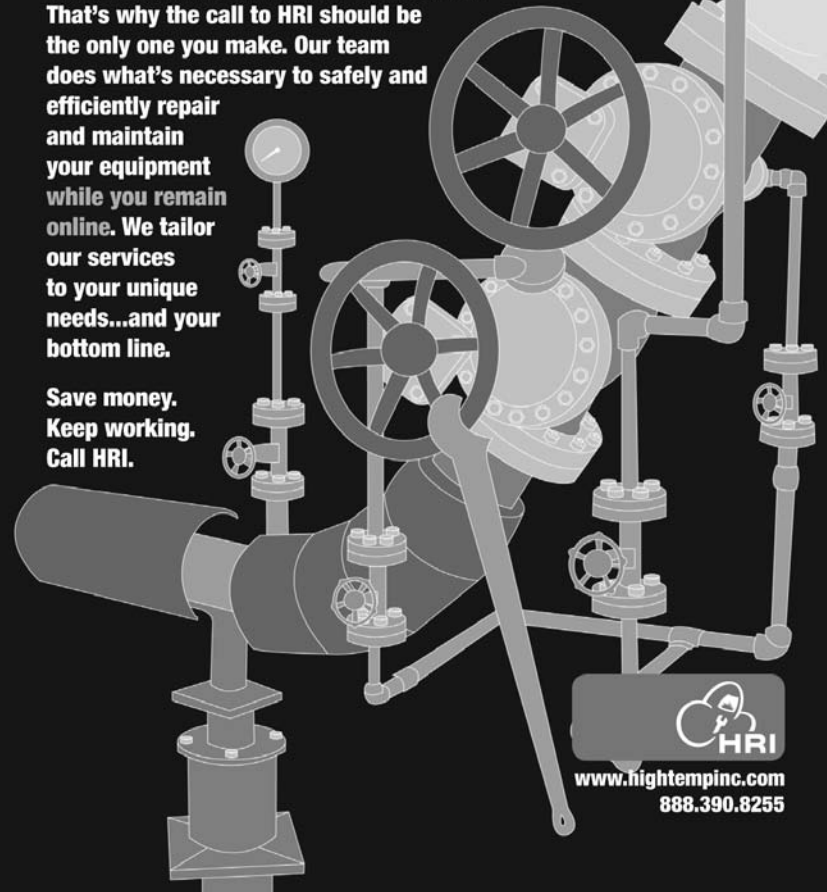
www.RepconInc.com



A broken valve interrupts catalyst flow. It interrupts cash flow, too.

We understand your need for loss control. That's why the call to HRI should be the only one you make. Our team does what's necessary to safely and efficiently repair and maintain your equipment while you remain online. We tailor our services to your unique needs...and your bottom line.

Save money. Keep working. Call HRI.



www.hightempinc.com
888.390.8255