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Process Safety Beacon

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Messages for Manufacturing Personnel

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How do you measure process safety performance?

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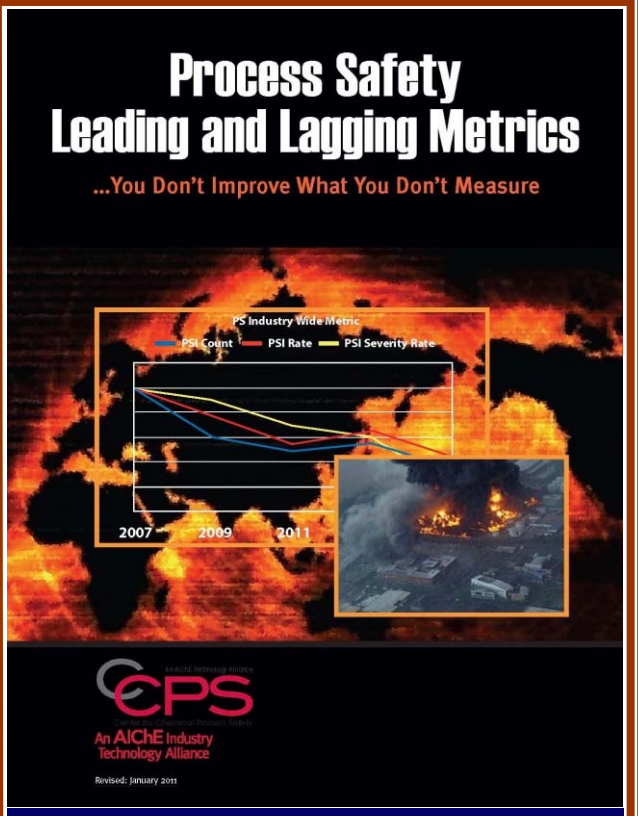
The Problem

The March 2014 *Beacon* discussed the relationship between process safety and occupational safety, as well as the importance of both in ensuring a safe workplace. For many years, industry has used established measures of occupational safety performance, such as Occupational Injury and Illness (OII) rate, to monitor the effectiveness of safety management systems. However, these statistics are not good measures of process safety performance.

Following the March 2005 explosion at a BP refinery in Texas City, Texas, an independent investigation panel (the "Baker Panel") found that "BP primarily used injury rates to measure process safety performance at its U.S. refineries before the Texas City accident. Although BP was not alone in this practice, BP's reliance on injury rates significantly hindered its perception of process risk."

The panel concluded that the BP process safety management system did not effectively measure process safety performance. Other companies recognized that they had a similar problem. CCPS and other government, industry, and professional organizations have developed new measures for process safety performance. While the details are beyond the scope of the *Beacon*, these measures focus on loss of containment of material and energy, and on the effectiveness of specific process safety management activities. For example, the American Petroleum Institute (API) developed RP 754 "Process Safety Performance Indicators for the Refining and Petrochemical Industries." Industry organizations and individual companies all over the world are developing and using similar measures.



Cover of the CCPS report on measuring process safety, available for download from:
http://www.aiche.org/ccps/resources/tools/process-safety-metrics

Do you know?

➔ Traditional injury rate statistics do not effectively measure how well your process safety management system is performing. Think about it – what if there is a large release of a flammable material, perhaps several tons, and it catches fire? If nobody is in the area, there will be no injuries. It may be reportable as an environmental release or a financial loss, but the incident will have no impact on your plant's injury rate statistics! Yet, we can all agree that this is a significant process safety incident and we need to monitor the occurrence of events such as this.

➔ Because common elements such as safety culture and operational discipline affect both process safety and occupational safety performance, you should be concerned about how well your process safety program is performing if your injury rate starts to increase. But do not make the mistake of believing that a low injury rate proves that your process safety program is effective!

What can you do?

➔ Understand what measures your plant uses to monitor process safety performance.

➔ Understand your role in recognizing and reporting process safety incidents so you can do your part to make your plant's process safety measures useful and meaningful.

➔ Read your plant's process safety reports and statistics, and participate in efforts to improve performance.

➔ Read the August 2008 CCPS *Process Safety Beacon* for more information on measuring process safety performance (available at http://sache.org/beacon/products.asp).

➔ For engineers and managers, the CCPS report above (44 pages) is available in Chinese, English, Japanese, Portuguese, and Spanish.

You don't improve what you don't measure!

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