

Chemical Safety Hits Department of Homeland Security's Agenda

By Kevin North

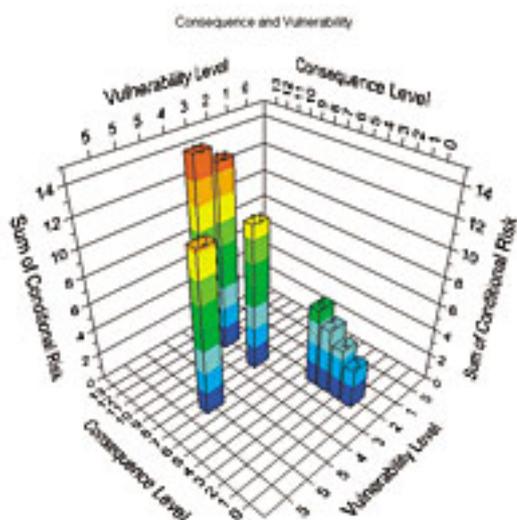
The U.S. Department of Homeland Security (DHS) was formed as a single, integrated agency to focus on protecting the American people and their homeland. Chemical security continues to be a priority for the DHS, and this year we are feeling the effect of this on companies of all sizes and in all industries that use chemicals in their manufacturing process.

The extent of onsite and offsite damage from an incident at a process plant containing hazardous materials is evident in history. The unfortunate events at plants such as Flixborough and Bhopal have made clear the incredible risks that exist. Whether man-made or natural, there are things we all need to be doing to prepare for and prevent chemical incidents. Some companies will be unaffected by the DHS's involvement in plant safety, having gone through their own security and vulnerability assessments, but others will be forced to evaluate their facilities with a cautious eye.

Hundreds of small and large incidents where chemical safety was compromised occurred before process safety became regulated. It's incomprehensible today to think of being without regulations such as OSHA's Process Safety Management rule (OSHA 1910.119). The value they provide employees and industry alike is unquestionable. In the aftermath of Sept. 11, the chemical process industry realized that it would only be a matter of time before new regulations were put into effect to address the potential security and terrorist risks inherent to processing hazardous substances. Considering the ease with which an event, small or large, with an unprecedented level of destruction can happen in a chemical plant warrants a Security Vulnerability Assessment (SVA) to incorporate practical and preventive measures for planning.

In the wake of the current homeland security climate and heightened need for preparation, the DHS is continuing its part to ensure that the most comprehensive security measures are in effect in all aspects of our day-to-day life. For companies that use chemicals in their businesses — everything ranging from nuclear power plants to ice cream manufacturers — these measures come in the form of complex, yet necessary, regulations. In particular, the DHS is looking to step up efforts to secure chemical plants in the U.S. and is about to release the final list of its "Chemicals of Interest." This list identifies a set of chemicals, including carbon monoxide, nitric acid, and hydrogen, and the quantities at which they become a threat to homeland security.

CSAT and Top Screen



[1]

Consequence & Vulnerability **(Click image for larger version.)**

What this means for the chemical processing industry is the need to comply with the DHS's Chemical Security Assessment Tool (CSAT) and complete its 80-page CSAT Top Screen questionnaire. As companies wait for the final chemicals of interest list and sort through the various timelines and deadlines, what looms after the DHS review of Top Screens is a 90-day window to complete a much more thorough SVA.

The upcoming CSAT is designed to ensure a high level of security at the nation's sensitive chemical plants. Any facility that manufactures, uses, stores, or distributes certain chemicals above a specified quantity must complete and submit a CSAT Top Screen. The CSAT ensures a more efficient way to identify facilities that present a high level of risk, including the tiering decisions that led to these assessments. Additionally, the CSAT will assess a chemical facility's security vulnerabilities and evaluate its security plan to ensure risk-based performance standards are met. The question is: What is the nature and extent of potential damage on a particular site? There are only two sources for this information – the hazards and security vulnerability assessments. In light of the vulnerability and indefensiveness of a plant to an attack, it is imperative that we take practical steps toward securing our plants lest we have to continue to learn lessons the hard way. This is where chemical facilities are struggling – effectively monitoring and evaluating risk.

Strong Software Solution

The image shows a screenshot of a software application interface. It features a large table with multiple columns and rows of data. The table is color-coded with various shades of blue, yellow, and red. There are several pop-up windows or dropdown menus visible over the table, suggesting an interactive data management system. The overall layout is dense and technical, typical of a professional software tool used for risk assessment or security planning.

[2]

(Click image for larger version.)

SVA-Pro software ties all departments together, forcing corporate consistency and

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knowledge sharing between departments as well as between facilities within the same department.

Now more than ever, it is essential that chemical processing companies incorporate a strong software solution into their risk management strategy. Although chemical facilities have changed in the last 30 years, and they continue to change, many plants are still afflicted by an antiquated infrastructure due to the high capital cost of upgrades. In order to prevent catastrophic events, companies use Process Safety Management to achieve safe operation by first defining the safe operating parameters and then ensuring the operations remain within the parameters. In order to do this in an organized and automated way, many of these same companies are using software solutions to complete SVAs.

Until now, SVAs were simply recommended by the Center for Chemical Process Safety (CCPS) rather than regulated by the government. With that said, as the DHS openly acknowledges on its website, each facility with chemicals of interest faces different security challenges, and establishing risk assessments and standards is difficult for all those involved. Through a software risk management implementation, however, these standards can be placed into the risk context in order to be met effectively. Rather than relying on haphazard Excel sheets, unique security challenges can be both acknowledged and monitored in order to ensure that lessons continue to be learned.

Critical Target Assets	Potential Actions	Threat Rating	Adversary Capability	Capability Rating	Adversary Motivation	Mitigation Rating	SVA #
Process Control	Breach of security and release, theft, diversion of hazardous materials	5	Low level of organizational support, poor resources and financial health, small company	5	Highly motivated and willing to use deadly force, but not suicidal	2	12
	Breach of security and use of death or force to cause release of hydrocarbons or toxic chemicals, possible contamination, possible degradation or acute environmental impact	4	High level of organization, Discretion	4	Highly motivated	4	3
	Major equipment damage and business interruption	4	Medium	3	Want to cause maximum damage to company assets including loss of its environmental reputation	4	3
	Chances of product contamination, environmental damage	5	Independent authority for operation	4	Want to get notice with management	1	3

[3]

(Click image for larger version.)

SVA-Pro, which uses a consistent template that meets ISPS CFR standards, is flexible enough to be used to analyze the various hazards found throughout an organization.

Using inefficient methods to complete SVAs for the DHS can be detrimental. Many companies are not automating their SVAs, leading to lost productivity, higher costs, and inferior management of risk. Software solutions allow companies to organize key information in a way that simply cannot be maintained on spreadsheets. With the approved DHS software methodologies, information is collected and controlled in one domain for thorough risk management. This enables visibility across all facets of the organization as well as an interface that allows those tasked with the responsibility of working and assigning projects to make real-time updates and view the various relationships that will help mitigate risk.

There will always be new or updated regulations, but there are some things chemical facilities have already been doing well. Members of the American Chemistry Council, for example, have adopted the Responsible Care Security Code, which addresses facility, cyber, and transportation security. Part of this code requires companies to conduct SVAs and to create security management systems, which are documented to provide quality control and assurance. Risk management software solutions can help to provide consistent templates that meet these

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standards, tying all departments together to force corporate consistency and the sharing of knowledge between departments as well as between facilities within the same department. At the same time, they can be flexible enough to be used to analyze the various hazards found throughout the facilities.

Currently, many chemical processing companies use software risk management to complete thorough HAZOP and PHA studies for analyzing their facility's process safety risks. These studies allow for the fulfillment of regulatory requirements, documentation of best practices, and the protection for employees, facilities, the public, and the environment as well as ensuring business continuity.

Overall, the long-term benefits of using software risk management solutions, whether complying with DHS process safety regulations or others, are extensive and simply a matter of national security. Above all, the information sharing that a more planned, documented process ensures will equip those involved with knowledge — the most important tool to manage and mitigate risk effectively.

Kevin North is president and CEO of Dyadem, a leading provider of process risk management solutions to chemical facilities across the nation. Dyadem's SVA-Pro software is listed on the Department of Homeland Security's Top Screen as one of the 14 certified methodologies by the Center for Chemical Process Safety. More information is available at www.dyadem.com/products/sva-pro/index.htm.

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