FoodQuestTQ (http://www.nfpcportal.com)

Bringing C.A.R.V.E.R. into the 21st Century

By John Hnatio, Chief Science Officer, FoodQuestTQ

C.A.R.V.E.R. was originally developed as an enemy targeting tool by U.S. Special Operations Forces to analyze the enemy's critical infrastructures to identify specific security vulnerabilities that can be exploited by a small well-trained military force to create maximum damage and disrupt the enemy's ability to wage war.

C.A.R.V.E.R. is an acronym for:

- CRITICALITY

- ACCESSIBILITY

- RECUPERABILITY

- VULNERABILITY

- EFFECT

- RECOGNIZABILITY

Later, the term SHOCK (http://www.executive-interface.com/CARVERshock.pdf) was added to account for attacks against symbolic targets that could affect the will of the enemy and their supporting civilian populations to wage war.

Used by civilians as a counterterrorist tool to conduct vulnerability assessments, C.A.R.V.E.R. plus SHOCK has its pluses and minuses. On the plus side, C.A.R.V.E.R. plus SHOCK was a very valuable tool in the immediate aftermath of 9-11 to highlight the severe vulnerabilities that exist in all open and free societies. It helped all of us to understand that terrorists were a formidable force to be reckoned with and that we would have to do things differently to defend ourselves against this new type of threat.

On the negative side, any effective vulnerability assessment tool must be grounded on a design basis threat that tells you what must be protected, why it must be protected and what it must be protected against.[i] (#_edn1) Without a clear and unambiguous statement of the threat you cannot determine how well you are protecting your operations against the vulnerabilities you identify using tools like C.A.R.V.E.R. plus SHOCK. On the battlefield the design basis threat is determined by the military rules of engagement with the enemy.

But in the civilian world, there are no clearly articulated rules of engagement to guide us. The best we have are anecdotal statements of the threats to the food supply. In other words, by using tools like C.A.R.V.E.R. plus SHOCK, the civilian community has "put the cart before the horse." The danger in this approach is the tendency "to go Hollywood" based on imagination when you conduct a vulnerability assessment. This, of course is known to produce false positives whenever you use a targeting tool like C.A.R.V.E.R. plus SHOCK.

On December 12, 2012, the Food and Drug Administration (FDA) will conduct a workshop to discuss CARVER plus SHOCK and a new tool that they are developing to help the food industry build more effective food defense plans. We applaud the initiative being taken by FDA to move the process along from the early days following the 9-11terrorist attack. We agree with the FDA that we have learned a great deal over the past 12 years to make the job of protecting the food industry more effective. One way to do this is by recognizing both the strengths and weaknesses of C.A.R.V.E.R. plus SHOCK. We agree with the FDA that we must build upon strengths and eliminate weaknesses.

In preparation for the FDA workshop, FoodQuestTQ is now sponsoring a food industry survey of C.A.R.V.E.R. plus SHOCK. If you have not taken the survey we urge you to do so by completing the questions at this link https://www.surveymonkey.com/s/FGKJBTY (http://www.linkedin.com/redirect?url=https%3A%2F%2Fwww%2Esurveymonkey%2Ecom%2Fs%2FFGKJ BTY&urlhash=YLfC&_t=tracking_anet) . Although the population of respondents is still small, we are getting a preliminary glimpse of the food industry's evaluation of C.A.R.V.E.R. plus SHOCK. A snapshot of the survey results at the time of publication show that 46% of the respondents needed outside assistance to complete vulnerability assessments using C.A.R.V.E.R. plus SHOCK. Sixty four percent of respondents feel that the tool is difficult to use. 73% report that C.A.R.V.E.R. plus SHOCK does not help them determine food defense threats and threat levels at their facilities.

In conjunction with the industry survey, FoodQuestTQ has just completed an analysis of 1100 food defense all–hazards events that are contained in our POISON^TM data repository and open source intelligence to develop a clear and unambiguous statement of the threats to the food supply along the supply chain. The threat statement includes the characteristics of potential adversaries. Our objective was to "put the horse in front of the cart" by providing the threats that food companies must have in order to make vulnerability assessment tools like C.A.R.V.E.R. plus SHOCK more useful. Based on the design threat, we completed a vulnerability assessment of the food supply across each segment of the food supply chain and identified the specific vulnerabilities and the food defense risk reduction countermeasures that should be put into place to address the vulnerabilities.

The outgrowth of our efforts is our Food Defense Architect™ software tool. With the FoodQuestTQ Food Defense Architect Tool, users simply answer a series of Yes / No / Does Not Apply questions. After the user answers the questions (as determined by their size and placement on the food supply chain) the advanced analytics identify the most effective countermeasures that should be put into place to address their vulnerabilities. Food Defense Architect also helps food companies by recommending the most effective preventive measures of low probability-high consequence events and the most effective response measures for high probability-low and medium consequence events.

The Food Defense Architect Tool can be used by companies wanting to identify the right combination of prevention and response food defense risk countermeasures they need in place to balance the cost of operations by keeping losses down and profits high. Food Defense Architect can also be used to determine the reliability of suppliers and transporters. But no matter how the Food Defense Architect Tool is used, all of us at FoodQuestTQ assure that you will not be disappointed when you see a demonstration of Food Defense Architect. Please call Bruce Becker at 540-645-1050 or email him at bbecker@foodquesttq.com (mailto:bbecker@foodquesttq.com) to arrange for a demonstration of the suite of FoodQuestTQ software tools that have been developed specifically for the food industry.

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[i] (#_ednref1)   Jech, Ronald. (April 2010). NATO Science for Peace and Security Programme. NATO Advanced Technology Workshop: Advances in food security and safety against terrorist threats and natural disasters. Presentation, Risk management as it relates to food. Cairo, Egypt. Read more at: http://agtechint.com/uploads/Risk_Management_as_it_Relates_to_Food.pdf

About the Author

John Hnatio is the Chief Science Officer at FoodQuestTQ. He has served in senior positions with both government and industry. His career includes service as a Loaned Executive to the U.S. Senate under the Administration of Ronald W. Reagan, Professor and Department of Energy Chair at National Defense University, founder of the United States Industry Coalition (USIC), the Advanced Manufacturing Initiative (AMI) and the Specialty Metals Processing Consortium (SMPC) and intelligence, safety and security responsibilities for nuclear and biological counter proliferation and counter terrorism programs. In addition to being a founding partner of FoodQuestTQ, he is the founder and President of Projectioneering LLC. John is the author of several patents and holds a doctorate degree from the George Washington University. He also holds a doctorate degree awarded *honoris causa* from the Urals Branch of the Russian Academy of Sciences.