

Thoughts on complex transformation

Editor's note: The National Nuclear Security Administration recently announced its proposed plan for the transformation of the nation's nuclear weapons complex that calls for a "nuclear weapons infrastructure that is smaller, safer, more secure, and more cost effective." In the following, Joe Martz, the nuclear weapons program director in the Principal Associate Director for Weapons Programs, shares some of his thoughts on the proposed complex transformation with Currents.

Currents: How do you see stockpile stewardship evolving and relating to complex transformation?

Martz: I was raised in Los Alamos, and it is really the whole reason I came back after college. My senior year of high school in 1983 also was the 40th anniversary of the Laboratory. There was a reunion of Manhattan Project scientists, and many of the great names of 20th century science had come back to Los Alamos—Richard Feynman, I.I. Rabi, Edward Teller, Hans Bethe. I was one of about 30 science-minded kids who were invited to three days of talks. The one I'll never forget came from Hans Bethe. He talked about how stars die, the physics of supernovas.

Then he talked about the obligation that his generation had created, and he said to us, "It is up to your generation to find a way out of this problem that we created—nuclear weapons."

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Joe Martz,

LeRoy N. Sanchez

About the cover: Dennis Montoya of Explosive Applications and Special Projects prepares for an experiment, inset, at the Lower Slobbovia firing site. See Page 4 for story. Photo by Dixon Wolf

Currents: What do you mean by a “capability-based deterrent?”

Martz: If we are extremely competent and demonstrate the capability to reconstitute nuclear weapons, convincing both allies and adversaries that the capability is assured and agile—that capability in and of itself becomes a component of deterrence. It’s a compelling idea. Our security rests not so much on the products of our work, but on our work itself.

Currents: What do you see as the most important factors in achieving complex transformation?

Martz: Transformation of the complex comes down to one key thing: timing. If you’re going to rely on capability to protect your security, you have to be so agile that no adversary can surprise you. That means that timing counts, months and years matter. Being able to do what’s required in 12 to 14 months compared to three years makes a big difference.

Currents: Does that kind of agility exist today?

Martz: Some of it does. A good example took place during the Reliable Replacement Warhead competition. The typical historic weapons hydrodynamic test took between 18 and 24 months, with existing designs and parts. During RRW, from the time we conceived the design to the time we were ready to conduct the first hydrodynamic test was less than 12 months. That is a direct demonstration of the agility needed in complex transformation.

Currents: Do you think complex transformation also might enable non-weapons science?

Martz: Yes. One example is MaRIE. The development of this new fundamental science facility, Matter Radiation Interactions in Extremes, will bring to bear experimental tools that will allow us to measure areas where in the past we were just taking a pretty good guess.

Currents: On a personal note, what do you consider to be one of your main contributions to science?

Martz: No one accomplishes any important element of their career alone. There is nothing I’ve done that I can say I did by myself. The successes that I’ve been part of have all come about because I’ve been able to work with some of the best and brightest people at the Laboratory throughout my career. I’ve been part of incredible teams conducting the Octave test series, the RRW competition, bringing pit surveillance to Los Alamos, and many others. Seeing and appreciating the genius of John Pedicini’s incredible ideas in RRW was probably the highlight.

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Public hearings on draft Complex Transformation SPEIS

The National Nuclear Security Administration is holding public hearing at locations across the country on the draft complex transformation Supplemental Programmatic Environmental Impact Statement (SPEIS). NNSA officials will be available to discuss the draft and answer questions. The public also will have an opportunity to provide oral and written comments. Five public hearings are scheduled in four New Mexico cities — Socorro, Albuquerque, Los Alamos, and Santa Fe. For dates and times, go online to <http://www.complexttransformationspeis.com/news.html>). NNSA distributed more than 2,000 copies of the draft SPEIS, and the public has until April 10 to review and provide comments.