

Cerion to make better bullet

By **KERRY FELTNER**

The Department of Defense is relying on a local firm to make bullets denser.

Cerion Technology Inc. has teamed up with the Defense Department under the U.S. Army Manufacturing Technology Program to develop tungsten carbide nanoparticles for ammunition.

The program, known as ManTech, has provided \$12 million in funding for the collaboration.

“From a technical perspective it’s unique because it’s a very big challenge that we’re undertaking,” said Landon Mertz, CEO of Cerion. “So there’s going to be a considerable amount of research work that goes into making this project successful.

“What makes it interesting from a commercial perspective to me is the type of volumes that we would be supporting when this technology is moved out to the war fighter.”

The current project represents up to 100 million rounds a year. Cerion is working on one class of small-caliber (7.62 mm) ammunition bullets, officials said.

“I think when you step back and look at the opportunity in context, and you look at the technical challenges, it’s a pretty exciting thing for our company,” said Matthew Winslow chief operating officer. “(The Army has) been using certain materials in small caliber ammunition since World War I. They’ve been looking at new age metals and when you deal in those metals in the nano form, which means much smaller grain sizes, you can create a denser product.”

Using local personnel and operating across three sites in Rochester, including a 20,000-square-foot manufacturing facility at Eastman Business Park, Cerion hopes to bring advanced materials manufacturing back to the region.

Sen. Charles Schumer, D-N.Y., said he pushed to increase funding for ManTech to create nanomaterial for next-generation army ammunition and expand the workload for Cerion in Rochester.

“Cerion...is a leader in the development of new nanomaterials that our Defense De-

partment needs to best equip our U.S. military,” Schumer said in a statement. “This funding will allow the Army to now partner with Cerion.”

Cerion officials expect to add roughly six employees to its research and development team over the next couple of years to support the project.

The partnership with the U.S. Army is a new venture for Cerion but one expected to grow.

“It’s a very exciting new frontier of technology for them,” Winslow said. “They identified a material they needed for an innovation breakthrough, however, they could not source either internally or externally a cost-effective way to scale that technology. That’s where Cerion comes in.”

Ultimately the project’s outcome could mean hundreds of high-tech jobs added to the local economy in the next few years.

“It is a huge step forward in advanced materials manufacturing for our region,” Winslow said. “We are in the midst of engaging many other groups at the DOD and talking about other materials that we can help them scale up.

“You can envision that Rochester and Cerion and the Eastman Business Park as the epicenter of advanced materials manufacturing for the Department of Defense; that’s certainly our goal.”

The \$12 million project is part of \$60 million total for ManTech within the Fiscal Year 2016 Omnibus Appropriations Bill, officials said.

Cerion is addressing a longtime problem for the Army: next-generation ammunition requires an economical way to manufacture tungsten carbide bullets

The staff at Cerion knows how to take the materials from a prototype stage to commercial scale, officials said.

“This technology does not exist in other countries,” CEO Mertz said. “It comes down to the way that you traditionally would have to manufacture a tungsten carbide bullet; it’s just not economical. So again where we’re bringing our expertise to bear is making something that can actually be produced at commercial scale—that’s what’s holding the whole



Photo by Kimberly McKinzie

Cerion is led by Landon Metz, left, and Matthew Winslow.

field back.”

“If China or Russia could do it, I’m sure they would try, but it’s a high-bar challenge,” he added.

Winslow said the partnership of Cerion and the Defense Department will result in war fighters having bullets that are more dense and able to penetrate the tensile strength of body armor.

“There’s a lot more opportunity for us to help spur innovation and ultimately manufacture materials for the Department of Defense, so (it is a) tremendous opportunity,” Winslow said. “Unfortunately for our war fighters as our technology improves so do the technologies of our enemies.”

Cerion will take the project from pilot-scale manufacturing to full-scale production to the hands of a war fighter in an estimated seven years, including roughly two years devoted to research.

The company was founded almost a decade ago.

Cerion employs 45 people across three facilities, including an office on Blossom Road, a laboratory in the city and in Eastman Business Park, which has the capacity to manufacture roughly 150 metric tons of nanoparticles annually, the company said.

Cerion also is looking to expand its footprint at Eastman Business Park with the creation of a nanomaterials research facil-

ity that could create 200 jobs.

“This is separate from the DOD work, however, (and) is another example of Cerion’s aggressive and near-term expansion plans,” Winslow said.

The National Nanomaterials Commercialization Center is focused on lowering the hurdles for large industry to incorporate nanomaterials into their next-generation commercial products, he explained. By creating a consortium structure and having research and development, pilot and manufacturing expertise and infrastructure in one place, at Eastman Business Park, industry can more quickly and cost-effectively get nanomaterials developed and incorporated into their end-products.

“The NNCC was one of the signature initiatives that the Finger Lakes Regional Economic Council included in its Upstate Revitalization Initiative that recently was

awarded \$500 million,” Winslow said.

The facility would be funded by up to \$125 million in private investment from companies looking to partner with Cerion, the company said.

Schumer’s efforts helped get the Army’s vision off the ground, Mertz said.

“The Army had a definite desire to move on this project, but the funding wasn’t available,” Mertz said. “Sen. Schumer was critically important in helping us to get the money put in place so that the project could move forward. In the long term from a manufacturing perspective it could easily add 100 jobs and tens of millions of dollars in potential revenue.”

The next step in the Army project is research. The focus stays local for providing high paying, highly technical jobs, officials said.

“We have hired search firms to go out

and look at candidates for various positions in our R&D team senior scientists, lab technicians, directors of development, and it’s been very interesting and very telling about the strength of our workforce because really in almost every case we’ve come back to, we’ve had personnel locally,” Winslow said.

Cerion continues to penetrate the market and find ways to differentiate itself, Mertz says.

“Our unique value proposition, which is this ability to scale nanomaterials at industrial levels—this expertise continues to be one of the things that sets us apart from our competitors in the field,” Mertz said. “And it’s the thing that’s really enabling us to grow at the rate that we have. We would expect more opportunities like this to come down the pike in 2016 and 2017.”

kfeltner@rbj.net / 585-546-8303