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TOM WALSH: Gene Codes scales down massive victim ID project

Software for DNA matching took technology to new levels

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BY TOM WALSH
FREE PRESS COLUMNIST

Someday soon, perhaps in the next few weeks, a letter will be sent to the families of people who died in the World Trade Center towers on Sept. 11, 2001.

It will promise that the quest to identify remains of the 2,749 who died that day will go on. As new technological breakthroughs occur, more testing of unidentified remains will be done.

But the letter will also say that the New York chief medical examiner's office has done virtually everything it knows how to do with current technology.

In other words, the largest, most difficult mass fatality identification project in history is winding down.

For **Gene Codes Corp.** of Ann Arbor, that makes this week's third anniversary of 9/11 a time for reflection but also a time for moving on.

It was the complex software created at Gene Codes that made most of the 1,571 successful WTC victim identifications possible by reducing data-crunching time from as long as two weeks to five minutes.

Last weekend -- yes, they worked Labor Day weekend -- the Gene Codes staff got a visit from Elaine Mar, supervisor of the World Trade Center DNA identification unit in the New York chief medical examiner's office.

Mar and a handful of others have worked nonstop since September 2001 to identify trade center remains. It's been a brutal, emotionally draining experience, she conceded, but also rewarding.

"I came to work on some data issues," Mar said of her visit to Ann Arbor this week, "but also to thank everyone here for working so hard. The software has been a big help; it's made our lives a lot easier."

Two years ago, when I first interviewed Gene Codes founder and president Howard Cash about his team's amazing work on the 9/11 project, remains from 1,402 victims had been identified. DNA testing yielded most of the ID matches, because the bodies had been so badly burned and pulverized that dental records and other methods were fruitless.

The ID process has gotten tougher and tougher since then, yielding 169 more matches as investigators tried new techniques to extract DNA from charred bones and tiny samples. They cast a wider net among relatives of trade center victims for DNA samples.

Gene Codes, meanwhile, kept tweaking and improving the complex software program that sorts and compares data from three different types of DNA tests on 20,000 partial human remains, to the DNA from more than 3,000 cheek swabs of victims' kin and 8,000 personal effects.

This week the Gene Codes staff is working on Version 137 of the software

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called MFISys (pronounced EMPHASIS), for mass fatality identification. Version No. 1 was delivered Dec. 13, 2001, and yielded 55 positive IDs the first day. For the next couple of years, Cash flew to New York every week with a new version of the software. Lately, he has reduced the frequency to once every two or three weeks.

I asked Cash this week if the WTC victim identification effort had reached a point of diminishing returns.

"It's hard to talk about it like that," he said, "because, if you're one of the families, there's one match that counts.

"It's hard not to keep putting all the resources you have on the project," he said, noting that eight or 10 victim IDs have been made in the last month.

But to save Gene Codes' core business, which stagnated as Cash threw all his software engineers at the WTC project in 2001 and 2002, Cash had to adjust.

He hired some new staff and moved others off the trade center project to work on the firm's core product, called Sequencer. That software is used for DNA sequencing, or the process of determining the exact order of chemical building blocks in human DNA.. "We had a new version of Sequencer for **Apple** that was due out in late 2001; we finally delivered it in early 2004," Cash said.

Today, 14 of Genes Codes' 35 employees still work full-time on the WTC project.

Cash acknowledged that the emotions of the 9/11 aftermath, along with 12-hour workdays and six- and seven-day workweeks in the early months of the project, took a toll on some staff members. One top engineer left to work for **Microsoft**. Another staffer, immortalized as the "data goddess" on a chart taped to the wall, left a couple of months ago to attend graduate school.

"This project is a wonderful thing to have on a resume," Cash said. "These folks can go anywhere they want. We want them to stay here, of course, but, if they decide to leave, I'll write every one of these guys a killer recommendation."

Someday in the future, when the 9/11 remains that defied identification are at rest in a memorial tomb of the unknowns on the World Trade Center site, Gene Codes will no longer make new versions of the special MFISys software for New York City.

But the company and its people will be forever changed by the experience.

"In 2001 before 9/11, about 4 percent of our business was in forensics," Cash said of using his firm's expertise for legal or criminal problem solving.

"In the future we think that may be 25 to 40 percent of our business, selling large systems to states, countries and nongovernmental organizations."

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