Airspace safety:

Software QAs oversee post 9/11 initiatives

Matthew Montgomery | DCMA Public Affairs

Defense Contract Management Agency personnel in Los Angeles understand the importance of protecting U.S. airspace. This dedicated team works on the Battle Control System, a post 9/11 initiative, which provides enhanced airspace surveillance.

"There is a lot of pressure knowing you're working on a program this closely associated with the terrorist attacks," said Jason McNutt, DCMA Raytheon Los Angeles program integration specialist. "We have a constant reminder of those tragic events and I think it adds an additional layer of responsibility to an already important job."

The National Commission on Terrorist Attacks Upon the United States, or 9/11 Commission, was established in 2002 to look into the attacks and prepare a full and complete account of what happened. The report looked at preparedness, response rates and other variables.

"One finding from the commission was that the nation needed to do a better job of monitoring domestic air space," said McNutt. "This meant upgrades in terms of how we monitor flights, and the tradeoff between the Federal Aviation Administration and the Air Force in matters of emergency."

The solution was the Battle Control System – Fixed, a bi-national program with Canada that provides surveillance over North American airspace to include Alaska and Hawaii. The system represents a significant increase over previous surveillance capabilities.

"When they developed the BCS-F system, they basically went from more than 40 domestic radars to several hundred now in use," said McNutt. "It is a very impressive system compared to what we had."

Prior to the new system, operators were able to track a couple hundred planes over domestic skies at any given time, said McNutt. "Now we have the ability to monitor more than 15,000 tracks — which can represent anything from commercial airliners or military aircraft to small personal planes."

Powering the BCS-F system is a robust computer software program developed by Thales-Raytheon Systems with a total acquisition value of more than $250 million. The DCMA Raytheon Los Angeles office has a satellite location in the contractor's facility where McNutt's program support team resides. They currently have personnel on site and additional staff that provide support from other local DCMA offices.

Due to the BCS-F system being a high visibility, computer-centric program, the team is staffed with a software engineer, software quality assurance specialist and systems engineer. Their mission is to ensure the software and hardware powering the system is operating correctly and meets the needs of the warfighter.

"As a software quality assurance specialist, I verify and witness lab testing, keep track of cost schedules for the program, handle risk management and analyze data for defects or problems," said Young Ko, a South Korean immigrant with a doctorate in computer programming. "I also check to make sure the contractor is following the right procedures."

"We're also the eyes and ears for the customers," added Bill Stokes, DCMA software engineer. "We have several weekly teleconferences with the customer where we share information and make sure that what the customer is asking for is what they are getting."

The many years of computer engineering and programming experience between the DCMA engineering team allows them to provide the right amount of oversight to the most complicated aspect of the contract – software acquisition management.

"The software component is extremely important because it makes the system work," said McNutt. "The software allows information from all the FAA radars, along with military radar, to be fed into one pipeline that feeds locations between the U.S. and Canada. It is then displayed for Air Force operators who have the ability to take actions and make quick decisions."

A government independent test team performs the actual product testing in the operational environment. However, DCMA personnel monitor the entire in-house contractor test schedule until the software leaves the contractor's facility.

"We watch and verify the contractor is performing tests as required, and work very closely with the independent

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Defense Contract Management Agency personnel at the Raytheon Los Angeles office discuss the Battle Control System — Fixed program capabilities. (Photo by Matthew Montgomery, DCMA Public Affairs)

test team," said McNutt. "They fly in periodically to do spot checks and witness certain tests that they have an interest in."

McNutt's team serves as a valuable resource for the test team because they are physically located with the contractor, said McNutt. "There have been many occasions where the test team has witnessed an anomaly at their facility and called us to check it out in the contractor facility – this helps them isolate problems more effectively."

Another in-plant team member, systems engineer David Do, ensures replacement hardware components are compatible and hardware obsolescence issues are tracked and resolved. Do has eight years of experience tracking the configuration management of large complex ship building projects for the Navy. He now uses his knowledge to ensure integrity of the BCS-F system.

"With such a robust commercial-off-the-shelf hardware baseline needed to support the operation of the software, there are many times that I am called on by the program office to assist with finding a suitable solution that meets the government's need and still preserves the operational life of the system," said Do.

In addition to the in-plant team, a support team of contract officers, price/cost analyst and an earned value management analyst review the money being spent and ensure the government isn't being overcharged.

"As a team, we have the ability to give a lot more insight and help the program office by providing day-to-day updates that they otherwise would not get," said McNutt. "My team knows that when they talk to the contractor they represent the Department of Defense, program manager and the U.S. Air Force."