Battle Control System – Fixed (BCS-F)

Executive Summary
- The Battle Control System – Fixed (BCS-F) is used in North American Aerospace Defense (NORAD) air defense sectors (ADS) and regional air operations centers (AOC) to provide surveillance, identification, and control of U.S. and Canadian airspace.
- BCS-F transitioned from Acquisition Category II (ACAT II) to Acquisition Category 1AC (ACAT IAC) this year, placing it on oversight in the middle of Spiral 2 testing. This transition designated BCS-F as a Major Automated Information System program.
- The Air Force and Combatant Commander Northern Command (NORTHCOM) and Pacific Command (PACOM) approved fielding BCS-F Spiral 2 at Hawaii and Alaska regional AOCs in May 2006. Western and Northeastern ADS Commanders are not comfortable fielding BCS-F Spiral 2 without the current NORAD Contingency Suite operating in tandem. The two systems currently share the operational mission workload at the Western and Northeastern ADS facilities. Commander, Air Combat Command expects to declare the BCS-F System Initial Operational Capability (IOC) in October 2006.

System
- BCS-F is a tactical air battle management command and control system.
- BCS-F is intended to replace the legacy AN/FYQ-93 radar system and the operator control system, and will eventually replace the NORAD Contingency Suite. The NORAD Contingency Suite was put in place at the Western and Northeastern ADS facilities after September 11, 2001, to incorporate the interior radars operated by the Federal Aviation Administration into the Air Defense Mission. However, BCS-F (the system of record) provides the mainland U.S ADS', including Hawaii and Alaska regional AOCs, with common hardware and software, using commercial off-the-shelf hardware and an open architecture software configuration.

- Spirals 1 and 2, developed through May 2006, have satisfied many of the BCS-F requirements. Spiral 3 will include transition to a Linux operating system and an improved graphical user interface. It will share much of the software used on BCS-Mobile system.
- Each BCS-F system requires some customization due to the different facility interfaces required.
- BCS-F is a bi-national program with Canada and is operated at the Canadian ADS at 22 Wing, North Bay Canada.

Mission
- NORAD and Homeland Defense forces use BCS-F to monitor and control U.S. and Canadian airspace.
- Forces use the BCS-F to monitor air traffic in and approaching U.S. airspace and pass information on to air defense and national command authorities.
- The Air Force uses the BCS-F to control air defense assets, including fighters, to identify and intercept potential air threats to the U.S.

Activity
- BCS-F transitioned from ACAT II to ACAT IAC this year, placing it on oversight in the middle of Spiral 2 testing.
- The BCS-F team conducted combined developmental and interoperability testing, and Force Development Evaluation at the Test, Training, and Transition Facility at Tyndall AFB, Florida, and operational testing at the Northeast ADS, Western ADS, Canadian ADS, and at the Hawaiian and Alaskan regional AOCs.

- The BCS-F team conducted combined developmental and operational testing, as well as trial period activities, at all five of the air defense facilities.
- The BCS-F team conducted regression testing to verify fixes to problems observed during developmental and operational trial periods.

Assessment

- The Air Force and combatant commanders expect to approve fielding BCS-F for shared mission operations with the NORAD Contingency Suite at the Western ADS and Northeast ADS in October 2006.
- Commanders at both the Western and Northeastern ADS facilities are not comfortable with BCS-F Spiral 2 taking the place of the NORAD Contingency Suite. However, commanders at the Hawaii and Alaska regional AOC facilities accepted its capability, having never had the NORAD Contingency Suite.
- DOT&E's emerging results are that the testing was adequate to demonstrate that the BCS-F Spiral 2 was an improvement over the legacy air defense command and control software, the FYQ-93, but not as effective as the current NORAD Contingency Suite.
- ADS commanders continue to find the NORAD Contingency Suite necessary. BCS-F deficiencies include:
  - The inability to connect to the National Capital Region Sentinel radar network
  - The lack of a remote display capability for higher headquarters
  - Insufficient operator handbook
  - Issues with importing, storing, and displaying flight plans from the Federal Aviation Administration
  - Occasional server auto switchovers
  - Capacity limits being reached due to constraint errors causing system re-launches during operational test events
- Testing was not accomplished per a DOT&E-approved Test and Evaluation Master Plan or operational test plan since the tests were conducted during the transition to DOT&E oversight.

Recommendations

- Status of Previous Recommendations. No FY05 report was submitted for the BCS-F program.
- FY06 Recommendations. The Air Force should:
  1. Review and update its test planning documentation and submit to DOT&E for approval.
  2. Update the Operational Requirements Document to reflect changes in BCS-F's mission requirements. The current Operational Requirements Document was developed prior to September 11, 2001, with annex updates dated February 20, 2003.
  3. Consider eliminating funding upgrades to the NORAD Contingency Suite, as the BCS-F is the objective system for the ADS and Regional AOC facilities.
  4. Consider keeping the NORAD Contingency Suite in-place at both the Western and Northeastern ADS facilities until Spiral 3 is fielded.