(U) CHAPTER 4

(U) COMMAND AND CONTROL, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

(U) COMMAND AND CONTROL

(U) As the lead agency for the command and control (C2) mission area, Air Combat Command oversaw the continuing development and improvement of C2 systems and related infrastructure. The C2 of air forces was a key task performed by the Combat Air Forces. Air Force Doctrine Document 6-0 basically defined C2 as, "The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission. C2 is the essential element that provides commanders the ability to orchestrate and integrate operations… across multiple theaters at multiple levels...across the range of military operations." The nucleus of Air Force C2 capabilities at the operational and tactical level was the Theater Air Control System (TACS) with its constituent ground-based and airborne systems.[1]

(U) Aerial Layer Networking

[1] (U) Brfg (U//FOUO//NDI/20370531), ACC C2 Core Function Team, "(U) AF C2 Core Function Update," May 12, 1143 **(Info used is U)**; Plan (S//NF//20360830), ACC, "(U) United States Air Force C2 Core Function Master Plan, FY14," pp. 3, 6, 7 Sep 11, 1146 **(Info used is U)**.

[2] (U) Rpt (S//NF//20361122), DoD CIO, "(U) Joint Aerial Layer Network (JALN) Analysis of Alternatives (AoA) Final Report," 22 Nov 11, p. vi, 4137 **(Info used is U//FOUO)**.

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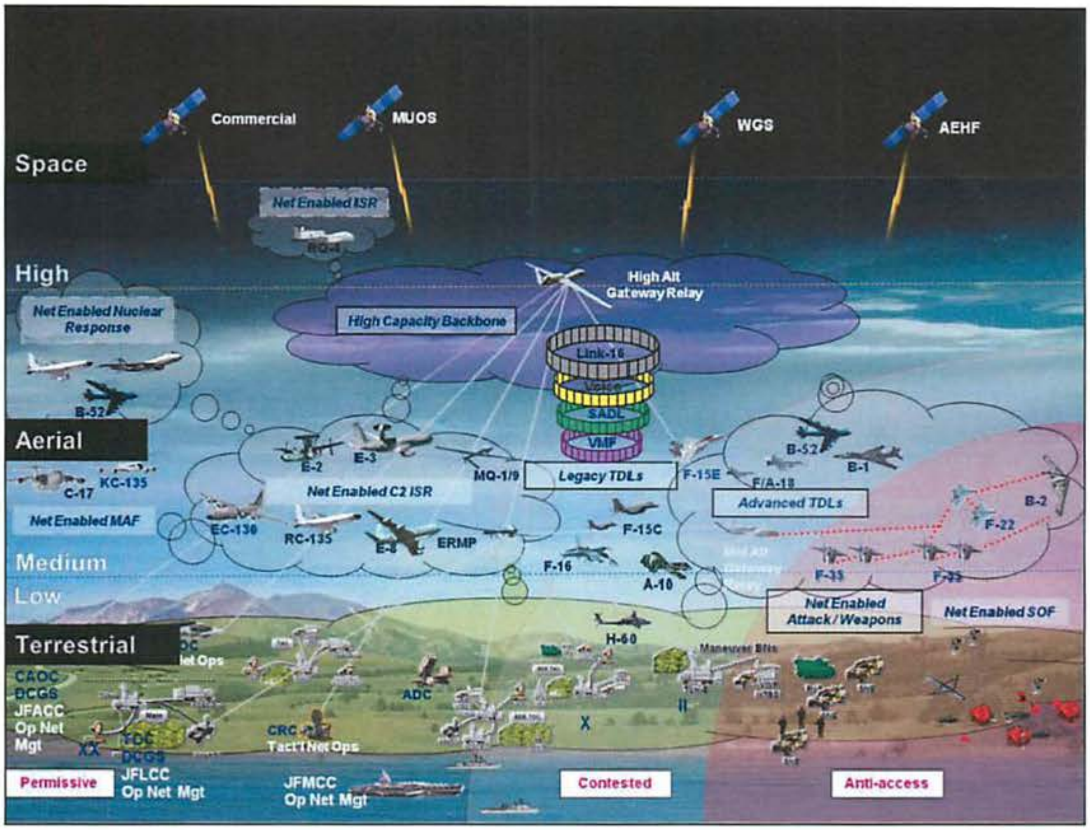
(U) Graphic 4-1
(U) Operational C3 Layers



(U) Source: Brfg (U), ACC/A6, "Joint Aerial Layer Network," 11 Apr 13, 4136.
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(U) While the concept of an all-encompassing venture to tie the networking layers into a cohesive whole was relatively new, incremental efforts to achieve comparable goals had been undertaken for many years. Air Combat Command's integration of C2 and intelligence, surveillance and reconnaissance (ISR) functional entities into a single broker for both in the form of the Aerospace Command and Control & Intelligence, Surveillance and Reconnaissance Center in the late 1990s foresaw the need to establish commonalities between their related systems and means of employment. The parallel development and refinement of C2 and ISR processes in the Air Operations Center and its formal designation as a weapon system in 2000 also brought these key functions together in a consolidated computer network. In the way of practical application in the aerial layer, the Joint Tactical Radio System (JTRS) program of the early 2000s was an initiative designed to create a three-dimensional grid of communications and data transfer across all aspects of the battlespace. The JTRS program recognized the diverse range of TDLs and associated radio equipment then in use across the services and attempted to simplify them through a new set of software-defined radios capable of integrating multiple signals and TDLs. Around the same time as the JTRS program, the Air Force developed the Interim Capability for Airborne Networking (ICAN) for use in the E-8 Joint Surveillance Target Attack Radar System (JSTARS) aircraft. Basically ICAN allowed JSTARS to share its battlefield observations directly with Army tactical units, the Combined Air Operations Center (CAOC) and other ground-based command centers by broadcasting its data via radio directly into the Secure Internet Protocol Router Network or SIPRNET. Of all of the programs and efforts up to that point, the ICAN came closest to the vision of an aerial layer network and opened the door to further pursuit of reliable network-centric warfare.[3]

[3] (U) Hist (S//NF//FRD), ACC, Jan-Dec 1998, p. 400, (**Info used is U**); Hist (S//NF//FRD), ACC, Jan-Dec 2000, pp. 209-210 (**Info used is U**); Hist (S//NF//FRD), ACC, Jan-Dec 2005, pp. 204-205, (**Info used is U**); Hist (S//NF/FRD), ACC, Jan-Dec 2006, p. 229 (**Info used is U**). Note: Discussion of early airborne networking initiatives can also be found in Air Force Communications Agency (AFCA) histories from 2005-2008.

[4] (U) Hist (S//NF//FRD), ACC, Jan-Dec 2011, p. 4-5, (**Info used is U//FOUO**); Rpt (U//FOUO), ACC, "(U) Enabling Concept for Airborne Networking," 18 Mar 08, pp. 3, 5, 43, 4135; Brfg (U), ACC/A6CI, "(U) Joint Aerial Layer Network," 11 Apr 13, 4136; Rpt (S//NF//20361122), DoD CIO, "(U) Joint Aerial Layer Network (JALN) Analysis of Alternatives (AoA) Final Report," 22 Nov 11, pp. vi-vii, 4137 (**Info used is U//FOUO**).

5 (U) See note above.

6 (U) Memo (U//FOUO), OSD/CAPE to OUSD(ATL), "(U) Joint Aerial Layer Network (JALN) Analysis of Alternatives (AoA) Assessment," 17 Apr 12, 4138; Memo (U), JROC to OUSD(ATL), *et al.*, "JROCM 056-12: Joint Concept Development and Experimentation (JCD&E), Amended FY12 Program of Work (PoW)," 23 Apr 12, 4139; BBP (U), AFC2IC/C2DT, "Joint Concept for Joint Aerial Layer Network Command and Control," 27 Jul 12, 4141; E-mail (U), AFC2IC/CL to ACC/A8, "Joint Concept for Aerial Layer Network, Command and Control," 13 Aug 12, 4142; E-mails (U), ACC/CV to JS/J7, "RE: Joint Concept for Joint Aerial Layer Network - Command and Control," 16-26 Aug 12, 4143; E-mail (U), ACC/CV to USNORTHCOM HQs, *et al.*, "(U) Joint Concept for Joint Aerial Layer Network – Command and Control, Kickoff Seminar – Oct 12," 6 Sep 12, 4144; Brfg (U//FOUO), SAF/A6WW, "(U) Army-Air Force Warfighter Talks (AF only Task #4)," 18 Oct 12, 4145; Rpt

(U) While JALN evolved as a primarily conceptual activity, a precursor known as the Battlefield Airborne Communications Node (BACN) had already been operating in the skies over Afghanistan since late 2008. Born of the need to ensure communications and tactical data exchange across the mountainous Afghani terrain, the Air Force installed the experimental BACN relay system on a Bombardier Global Express BD-700 corporate business jet, as pictured below. This aircraft was capable of achieving the high-altitudes necessary to transmit the desired tactical datalinks from above any obstructing mountains. Essentially, the BACN tied together a number of disparate TDL systems, such as the Army's Enhanced Position Location Reporting System (EPLRS), the Air National Guard's Situational Awareness Data Link (SADL), as well the Air Force's Link 11, Link 16 and Link 22 networks, and enabled their users to receive inputs and exchange data in a much broader picture across the country.[7] The success of BACN encouraged the Air Force to install it on additional BD-700s and led to a new aircraft series designated as the E-11 in June 2011.[8]

(U//FOUO), HQ USAF, "(U) Air Force Aerial Layer Networking Enabling Concept," ca. 30 Dec 12, 4147. Note: See additional information in docs 4140 and 4146.

[7] (U) EPLRS was a vehicle mounted tactical radio system that allowed Army C2 nodes to communicate and track units on the battlefield. SADL was an aircraft radio datalink system that enabled close air support aircraft to communicate with and identify army tactical units using EPLRS. Links 11, 16 and 22 were radio datalinks used by Air Force combat aircraft to transmit, relay and receive tactical data from other aircraft or ground-based C2 nodes.

[8] (U) Press Release (U), 66 ABG/PA, "Colonel Discusses Vision of Joint Aerial Layer Network," 8 Feb 13, 4148; BBP (U), ACC/A8SN, "Army Connectivity to Strike Assets," 24 Feb 10, 4149; E-mail (U), ACC/A3 to ACC/A3C, "FW: FW: Battlefield Airborne Communications Node (BACN)," 13 Feb 12, 4150; Slide (U), AFC2IC/C2DT, "BACN Capability," ca. 24 May 12, 4151.

UNCLASSIFIED (U) Photograph 4-1 (U) E-11 (left) and EQ-4 (right) BACN Aircraft

(U) Source: Slide (U), AFC2IC/C2DT, "(U) BACN Capability," ca. 24 May 12, 4151. **UNCLASSIFIED**

(U) In addition, the Air Force initiated a program to install the BACN communications relay payload into an RQ-4 Global Hawk in order to achieve a longer loiter time than that of the E-11. The new BACN-enhanced Global Hawk gained the designation EQ-4 and in concert with the E-11s operated continuously in support of Operation Enduring Freedom in Afghanistan. As discussed in Chapter 5, the BACN platforms' timely availability as an on-scene Beyond Line of Sight (BLOS) C2 asset was in high demand by CENTCOM, and it became the focus of a January 2012 CSAF-directed Quick Reaction Capability initiative to expand its use. Because of its success to date, ACC sought official program of record status for BACN to ensure its viability.[9]

(U) Another effort related to JALN involved the 5th-to-4th Generation connectivity initiative. Basically 5th-to-4th looked to ensure that the new fifth generation of fighter aircraft, such as the F-35 and the F-22, could share data with the legacy fourth generation of F-15s and F-16s. The problem essentially lay in the tactical data links they both employed and the fact the newer systems were not initially designed to operate on the older links. As an example of the divide between generations, the F-22 was originally designed to covertly communicate soley with other stealthy F-22s via its system-specific intra-flight datalink (IFDL). Legacy fighters such as the F-15 were not equipped with IFDL receivers and the F-22 was not equipped with Link 16 payloads in order to share tactical data with the older models, which could also compromise its stealthy operations. The F-35 with its Multifunction Advanced Data Link (MADL) functioned in much the same way. With the Air Force focused on preparing for future CDO and AD/A2 scenarios, the overlapping service lives of multi-generational aircraft all but guaranteed they would continue to fight alongside each other for a period of several years if not

[9] (U) See note above.

decades. The solution needed was an airborne tactical gateway, akin to BACN, that would allow the 5th Generation aircraft to share tactical pictures while maintaining stealth characteristics.[10]

(U) Thus ACC initiated the Joint Enterprise Terminal (JET) Pack program in September 2011 as a congressionally approved joint capability technology demonstration (JCTD). Originally funded as a two-year effort beginning in FY12, JETPack sought to leverage existing datalink hardware from the F-35, which was already MADL compatible, and incorporate the ability to receive IFDL, and then translate both 5th generation TDLs into Link 16 signals used by 4th generation aircraft. First demonstration of JETPack was scheduled for summer 2013 with an operational utility assessment demonstration to be conducted in spring 2014. The ultimate operational model was for F-15Cs to carry internally mounted JETPack hardware in order to provide the inter-generational link while still performing their assigned operational missions. Following initial tests, ACC looked to establish this 5th-to-4th Generation JETPack initiative as a program of record in the FY14 POM in order to gain more resources for what many perceived would be a critical gap in aerial networking capability.[11]

(U) Ground-Based C2 Systems

(U) Air and Space Operations Center

(U) The Air and Space Operations Center (AOC) was the senior command and control (C2) element of the Air Force's Theater Air Control System. In this capacity, the AOC gave Air Force warfighting commanders, specifically those serving as operational Joint/Combined Forces Air Component Commanders (J/CFACC), the ability to exercise C2 of joint and combined forces across the air, space and cyberspace domains. At the heart of the AOC was the Air and Space Operations Center-Weapons System (AOC-WS), officially designated as the AN/USQ-163 Falconer. Fundamentally a system-of-systems, the AOC-WS encompassed commercially available computer hardware and software joined with specialized military C2 systems, such as the Air Force's Theater Battle Management Core System (TBMCS) and the joint community's Global Command and Control System (GCCS). The dizzying array of classified and unclassified networks, operating systems, software platforms, and communications nodes within the AOC-WS required steady monitoring and maintenance to function properly. As with any other Air Force weapon system, it recurrently needed upgrades to improve its capabilities.[12]

[10] (U) BBP (U), AFC2IC/C2D, "5th to 4th Generation Connectivity," 27 Sep 11, 4152; Brfg (U), AFC2IC, "5th to 4th Gen Connectivity," 8 Dec 11, 4153; E-mail w/3 Atchs (U), AFC2IC to ACC/A8F22, "COMACC Prep Book for Review," 21 Sep 12, 4154; BBP (U), AFC2IC/C2DT, "5th to 4th Generation Connectivity," 21 Sep 12, 4154a; Slide (U), AFC2IC, "5th to 4th Talking Points," 21 Sep 12, 4154b; Slide (U), AFC2IC/C2DT, "5th to 4th Generation Connectivity," 21 Sep 12, 4154c.

[11] (U) See note above.

[12] (U) Brfg (U) ACC/A6CC, "Air Operations Center (AOC) Weapons System (WS) Communications Team," 20 Sep 12, slides 10-12, 4098; AFTTP Manual (S//NF//20351001), 561

(U) As the lead agent for Air Force C2, Air Combat Command worked with a service-wide team for AOC-WS modernization and sustainment. Within the command, the A3 C2ISR Division (ACC/A3C) and its AOC Systems Branch (ACC/A3CS) along with the Air Force C2 Integration Center (AFC2IC) served as focal points for AOC related issues. At Langley AFB, the AFC2IC operated the Combined Air Operations Center-Experimental (CAOC-X) at the Ryan Center which served as an experimentation and modernization site for AOC-WS upgrades and system investments. The map below shows the locations of the operational AOCs and highlights their associated component command responsibilities. Other key players involved in ensuring AOC-WS viability included the 505th Command and Control Wing at Hurlburt Field, Florida, whose 605th Test and Evaluations Squadron (605 TES) conducted AOC testing and hosted service-wide AOC training; and the Air Force Material Command's Electronic Systems Center (ESC) at Hanscom AFB, Massachusetts that served as the acquisitions program management office (PMO) for all Air Force C2 systems. Each of these AOC-WS stakeholders worked closely to integrate future operational capability into the system.[13]

JTS, "(U) 3-1 Tactical Employment General Planning, Change 1," 2 Feb 12, p 4-5, 4099 (**Info used is U**); Brfg (U), AFC2IC, "AOC Weapon System Sustainment & Modernization," ca. 27 Apr 11, 4100.

[13] (U) Brfg (U) ACC/A6CC, "Air Operations Center (AOC) Weapons System (WS) Communications Team," 20 Sep 12, slides 10-12, 4098; Brfg (U), AFC2IC, "AOC Weapon System Sustainment & Modernization," ca. 27 Apr 11, 4100. Note: Late in 2012, Air Force Material Command (AFMC) implemented a wide-ranging restructure of its product centers and aligned program management functions under the newly activated Air Force Life Cycle Management Center (AFLCMC). Responsibility for AOC-WS and related C2 systems fell to the AFMLC's Battle Management Directorate (AFMLC/HB) and its Operations C2 Division (AFMLC/HBB). See the AFMC historical report for this period for background information on the restructure.

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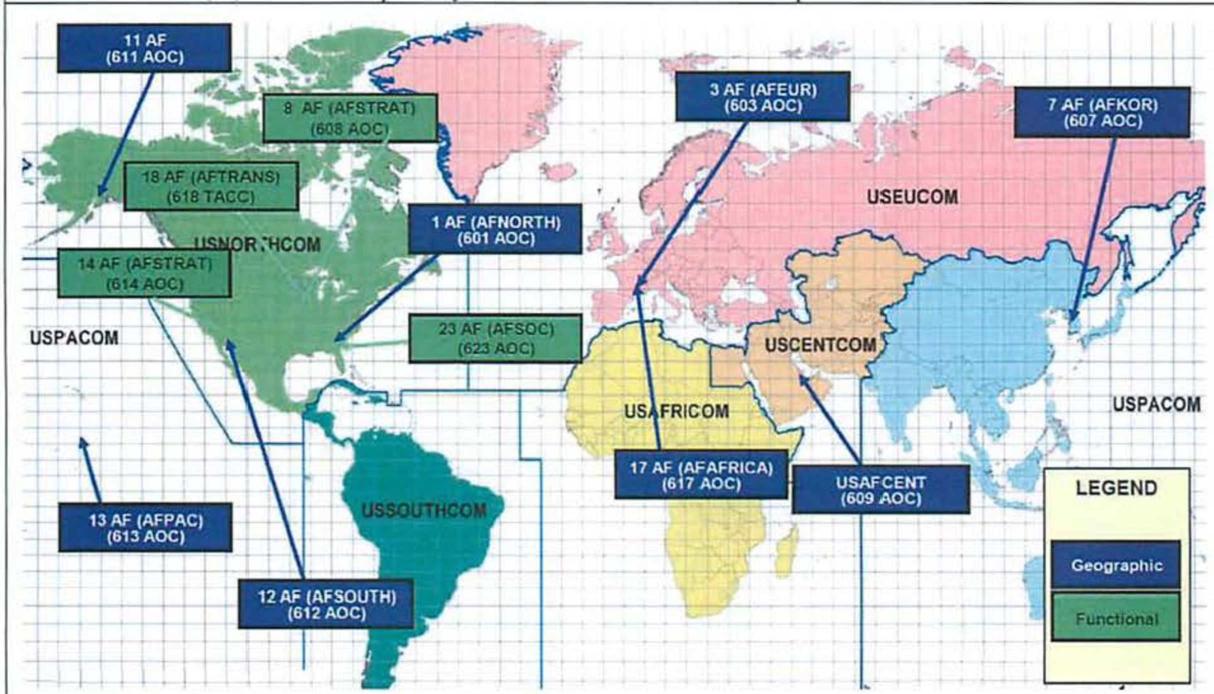
(U) Graphic 4-2

(U) AOC Weapon Systems and Associated Component Commands



(U) Source: Brfg (U), AFC2IC, "AOC Weapon System Sustainment & Modernization," ca. 27 Apr 11, 4100.

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(U) Following the establishment of a standard AOC-WS configuration known as Increment 10.1 and a formal declaration of its initial operating capability (IOC) in June 2005, ACC directed cyclical upgrades to the 10.1 baseline through a sequence of yearly tests known as Recurring Events (RE). Each RE upgrade sought to improve one or more components of the AOC-WS such as specific targeting and communications software. Usually programmed and paid for during a given Fiscal Year (FY), each upgrade was known by the event during which it was tested. For example, AOC-WS 10.1 RE10 was the software upgrade that was tested during RE10 with FY 2010 funding. Beyond the yearly RE upgrades, the next major step in AOC-WS development came in FY 2010 when the Joint Requirements Oversight Council approved the fielding of Increment 10.2, which sought to close the gaps in Increment 10.1 limitations in communicating well with other Services applications and systems. More crucially, an RE10 upgrade revealed that Falconer 10.1 versions could not operate effectively within the newest GCCS architecture known as GCCS-J, which was then being fielded to enable Joint Commanders to integrate a near real-time picture of the battlespace during joint operations. The critical gap between the AOC-WS and GCCS-J was underscored by several Air Force theater components and summarized best by the United States Air Forces in Europe commander, General Roger Brady who warned, "... the Joint community will receive GCCS capability much earlier that the [AOC-WS RE11] delivery. We risk becoming operationally irrelevant if USAF C2 capabilities continue to lag the Joint world." In addition, the Air Force's FY 2014 C2 Core Function Master Plan consistently cited the need to improve JFACC capabilities by fully funding AOC infrastructure and upgrades in the near and longer term. Thus as ACC and its AOC-WS partners entered 2012, they had a clear mandate to ensure the Falconer weapon system could continue to meet not only Air Force C2 needs but those of Combatant Commanders as well.[14]

[14] Hist (S//NF//FRD), ACC, Jan-Dec 2010, p 270, (**Info used is U**); Brfg (U), AFC2IC, "AOC Weapon System Sustainment & Modernization," ca. 27 Apr 11, 4100; Plan (S//NF//20360830), ACC, "United States Air Force Command and Control Core Function Master Plan, FY14," p 3, 7 Sep 11, 1146 (**Info used is U**).

[15] (U) Brfg (U) ACC/A6CC, "Air Operations Center (AOC) Weapons System (WS) Communications Team," 20 Sep 12, slide 13, 4098; E-mail w/3 Atchs (S//NDI/20370228), ACC/A3C to ACC/A3, "(U) RE11 DT Acceptance Memo," 28 Feb 12, 4101; Brfg (S//20370223), ACC/A3C, "(U) AOC WS Upgrade: RE11 Cat 1 Deficiencies," 23 Feb 12, 4101a; BP (S//20371231), ACC/A3C, "(U) Summary: Recurring Event 11 Category I Test Problem Reports (TPRs)," ca. 23 Feb 12, 4101b; BP (U), ACC/A3C, "Summary: Recurring Event 11 Category I Test Problem Reports (TPRs)," ca. 23 Feb 12, 4101c; E-mail w/1 Atch (U), ACC/A3 to 350 ELSW/OM, "ACC/A3 RE11DT Acceptance Memo," 29 Feb 12, 4102; Memo (U), ACC/A3 to AFMC ESC/C2ISR, "Lead Command Intent to Field Recurring Event 11 (RE11) Upgrade to AOC WS," 29 Feb 12, 4102a.

(U) The next step in RE11 testing came in May 2012, when the 605 TES utilized more powerful servers to host the GCCS-J software. In addition, the Defense Information Systems Agency (DISA), the GCCS-J system owner, released an update to the applicable operating software. The end results of this round of testing were generally positive and their achievements even caught the interest of General Hostage, who in drawing the AFMC Commander, General Janet Wolfenbarger's attention to the program said, "I was recently briefed on the status of AOC sustainment and modernization and was encouraged to see the progress made during AOC Recurring Event (RE) 11. This significant update to the weapon system completed DT/OT and is being fielded to our AOCs after years of not meeting warfighter expectations. This is a good news story." Despite some residual Category 1 problems, the success of this cycle of tests allowed the RE11 schedule to proceed toward field tests of the upgrade at an operational AOC.[17]

[16] (U) E-mail w/1 Atch (U), ACC/A3C to ACC/A3, "AOC WS RE11 Phase 2 Interim Summary Report," 6 Apr 12, 4103; Memo (U), 605 TES to AFC2IC/C2C and ACC/A3C, "Interim Summary Report for AOC WS RE11 FDE," 5 Apr 12, 4103a; E-mail (U) ACC/A3C, to ACC/A3-2, "FW: CRB RE11 Fielding Letter," 17 Apr 12, 4104; E-mail w/3 Atchs (S//NDI/20370419), ACC/A3 to ACC/A3C, "(U) A3 Approval to Proceed with RE11 Initial Fielding," 19 Apr 12, 4105; Brfg (S//NDI/20370406), ACC/A3C, "(U) AOC WS Upgrade: Update to RE-11 Cat 1 Deficiencies," 6 Apr 12, 4105a; BP (S//NDI/20371231), ACC/A3CS, "(U) Summary: Recurring Event 11 Operational Test," ca. 6 Apr 12, 4105b; E-mail (U), ACC/A2OO to ACC/A3C, "A2O Response to AOC WS RE11 FDE Interim Summary Report," 6 Apr 12, 4105c.

[17] (U) E-mail (U), ACC/CC to AFMC/CC, "AOC Sustainment/Modernization," 12 Jul 12, 4106; E-mail (U), ACC/A3C to ACC/A3, "FW: IOI for A3 – Status of AOC WS RE 11 baseline installation," 1 Dec 12, 4107; Memo (U) ACC/A3 to AFLCMC/HB, "RE11 Full Fielding Acceptance," 4 Dec 12, 4108.

(U) The third and final phase of operational testing for RE11 was conducted at the 613th Air and Space Operations Center at Hickam AFB, Hawaii during the last few months of 2012. As one of the geographic AOCs, the Hickam site served as an ideal starting point for the total implementation of RE11 at other AOCs. This final round of testing essentially focused on the AOC-WS SPO installations team's ability to concurrently upgrade and configure an operational AOC site from RE10 to RE11. The endeavor proved to be challenging because of the complexity of the new system and unexpected technical issues. Despite this, ACC/A3 felt confident enough in RE11 capabilities to request full fielding of the upgrade in early December. Thus as the year ended, the AOC-WS team looked toward further implementation of RE11 next at the 607th Air and Space Operations Center in Korea and then at the other geographic AOCs in 2013.[18]

(U) Battle Control Center

(U) The Battle Control Center (BCC) was a fixed-place Battle Management Command and Control (BMC2) surveillance system employed at the tactical level in support of Homeland Defense operations in the Continental United States (CONUS), Alaska and Hawaii. As a key TACS element, the BCC integrated surveillance radars and associated communications systems with computer processing and control equipment for a primarily air defense mission. The map below gives an overview of the scope of the BCC interface with CONUS air traffic control sites and related radar systems. There were four BCC sites in the US: the Eastern Air Defense Sector (EADS) in Rome, New York; the Western Air Defense Sector (WADS) at McChord AFB, Washington; the Alaskan Region Air Operations Center (AKRAOC) at Joint Base Elmendorf-Richardson, Alaska; and the Hawaii Region Air Operations Center (HIRAOC) at Wheeler Army Airfield, Hawaii. These BCC facilities were manned primarily by Air National Guard (ANG) personnel, but fell under the purview of Air Combat Command in its C2 lead integration role.[19]

(U) At the core of the BCC was a system akin to the AOC-WS known as the Battle Control System-Fixed (BCS-F). Much like the AOC Falconer, the BCS-F consisted of commercial off-the-shelf (COTS) hardware running multi-mission software that allowed its operators to essentially monitor U.S. sovereign airspace and in turn control air defense assets to meet any emerging threats. Following its development and testing from 2003-2006, previous ACC Commander, General Ronald Keys had declared the BCS-F operationally capable in October 2006 and directed its installation at each BCC location. This baseline operational BCS-F bore the official designation AN/FYQ-156 and a software configuration known as Increment 3. Since that time, ACC had overseen successive upgrades known as Releases 3.1 and 3.2 which followed a pattern much the same as the Recurring Event updates for the AOC-WS. The command fielded the first of these, Release 3.1, at the air defense sectors in February 2010, and that upgrade also underwent subsequent refinements through follow-on testing events during the remainder of 2010 and all through 2011. By December 2011, the Air Force had fielded the latest

[18] (U) See note above.

[19] (U) Brfg (U), ACC/A3CG, "Battle Control Center," 30 Sep 11, 4109; Brfg (U), ACC/A3CG, "Battle Control Center Issues and Milestones," 26 Feb 13, 4110.

3.1 versions to all U.S. air defense sectors, as well as Canada, and had then begun the testing and implementation of Release 3.2, which was scheduled for full deployment in FY 2013.[20]

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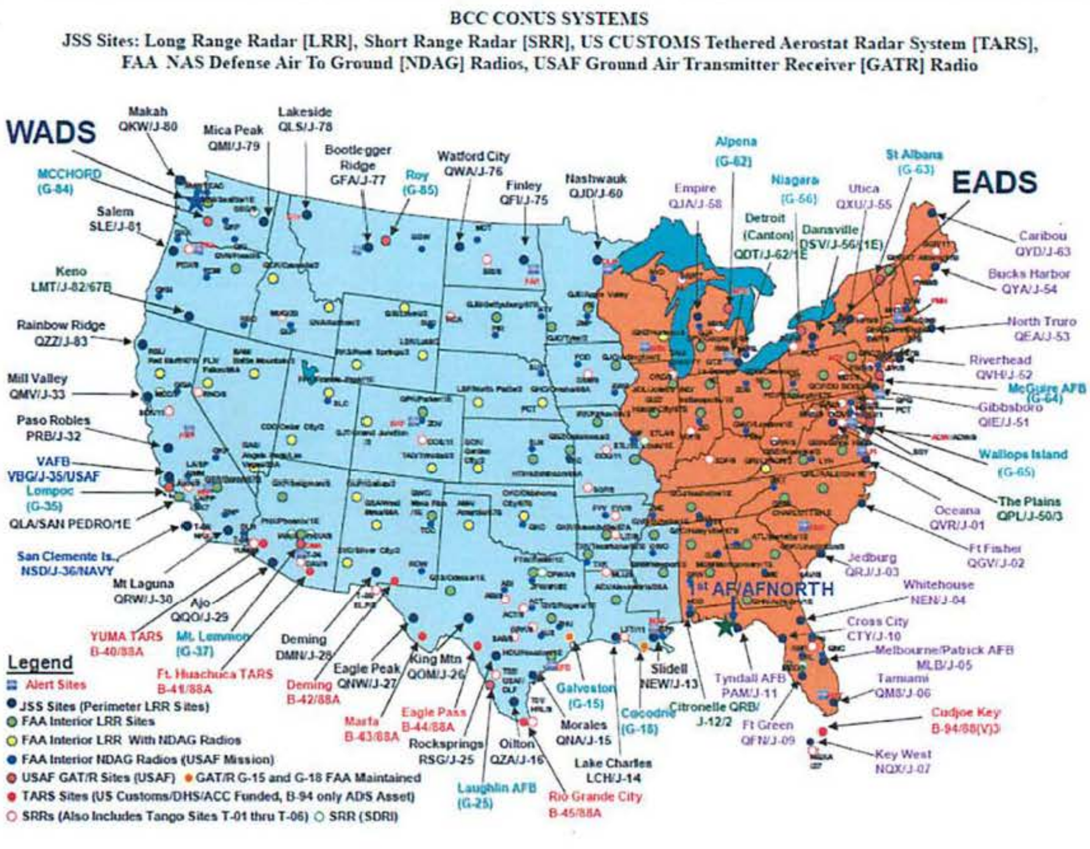
(U) Graphic 4-3

(U) Battle Control Center and Associated CONUS Radar Sites



(U) Source: Brfg (U), ACC/A8Y, "Battle Control Center (BCC) "Capability Roadmap" Executive Summary," 3 Jul 12, 4111.

UNCLASSIFIED

[20] (U) See note above.

(U) Airborne C2 Systems

(U) Airborne Warning and Control System

[21] (U) See note above; Brfg (U), ACC/A8Y, "Battle Control Center (BCC) "Capability Roadmap" Executive Summary," 3 Jul 12, 4111; Memo (U), AFOTEC/CC to PEO/BM, "Battle Control System-Fixed (BCS-F) Release 3.2 (R3.2) Resumption of Initial Test Operational Test and Evaluation (IOT&E)," 18 Jun 12, 4112; E-mail w/1 atch (S//REL TO USA, CAN//20370831), AFOTEC/A3E to SAF/AQ, *et al.*, "(U) Annex 1 to the BCS-F R3.2 IOT&E Report," 29 Nov 12, 4113; Rpt (S//REL TO USA, CAN//20370831), AFOTEC, "(U) Annex 1 to the Battle Control System-Fixed (BCS-F) Release 3.2 (R3.2) AN/FYQ-156 Initial Operational Test & Evaluation (IOT&E)," 29 Nov 12, 4113a.

[22] (U) Hist (S//NF//FRD), ACC, Jan-Dec 2010, pp. 337-338, (**Info used is U**); Plan (S//NF//20360830), ACC, "(U) United States Air Force Command and Control Core Function Master Plan, FY14," pp 41-42, 7 Sep 11, 1146 (**Info used is S**); Rpt (U//FOUO), AFOTEC, "(U) Airborne Warning and Control System (AWACS) Block 40/45 Computer Display Upgrade Initial Operational Test and Evaluation (IOT&E) Report," 21 Aug 12, 4115.

[23] (U) See note above.

UNCLASSIFIED
(U) Photograph 4-2
(U) E-3 Airborne Warning and Control System

(U) Source: U.S. Air Force News Service
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[24] (U) Rpt (U//FOUO), AFOTEC, "(U) Airborne Warning and Control System (AWACS) Block 40/45 Computer Display Upgrade Initial Operational Test and Evaluation (IOT&E) Report," 21 Aug 12, 4115.

[25] (U) See note above; E-mail (U), ACC/A3C to ACC/A3, "FW: AWACS 40/45 IOT&E Update," 3 Apr 12, 4116; Brfg (U), HQ ACC, "E-3, E-4, E-8 Fleet Status Brief," ca. 31 Oct 12, 4117.

[26] (U) Hist (S//NF//FRD), ACC, Jan-Dec 2005, p. 140, (**Info used is S**); E-mail w/5 Atchs (S//20220209), ACC/CVE to ACC/CV, "(U) Package (RED) Request for AF Execution of PM Authority for Air Force Reserve (AFR) AWACS Personnel," 27 Jan 12, 4119; Brfg (U), ACC/A3CA, "Airborne Warning and Control System (AWACS) Two-Year Utilization Plan," ca. 30 Nov 11, 4119c.

[27] (U) E-mail w/5 Atchs (S//20220209), ACC/CVE to ACC/CV, "(U) Package (RED) Request for AF Execution of PM Authority for Air Force Reserve (AFR) AWACS Personnel," 27 Jan 12, 4119; Paper (S//NDI/20370131), ACC/A3OO, "(U) Mob Request Questionnaire M-926 (AWACS)," ca. 27 Jan 12, 4119b; Brfg (U), ACC/A3CA, "Airborne Warning and Control System (AWACS) Two-Year Utilization Plan," ca. 30 Nov 11, 4119c.

[28] (U) Plan (S//NF//20360830), ACC, "(U) United States Air Force Command and Control Core Function Master Plan, FY14," p. 126, 1146 (**Info used is U**); Draft Msg (S//20210216), HQ USAF/CAT to HQ ACC/A3, *et al.*, "(U) Partial Mobilization of Reserve Component (RC) Personnel in Support of Ongoing Operations - Msg Nine Hundred and Twenty-

(U) National Airborne Operations Center

Six (M-926)," 16 Feb 12, 4119a; Slide (S//NDI/20220104), AFRC/A3, "(U) PM XXX – AWACS," 4 Jan 12, 4119d.

[29] (U) E-mail w/5 Atchs (S//20220209), ACC/CVE to ACC/CV, "(U) Package (RED) Request for AF Execution of PM Authority for Air Force Reserve (AFR) AWACS Personnel," 27 Jan 12, 4119; E-mail w/1 Atch (S//NDI/20370131), SAF/MR to AF/CC, SAF/OS, *et al.*, "(U) AWACS Mobilization," 31 Jan 12, 4120; Brfg (S//20370130), AFOG, "(U) Ops Update," 30 Jan 12, 4120a; E-mail (U), ACC/A3C to ACC/A3-MA, "Updates from A3C," 23 Feb 12, 4121.

[30] (U) OPORD 84-12 (S//Source marked X4/20370928), HQ ACC, "(U) OPERATIONS ORDER 84-12 GIANT NET," 28 Sep 12, pp. vii-viii, 4122; Brfg (S//NF//20200115), ACC/A3YR, "(U) NAOC Executive Overview," 18 Jan 12, 4123; Brfg (U), ACC/A3CN, "National Airborne Operations Center Branch Brain Book," 21 Mar 12, 4124.

[31] Plan (S//NF//20360830), ACC, "(U) United States Air Force Command and Control Core Function Master Plan, FY14," pp. 45 and 107-108, 1146 **(Info used is S)**; Brfg (S//NF//20200115), ACC/A3YR, "(U) NAOC Executive Overview," 18 Jan 12, 4123.

[32] (U) E-mail (C//NDI/20220502), ACC/CV to ACC/CC, "(U) E-4B Reliability," 2 May 12, 4125; E-mail w/2 Atchs (S//NDI/20220802), ACC/A3C to AF/A3O, "(U) E-4 SECDEF

Support," 2 Aug 12, 4126; Paper (S//NDI/20370831), ACC/A3C, "(U) E-4B SECDEF Support," 2 Aug 12, 4126a; Brfg (U), ACC/A3CN, "Secretary of Defense Support Mission Rates," 2 Aug 12, 4126b; BBP (S//NDI/20370807), ACC/A3CN, "(U) E-4 Reliability Rates and Trends," 7 Aug 12, 4127.

[33] (U) Plan (S//NF//20360830), ACC, "(U) United States Air Force Command and Control Core Function Master Plan, FY14," p. 45, 1146 **(Info used is S)**; Brfg (S//NF//20200115), ACC/A3YR, "(U) NAOC Executive Overview," 18 Jan 12, 4123; E-mail (S//NDI/20211024), AF/A3/5 to AF/CC, "(U) NAOC Comms," 24 Oct 11, 4128; E-mail (S//NDI/20371031), ACC/CV to ACC/CC, "(U) Follow-up E-4B NAOC Comms," 31 Oct 11, 4129; E-mail w/1 Atch (S//NF//NDI/20370423), AF/A10 to SAF CIO A6, *et al.*, "(U) 2-Ltr Coordination of Deputy's Management Advisory Group (DMAG) National Airborne Operations Center (NAOC) Way Ahead," 23 Apr 12, 4130; BBP (S//NF//20371231), AF/A10, "(U) DMAG NAOC Way Ahead," 23 Apr 12, 4130a.

(U) INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

(U) As the use of battlefield imagery and real time full motion video became an essential component of counterinsurgency and counterterrorism operations first in Afghanistan and Iraq, then later in Yemen and Libya, the Air Force's intelligence, surveillance, and reconnaissance (ISR) community experienced unprecedented expansion in both size and scope. To accomplish the ISR mission, Air Combat Command oversaw the operations of both manned and unmanned aircraft and monitored each system's further development and sustainment.

[34] (U) E-mail w/1 Atch (S//NF//NDI/20370423), AF/A10 to SAF CIO A6, *et al.*, "(U) 2-Ltr Coordination of Deputy's Management Advisory Group (DMAG) National Airborne Operations Center (NAOC) Way Ahead," 23 Apr 12, 4130; BBP (S//NF//NDI/20371231), AF/A10, "(U) DMAG NAOC Way Ahead," 23 Apr 12, 4130a; E-mail w/1 Atch (S//NF//NDI/20370502), ACCA10-O to ACC/DS, "(U) 2-Ltr Coord of DMAG NAOC Way Ahead," 2 May 12, 4131; Draft Memo (S//NF//NDI/20370531), ACC/CV, "(U) NAOC Way Ahead," 2 May 12, 4131a.

[35] (U) BBP (S//NF//NDI/20370605), AF/A10-C, "(U) Deputy Secretary of Defense (DEPSECDEF) Direction to "Fix" E-4B National Airborne Operations Center (NAOC) Low Frequency (LF) Transmit Capability," 5 Jun 12, 4132; E-mail (U), ACC/A8Y to ACC/A8, "VLF Business Case Study," 27 Sep 12, 4133; E-mail (U), AFLCMC/WL to ACC/A8, "RE: VLF/LF Business Case Study," 28 Sep 12, 4134.

(U) Secretary of the Air Force ISR Review

(U) In a 22 June 2011 memo addressed to his Air Staff directors and commanders of the subordinate Major Commands, Secretary of the Air Force Michael B. Donley declared the service's intelligence, surveillance, and reconnaissance (ISR) capabilities formed the "foundation of nearly every mission we may be called upon to execute." With that premise in mind, Secretary Donley stated further that he had directed his Deputy Chief f Staff for ISR, Lieutenant General Larry D. James, "to lead a comprehensive Air Force ISR Review." Confronted with "unconstrained requests for additional MQ-1/9 CAPs that are unsustainable" and a multitude of urgent requests for operational research and development projects from field commanders in Iraq and Afghanistan, Donley said the Air Force had to develop an ISR force structure that met the needs of combatant commanders while constrained by "significant resource limitations." Although the review would center on building and sustaining the unmanned side of the ISR community, it also had to "address broader and longer-term joint ISR needs" as well. During a subsequent video teleconference meeting, General James appointed Mr. Mark Tapper from the Strategy, Integration, and Doctrine branch as his designated lead for the review.[36]

[36] Memo (U), SECAF to AF/CC, *et al.*, "Intelligence, Surveillance, and Reconnaissance Review," 22 Jun 11, 4000; E-mail (S//NF//NDI/20360711), Lt Gen Larry D. James, AF/A2, to Lt Gen William J. Rew, ACC/CV, *et al.*, "(U) SECAF ISR Review Update", 11 Jul 11, 4001 **(Info used is U)**.

[37] Memo (S//NF//20511025), Michael B. Donley, SECAF, to SECDEF, *et al.*, "(U) Recommendations for Consolidating Gains in the Airborne Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise," 25 Oct 11, 4002.

[38] (U) See note above.

[39] (U) See note above.

(U) Two months later on 28 December, Secretary Donley issued a follow-on directive containing seven tasks "essential to help build our future ISR capabilities and inform future decisions." With five of the seven going to Air Force Space Command and his intelligence directorate on the Air Staff, Donley charged ACC with developing a CONOP for conducting non-traditional ISR in a contested environment and establishing Air Force targeting requirements for target folder development support to warfighters.[42]

(U) Non-Traditional Intelligence, Surveillance, and Reconnaissance

(U) The notion of fighter and bomber crews using radar systems, targeting pods, and the occasional weapon sensor to perform limited ISR operations in addition to their primary combat missions was nothing new. For example, in late November 2001, F-16 pilots flying missions to

[40] (U) See note above.

[41] (U) See note above.

[42] Memo (U), SECAF to AF/CC, et al, "Follow-On tasks from the Intelligence, Surveillance, and Reconnaissance Review," 28 Dec 11, 4003; Slide (U), SECAF, "SECAF ISR Review Task Prioritization," 28 Dec 11, 4004.

Afghanistan from Al Udeid AB in Qatar briefly carried an AGM-65G Maverick with an infrared seeker head to perform road reconnaissance. As [redacted], the weapons officer for the 389 FS related, "We tried to use Mavericks as a sensor [for road reconnaissance], but they did not work very well as we found out. There was no way to identify a target with it, [but we could] locate hot spots...." A few years later on 14 September 2007, this ad hoc idea had matured into a more formalized area of study when Air Force Chief of Staff General T. Michael Moseley approved the 40-page Non-Traditional Intelligence, Surveillance, and Reconnaissance (NTISR) Functional Concept. In development for nearly three years within ACC's intelligence directorate, this document defined NTISR as "the concept of employing a sensor not normally used for ISR as part of an integrated collection plan developed at the operational level for preplanned, on-call, ad hoc, and/or opportune collection." Because combat aircraft had a variety of navigation, threat warning and target acquisition and weapons guidance systems that allowed them to operate in contested areas of the battlespace where traditional ISR platforms could not survive, the information they collected for crew situational awareness and weapons employment could also be beneficial for other land, sea, and air elements of the joint force. This document noted, however, that it was transitional in nature and not developed "to institutionalize NTISR as a separate mission or architecture, but to build the bridge that links legacy NTISR systems to future integrated ISR capabilities." Expanding line of thought, Lieutenant General David A. Deptula, Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance said, "My stretch goal is that in five years, there will be no term 'NTISR,' there will just be 'ISR' and you will get the capability from a variety of different platforms."[43]

(U) Despite Hutchinson and Long's earlier suggestion to eliminate "NTISR" from the Air Force's lexicon, the term lived on in 2012 as indicated in Secretary Donley's post-ISR Review tasker to ACC. Coincidentally, the Air Force's Scientific Advisory Board (SAB) had already begun working on a similar study commonly referred to as NICE, or Non-traditional ISR for Contested Environments. With a projected completion date of December 2012, the board's researchers intended to "evaluate the feasibility and utility of using advanced sensors on existing

[43] (U) Intvw (S//20270111), [redacted] 366 AEG Historian with [redacted] 11 Jan 02, **(Info used is U)**; CONOPS (U), ACC/A2, "Non-Traditional Intelligence, Surveillance, and Reconnaissance (NTISR) Functional Concept," 15 Sep 07, 4005.

[44] (U) Enabling Concept (U//FOUO), ACC/A8SA, "(U) Combat Air Forces (CAF) Tactical Reconnaissance Capability Enabling Concept," 17 May 10, 4006.

and planned air vehicles capable of operating in a denied environment to provide ISR." They would also detail and provide recommendations on how to develop secure network connectivity to provide NTISR data to a variety of users. Along those lines, Mr. Donald Lundie, an analyst in ACC's 5th Generation Fighter Office within the Requirements Directorate, wrote a background paper in mid-January 2012 describing the inherent sensor systems aboard the F-22 and F-35 and how they might be used in an expanded NTISR role. For example, the Raptor's Synthetic Aperture Radar 3.1 upgrade could collect and store high-resolution ground mapping imagery for interpretive analysis, but no procedures existed to transfer the data to outside intelligence agencies. In contrast, the current block of F-35 training aircraft had no capability to collect and disseminate NTISR imagery other than from recordings of cockpit video displays. As for non-traditional collection of signals intelligence, both the F-22 and F-35 had systems that could detect and process large amounts of radio frequency and infrared signals, but again, there was no formalized conduit in place to get that information into the hands of intelligence analysts. In December 2011, the Air Force conducted a test to transfer an F-22's target tracking data and other messages to an off-board recipient for processing and analysis. Similarly, F-35 engineers conducted a baseline study on NTISR compatibility and the detrimental effects it would have on the aircraft's primary mission. As Lundie summarized in his paper, the "F-22 and F-35 programs are in early years of NTISR requirements generation." Furthermore, "there is no clear roadmap to prioritize NTISR requirements between Operational and Intelligence Communities."[45]

(U) With the Scientific Advisory Board already working on the NTISR initiative, General Rew informed Lieutenant General Larry D. James, Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance, at the end of March that ACC would not to waste "scarce resources" on conducting a parallel NTISR study, but instead use the SAB's study results which were expected to be completed in mid-June to serve "as the foundation to develop our roadmap for the future." This did not mean, however, that the staff's NTISR experts had stopped working on Secretary Donley's tasking or with the SAB members. On 9 May, [redacted] and [redacted] from the Weapons and Tactics Division briefed the SAB on where the CAF stood on NTISR training development and the four areas where it could best be implemented across the commands. The first centered on adding aircraft- specific NTISR working groups to periodic tactics review boards and annual weapons and tactics summits. This way representatives from the various combat aircraft and ISR communities could identify and hopefully solve specific requirements and problem areas. These solutions and procedures could then be tested and validated in an intense simulated contested and degraded operating environment during Red Flag exercises at Nellis. On the formal publications side, the 561st Joint Tactics Squadron at Nellis which was responsible for developing and updating the CAF's Tactics, Techniques, and Procedures for each weapon system could integrate a detailed NTISR appendix into each published volume. Finally, [redacted] advocated adding core NTISR academics into each of the 19 Weapons School Syllabi with the USAF Warfare Center. As [redacted] summarized at the end of his presentation, this multipronged approach would

[45] (U) E-mail (U), Lt Gen William J. Rew, ACC/CV, to Maj Gen Charles Lyon, ACC/A3, *et al.*, "AF SAB NICE Study," 17 Jan 12, 4007; BBP (U), [redacted] ACC/A8FI, "F-22 and F-35 Non-Traditional Intelligence, Surveillance, and Reconnaissance," 17 Jan 12, 4008.

hopefully start "changing the mindset of our warfighters to accept NTISR as a standard versus the exception to their mission set." As the Deputy Chief of ACC's Flight Operations Division, [redacted] relayed to General Lyon, this NTISR training initiative was well-received by both the SAB and General Rew.[46]

(U) Although the SAB completed its NICE study in late June, the findings and recommendations had not been cleared for release because of their high security level. Nonetheless, [redacted] the Deputy Director of ACC Flight Operations noted in a 9 August NTISR update briefing that the command stood ready "to move out on image [reconnaissance] tasks." These included modifying the current weapon system TTP volumes, unit Designed Operational Capability statements, and Ready Aircrew Program task lists to reflect the incorporation of NTISR mission parameters across the fighter-bomber community. This "non-material" approach became more formalized by the end of the year, but the "material" side of the NTISR equation was expected to become known in early 2013.[47]

(U) High-Altitude ISR Issues

(U) As it had for several decades, the Air Force flew high-altitude aircraft to carry out aerial reconnaissance beyond the range of most surface-to-air missile threats. One such aircraft was the U-2 Dragon Lady, a single-seat, single-engine, all-weather surveillance and reconnaissance platform. Its long and narrow wings gave it the characteristics of a glider which enabled the U-2 to carry heavy payloads and maintain flight for long periods of time. Routinely flown by its single pilot to heights over 70,000 feet or a near space altitude, the U-2 conducted signal intelligence (SIGINT), imagery intelligence (IMINT), and measurement and signatures intelligence (MASINT) across the globe. The aircraft accomplished these missions using a variety of sensor packages such as its electro-optical infrared camera, advanced synthetic aperture radar systems (ASARS), and other intelligence payloads. Despite the fact that its basic configuration had been designed in the 1950s, the U-2 remained a mainstay of the Air Force's high-altitude ISR fleet, and its versatility and reliability continued to prove its value to the ISR fleet. The sole operator of the U-2 was the 9th Reconnaissance Wing at Beale AFB, California.[48]

[46] (U) E-Mail (U), Lt Gen Larry D. James, AF/A2, to Lt Gen William J. Rew, ACC/CV, *et al.*, "SECAF ISR Review Task 5/6 Update, Targeting and NTUISR Roadmap," 30 Mar 12, 4009; Brfg (U), ACC/A3TW, "NTISR Training Initiatives," 9 May 12, 4010.

[47] (U) Brfg (U), ACC/A3TW, "NTISR Training Initiatives," 9 Aug 12, 4011

[48] (U) Brfg (U), ACC/A4CQ, "(U) HA Branch Deep Dive," ca. 30 Jun 12, 4155.

UNCLASSIFIED
(U) Photograph 4-3
(U) U-2 (left) and RQ-4 (right) High Altitude Reconnaissance Aircraft

(U) Source: U.S. Air Force News Service.
UNCLASSIFIED

(U) A partner to the U-2 was the RQ-4 Global Hawk, a high-altitude remotely piloted aircraft that had been in the Air Force inventory since the late 1990s. Although its general configuration was similar to that of the U-2 with long and narrow wings allowing for extended periods of flight, the RQ-4 could stay aloft for a longer time because it was unmanned and thus not subject to the fatigue and high-altitude rigors suffered by the U-2's human pilots. However, the Air Force pushed the RQ-4 forward as a concurrent development program in order to meet urgent operational needs. As such it was fielded before system elements were fully mature and was limited in the amount and type of intelligence payloads that could be utilized. Thus the Global Hawk had been produced in blocks according to aircraft capabilities and selected intelligence systems. Of the original combat capable Block 10 aircraft, all had been retired from the Air Force inventory in FY 2011. Block 20 Global Hawks had IMINT payloads only, and by the end of 2011 most had been converted to EQ-4 BACN airborne networking platforms as described in the C2 section above and in Chapter 5. The next series of Global Hawk's entering the fleet was the Block 30, and they were to be multi-intelligence (MULTINT) aircraft capable of simultaneously carrying electro-optical, infrared, synthetic aperture radar (SAR) and other SIGINT sensors. Because of the accelerated pace of its development, the initial Block 30s were only fitted with IMINT sensors by the time they arrived at operational units, but the Air Force planned for a retrofit of full MULTINT sensors in 2012. To differentiate between the two Block 30 capabilities, the IMINT-only versions used the label Block 30(I) and the MULTINT versions used the label Block 30(M). The next lot of Global Hawks known as Block 40 was scheduled for initial operations in FY 2014. These RQ-4s were to be equipped with a Multi-Platform Radar Technology Insertion Program (MP-RTIP) arrays that would provide Ground Moving Target Indicator (GMTI) coverage similar to the E-8 JSTARS aircraft. As with the U-2, the 9th

Reconnaissance Wing initially operated the entire Global Hawk fleet. However in September 2011, Air Combat Command activated the 69th Reconnaissance Group at Grand Forks AFB, North Dakota to serve as the primary operator of the Block 20 EQ-4 BACN platforms and the future Block 40 MP-RTIP equipped aircraft.[49]

[49] (U) See note above; Hist (S//NF//FRD), ACC, Jan-Dec 2010, pp. 349, 352, (**Info used is U**); Brfg (U), ACC/A3CH, "(U) Global Hawk 101," 11 May 12, 4156; Brfg (U), ACC/A8YR, "GH Branch Update," 25 Mar 11, 4158; Rpt (U), ACC/A8Y, "Capability Production Document for RQ-4B Global Hawk Block 30," 12 May 11, pp. ii-iii, 6-7, 4159; E-mail (U), ACC/CC to ACC/CCX and ACC/CV, "RE: OCR Approved – Activation of the 69th Recon Group – GFAFB," 19 Jul 11, 4168; Paper (U), ACC/A1M, "HQ 69th Reconnaissance Group Organization Change Request," ca. 24 May 11, 4168a. Note: See ACC histories from 2005 through 2010 for details on Global Hawk development issues.

[50] (U) Hist (S//NF//FRD), ACC, Jan-Dec 2006, pp. 222, 225, (**Info used is U//FOUO**); Hist (S//NF//FRD), ACC, Jan-Dec 2007, pp. 212-213 (**Info used is U**). Note: See subsequent ACC histories from 2008-2010 for iterative updates on the HAT Plan.

[51] (U) According to the HAT Plan, a U-2 CAP consisted of five total aircraft (four primary and one backup) and an RQ-4 Block 30 CAP consisted of four aircraft (three primary and one backup). For a detailed description of what a CAP for an RPA like the Global Hawk entailed see Hist (S//NF//FRD), ACC, Jan-Dec 2011, pp. 3-6 to 3-7 (**Info used is U**).

(U) On 17 February 2011, the Air Force Materiel Command (AFMC) submitted a significant program deviation report notifying the Air Force of an increase in average unit procurement costs by 23 percent, which signaled a critical Nunn-McCurdy breach.[53] Causes for the cost growth included a FY12 reduction in total aircraft quantities, the overlapping mix of Block 30 and Block 40 production, the increased number of CAPs called for in the HAT Plan which drove then need for additional support resources, and higher costs because of diminishing manufacturing sources and overall program execution. Based on the AFMC warning, Secretary of the Air Force Michael Donley officially notified Dr Ashton Carter, the Under Secretary of Defense for Acquisition, Technology and Logistics (USD/AT&L), on 6 April 2011 of the Nunn-McCurdy breach. In his memo Donley stressed that efforts were already underway to satisfy the requirements for Congressional notification and remedial actions were being taken. The cost growth breach was not a surprise however as actions had been taken earlier in 2010 to address looming problems in the overall Global Hawk program. Based on early indications of rising costs during the FY12 budget cycle, the program underwent a Nunn-McCurdy type of review to identify ways to bring cost growth under control. As a result of the 2010 assessment Dr. Carter directed the Air Force in January 2011 to restructure RQ-4 acquisition into three subprograms: the Global Hawk Baseline (Blocks 10 and 20), Global Hawk Block 30, and Global Hawk Block 40. Now with an official Nunn-McCurdy breach on hand the program undertook a formal recertification which was completed in June 2011. Following this process, Dr. Carter initiated a new program strategy to improve savings and consolidate work with the Navy's MQ-4 Broad Area Maritime Surveillance (BAMS) program to reduce production staffing and combined system purchases. The overall Block 30 purchase fell from 44 aircraft to 31, with the entire Global Hawk program now to consist of a total of 55 aircraft: 13 Block 10/20s, 31 Block 30s and 11 Block 40s, all with associated sensors and ground segments.[54]

[52] (U) Brfg (U//FOUO), AF/A2CU, "(U) High Altitude ISR Transition," ca. 17 Feb 12, 4157.

[53] (U) The Nunn-McCurdy Provision, introduced by Senator Samuel Nunn and Representative David McCurdy in the 1982 Defense Authorization Act and made permanent in 1983, was designed to curtail cost growth in American weapon system acquisition programs. The provision required the DoD to notify Congress if the cost per unit of any new systems rose more than 15% beyond the original program unit cost estimate. The provision also called for the termination of any program with increases greater than 25% of original unit cost estimates.

[54] (U) Memo (U), SECAF to USD/AT&L, "Global Hawk Unit Cost Breach Determination and Notification," 6 Apr 11, 4161; BBP (U), ACC/A8YR, "RQ-4 Nunn-McCurdy Breach Status Update," 26 Apr 11, 4162; Brfg (U), ACC/A8YR-RQ-4, "RQ-4 Global Hawk Requirements Strategy," ca. 13 May 11, 4163; Memo (U), AFROC to ACC/A8, *et al.*, "Meeting Minutes – Air Force Requirements Oversight Council (AFROC) – 26 May 2011," 8 Jul 11, 4164.

(U) Despite the budgetary and testing troubles noted above, the Air Force continued Block 30 operational employment and hoped to tackle residual performance and reliability issues in order to fully implement the HAT Plan. In fact a number of small successes coming in the wake of IOT&E cleared the way for Air Combat Command to pursue declaration of initial operational capability (IOC) for the Block 30 during summer 2011. As ACC's Directorate of Requirements noted, several Block 30(I)s had deployed to contingency operations during the spring and actual system sortie generation rates proved better than earlier operational evaluations

[55] (U) Rpt (U//FOUO/Dist D), AFOTEC, "(U) RQ-4 Global Hawk Block 20/30 Unmanned Aerial System Initial Operational Test and Evaluation," 20 May 11, pp. iii-iv, 10-17, 4165; E-mail (U//FOUO), ACC/A8 to ACC/CC, "(U) FW: March AFOTEC Activity Report," 5 Apr 11, 4166.

[56] (U) See note above.

and the IOT&E report reflected. Global Hawks had deployed to Anderson AFB, Guam to support Japanese tsunami relief efforts and had flown 17 successful sorties in 22 days. In addition, this deployment also demonstrated the first aircraft replacement on station capability with no loss of coverage. On the other side of the globe, Global Hawks deployed to NAS Sigonella, Italy as part of Operation Odyssey Dawn and executed 11 sorties in 17 days during combat operations over Libya. Based on these operational achievements and steady improvements in sensor performance, maintenance reliability, aircraft availability and training regimes through the first half of 2011, ACC, PACAF and others felt enough initial capability was available to support warfighting commanders. Therefore, General William Fraser, the ACC Commander, officially declared IOC for the Block 30 on 10 August 2011. In his declaration, General Fraser noted that, "The basic requirement for Block 30 IOC is to support one continuous Block 30 24-hour orbit for 30 days. With the successful deployment of three Block 30 GHs to Andersen AFB and three to NAS Sigonella, the USAF began providing GH high altitude, long endurance ISR support for Operation ODYSSEY DAWN in Libya and Operation TOMODACHI in Japan. There are enough assets and infrastructure in place to support the one continuous Block 30 orbit requirement for IOC." However, General Fraser also cautioned that high demand across several combatant commands meant that Global Hawks would not be able to fly continuously in multiple theaters for 30 days, and he stressed that, "there is still much that needs to be done to reach GH Full Operational Capability (FOC) and to complete High Altitude Transition." Yet no sooner had General Fraser made his declaration when a series of hammer-like blows fell upon the Global Hawk program and precipitated a swift about face for the entire HAT construct.[57]

(U) One issue slightly preceded the IOC declaration and that involved a revision to the HAT plan itself. The original HAT was based on Block 30 MULTINT capability-only with four aircraft and sensors per CAP. The HAT plan had U-2 starting drawdown as the RQ-4 assumed a fourth MULTINT CAP in May 2013. However, chronic delays in fielding the Block 30(M) variants threaten to derail the HAT plan as it stood then. In addition, action to retrofit Block 30(I) aircraft with SIGINT sensors were delayed up to seven month by July 2011 because of problems during sensor testing. During a July 2011 update on the HAT Plan, the joint ACC and AFMC team overseeing the transition that the only way to adhere to the original HAT schedule was to plan for each Block 30(M) CAP to consist of three aircraft rather than the original four. However, the HAT team felt any further delays would push the U-2 drawdown actions to take place deeper into the FY 14 cycle rather than at the beginning with subsequent delays in the full six MULTINT RQ-4 CAPs in place later in FY 16.[58]

[57] (U) E-mail (U), ACC/A8Y to ACC/A8, "UPDATE: Global Hawk Block 10/30 Issues/Status," 2 May 11, 4167; BBP (U), ACC/A8YR, "RQ-4 Global Hawk OPTEMO," 19 Apr 11, 4169; E-mail (U), PACAF/A3/5/8 to ACC/A8, "RQ-4 Block 30 IOC," 18 Jul 11, 4170; E-mail w/1 Atch (U), ACC/A8-2 to ACC/A8, "Purpose: Declare IOC for Global Hawk Block 30," 5 Aug 11, 4171; BBP (U), ACC/A8YR, "RQ-4 Block 30 Global Hawk IOC," 18 Apr 11, 4171a; E-mail (U), ACC/CC to PACAF/CC, *et al.*, "RQ-4 Block 30 Global Hawk (GH) Initial Operational Capability (IOC)," 10 Aug 11, 4172.

[58] (U) Brfg (U), ACC/A8YR-RQ4, "High Altitude Transition," 19 Jul 11, 4160.

[59] (U) E-mail (U), ACC/DS-2 to ACC/CV, *et al.*, "RE: GH Standdown?," 19 Aug 11, 4173; E-mail (U), ACC/A4 to ACC/CC, "Potential Stand Down of Global Hawk Operations Other Than OCO Operations," 19 Aug 11, 4174; E-mail (U//FOUO), ACC/A8Y to ACC/A8, "(U) RE: Recommended Global Hawk Stand Down for Other Than OCO Ops," 19 Aug 11, 4175; E-mail (U), ACC/A8 to ACC/A8-2, "FW: Global Hawk Incident – OEF," 21 Aug 11, 4176; BBP (U), ACC/A8YR, "EQ-4 Incident," 1 Sep 11, 4177; BBP (U), ACC/A8YR, "RQ-4 Block 30 Sensor IMINT Quality," 1 Sep 11, 4178.

[60] (U) E-mail w/1 Atch (U) ACC/A2 to ACC/A-A2, *et al.*, "Briefing and Talking Points for COMACC Prep Session on Monday 3 Oct 1000," 30 Sep 11, 4179; Brfg (U//FOUO), ACC/A2O/A2X/A3C/A8Y, "(U) Global Hawk & U-2 Comparisons: The Rest of the Story," ca. 30 Sep 11, 4179a; BBP (U), ACC/A2C, "NGC Global Hawk & U-2 Comparisons Brief," 30 Sep 11, 4180; E-mail (U), ACC/A8 to ACC/A3, "FW: Northrop Grumman U2 – GH Comparison Brief," 4 Oct 11, 4181; E-mail (S//NDI/20321026), ACC/CC to AF/CC, "(U) RQ-4 Block 30," 26 Oct 11, 4182; E-mail w/1 Atch (S//NF//NDI/20361031), ACC/CV to ACC/CC, "(U) HAF/A2 BBP on GH," 31 Oct 11, 4183; BBP (S//NF//20190409), ACC/A2X, "(U) Warfighter & Analyst Perspective on U-2 and RQ-4 Block 30 Capabilities," 30 Oct 11, 4183a.

(U) RPA Post-Surge Reconstitution

[61] (U) E-mail (U), ACC/CC to ACC/A8, "RE: INFO: High Altitude ISR DMAG Results," 8 Nov 11, 4184; E-mail (U), ACC/CCX to ACC/CC, "House Approved FY 13 NDAA," 18 May 12, 4185; E-mail w/2 Atchs (U), ACC/DS-2 to ACC/A8Y, *et al.*, "FW: Global Hawk Block 30 – Notification to Stakeholders of Continuing Operations," 17 Jul 12, 4186; Memo (U), SASC to SECDEF, "FY 13 Budget," 19 Mar 12, 4186a; Memo (U), SECDEF to Senator Daniel Inouye, "FY 2013 PB," 22 Jun 12, 4186b; E-mail (U//FOUO), AF/A2 to ACC/CV, "(U) RE: Talking Points Re Congressional Engagement on GH Block 30 Marks," 21 Sep 12, 4187.

[62] (U) Brfg (U), ACC/A3, "MQ-1/9 Reconstitution Out Brief for CSAF," 13 Dec 12, 4012; Brfg (U), ACC/A3CU, "MQ-1/9 Surge Update and Reset Plan (a/o 5 Jan 12 SDOB), 6 Feb 12, 4013; Brfg (S//NF//NDI/20370822), HAF/A2, "(U) Status of USAF MQ-1/9 Reconstitution," 22 Aug 12, 4022.

UNCLASSIFIED
(U) Graphic 4-4
(U) ACC MQ-1/9 Reconstitution

Reconstitution Objectives

Objective	End State	Remarks
Resume WIC production	● (orange)	WIC restarted 9 Jul; 37% of full production
Increase FTU manning to 80%	● (red)	FTU manning increased from 49% to 66%
Add 2nd MQ-9 FTU	● (orange)	9ATKS activated 28 Sep 12; manning at 55%
End Assignment Freeze	● (green)	Pilot ended Jan 12, Sensor ended Oct 11
Stand up Ellsworth MQ-9 squadron	● (green)	432ATKS began flying 1 May at Creech
Modernize Ground Control Stations	● (red)	Block 50 required to modernize GCS
Increase line Crew/CAP Ratios	● (green)	Crew ratios increased from 6.25:1 to >8.0:1
Crews to Staff/PME	● (orange)	Staff manned at 90%, 3% of MQ-1/9 Maj/LtCols at IDE/SDE
Begin CT	● (orange)	3 CT sorties/day; 9% of full requirement

● (green) Met — ● (orange) Met with risk — ● (red) Failed to meet

(U) Source: Brfg (U), ACC/A3, "MQ-1/9 Reconstitution Out Brief for CSAF," 13 Dec 12, 4012.
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(U) RPA Steady State CONOPS

[63] (U) See note above.

[64] (U) Draft Operating Concept (U//FOUO), ACC/A3CU, "(U) Combat Air Forces MQ-1 and MQ-9 Remotely Piloted Aircraft Steady State Operating Concept," 25 Jul 12, 4014; BBP (U), [redacted], ACC/A3CU, "Combat Air Forces MQ-1 and MQ-9 Remotely Piloted Aircraft Steady State Operating Concept," 3 Aug 12, 4015; E-Mail (U), [redacted] ACC/A3C, to [redacted] ACC/A3-2, *et al*., "Steady State Ops Concept Changes," 1 Feb 12, 4016; E-Mail Chain (U//FOUO), ACC/A3 to ACC/DS, *et al*., "(U) FW: CC—CORONA CST-15 RPA Steady State CONOPS (HAF TMT #40978)," 16 Feb 12, 4018; Brfg (U), ACC/A3, "CST 15 RPA LRE Dwell Ratio," ca. Aug 12, 4019; E-mail Chain, (U), ACC/A3 to [redacted] ACC/A3C, *et al*., "RE: CORONA CST-15 RPA Steady State CONOPS," 26 Jan 12, 4017.