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SECRETARY OF THE AIR FORCE**

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***Nuclear, Space, Missile, Command and
Control***

***AIR FORCE NUCLEAR COMMAND,
CONTROL, AND COMMUNICATIONS
(NC3)***

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This instruction implements Air Force Policy Directive (AFPD) 13-5, *Air Force Nuclear Mission*, and establishes general Air Force (AF) direction, guidance, and responsibilities to execute Nuclear Command, Control, and Communications (NC3) operations across AF forces. This instruction applies to all Regular Air Force, Reserve, Air National Guard, civilian, contractors, and other personnel or organizations, as required by binding agreement or obligation with the Department of the Air Force. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See Air Force instruction (AFI) 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestors commander for non-tiered compliance items. Refer recommended changes and questions to the Office of Primary Responsibility (OPR) on AF Form 847, *Recommendation for Change of Publication*. Route AF Forms 847 through the appropriate functional chain of command. Any level may supplement this publication, but must route all direct supplements to the OPR of this publication for coordination prior to certification and approval. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System.

SUMMARY OF CHANGES

This is a complete revision to the previous version of this instruction. This instruction implements Secretary of the Air Force (SecAF) and Chief of Staff of the Air Force (CSAF) direction to develop a comprehensive and more centralized structure to manage the AF NC3 mission area. It revises the command relationships, roles and responsibilities, the governance structure, and addresses resourcing, architecture and configuration management, resilience, and assessments. The instruction acknowledges consolidation of the communications systems and components of Air Force NC3 systems into the Air Force NC3 Weapon System (AF NC3 WS), nomenclated and referred throughout this instruction as AN/USQ-225, under Air Force Global Strike Command (AFGSC) as the lead command, in accordance with Headquarters Air Force Deputy Chief of Staff, Strategic Deterrence and Nuclear Integration Program Action Directive (PAD) D16-01 *Centralized Management of the Nuclear Enterprise*. Finally, this instruction codifies the specialized responsibilities of the Air Force NC3 Center (AFNC3C) as an AFGSC organization with AF-wide responsibilities to lead centralized organize, train, and equip functions of the AN/USQ-225; the Air Force Nuclear Weapons Center, NC3 Integration Directorate (AFNWC/NC) as the principle integrator of the AN/USQ-225; and Air Force Materiel Command (AFMC) as the lead for synchronizing NC3 materiel management across AFMC in support of AFGSC.

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Chapter 1

GENERAL INFORMATION

1.1. Purpose. This instruction establishes roles and responsibilities to ensure effective stewardship and integrated planning, programming, budgeting and execution, and sustainment of the AF NC3 mission area. In addition, it provides a framework to ensure the Air Force properly organizes, trains, and equips to enable Nuclear Command and Control (NC2) mission essential functions.

1.2. Overview. NC2 is the exercise of authority and direction by the President to command and control United States (U.S.) military nuclear weapon operations. NC2 consists of five mission essential functions: Force Management, Planning, Situation Monitoring, Decision Making, and Force Direction. NC3 is the means to execute these mission essential functions. NC3 provides an integrated system comprised of facilities, equipment, communications, procedures, and personnel. It is essential to the proper execution of the National Military Command System (NMCS), which includes continuous, survivable, and secure nuclear command and control as one of its mission essential functions.

1.3. Scope . By its nature, NC3 comprises a set of national level capabilities that must be assured, reliable, and resilient across the range of threat conditions—from benign to highly contested—through all phases of nuclear (and, at times, non-nuclear) conflict. AF NC3 has numerous external stakeholders that include the Office of the Secretary of Defense (OSD), the Joint Staff (JS), Combatant Commands (CCMDs), other Services, Combat Support Agencies (e.g., Defense Information Systems Agency, National Security Agency), and the White House Military Office. In addition to describing the roles and responsibilities of Air Force entities, this instruction also informs and directs how the Air Force will interact with external stakeholders to ensure AF NC3 support to the President.

1.4. Objectives.

1.4.1. Establish a formal governance structure to oversee and manage the AF NC3 mission area.

1.4.2. Provide guidance and direction to resource the AF NC3 mission area in order to ensure AF NC3 capabilities that fulfill warfighter requirements.

1.4.3. Provide guidance and direction to manage the AF NC3 architecture and manage the AN/USQ-225 configuration baseline.

1.4.4. Provide guidance and direction to ensure AF NC3 system resilience IAW governing Department of Defense (DoD) and Chairman, Joint Chiefs of Staff (CJCS) directives and Military Standard documents.

1.4.5. Establish and maintain an assessment program to measure performance, identify shortfalls, and correct deficiencies.

1.5. Key Terms and Definitions.

1.5.1. NC2. The exercise of authority and direction by the President, as Commander-in-Chief of the U.S. Armed Forces, through established national command authority lines over nuclear

weapons, nuclear weapon systems, and nuclear weapon operations of military forces. (Source: *Presidential Policy Directive (PPD)-35*)

1.5.2. NC2 mission essential functions (Source: Chairman, Joint Chiefs of Staff Instruction (CJCSI) 6811.01C, *Nuclear Command and Control System Technical Performance Criteria*):

1.5.2.1. Force Management. Force Management is the set of Command, Control, and Communications (C3) activities relating to the assignment, training, deployment, maintenance, and logistic support of nuclear forces and weapons, before, during, and after any crisis.

1.5.2.2. Planning. Planning is the set of C3 activities relating to the development and modification of plans for employment of nuclear weapons and other operations in support of nuclear employment.

1.5.2.3. Situation Monitoring. Situation Monitoring is the set of C3 activities relating to the collection, maintenance, assessment, and dissemination of information on friendly forces; adversary forces and possible targets; emerging nuclear powers; and military, political, environmental, and other events.

1.5.2.4. Decision Making. Decision Making is the set of C3 activities relating to the assessment, review, and consultation regarding consideration for use or movement of nuclear weapons or the execution of other nuclear control orders.

1.5.2.5. Force Direction. Force Direction is the set of C3 activities relating to the implementation (preparation, dissemination, and authentication) of decisions regarding the execution, termination, destruction, and disablement of nuclear weapons.

1.5.3. Nuclear Command and Control System. The Nuclear Command and Control System is the combination of capabilities necessary to ensure the authorized employment and termination of nuclear weapon operations under all threats and scenarios; to secure against accidental, inadvertent, or unauthorized access to U.S. nuclear weapons; and to prevent loss of control, theft, or unauthorized use of U.S. nuclear weapons. Collectively, these capabilities help ensure the effectiveness of the U.S. nuclear deterrent. (Source: PPD-35)

1.5.4. NC3 System. The NC3 System is the means through which Presidential authority is exercised and operational command and control of nuclear operations is conducted. The NC3 System is part of the larger National Leadership Command Capability (NLCC), which encompasses the three broad mission areas of: (1) Presidential and senior leader communications; (2) NC3; and (3) continuity of operations and continuity of government communications. (Sources: PPD-35 and DoDI S-3730.01, *Nuclear Command, Control, and Communications (NC3) System*, see sources for the full, classified definition)

1.5.5. National Military Command System (NMCS). The NMCS provides senior leaders with assured access to a secure and collaborative information environment that enables situational awareness, course of action development, national-level decision-making, force execution, and monitoring across the range of military operations. CJCSI 3280.01D, *National Military Command System*, identifies the five NC2 Mission Essential Functions as five of the six Mission Essential Tasks supporting the NMCS mission essential function “continuous, survivable, and secure NC2”. (Source: CJCSI 3280.01D)

1.5.6. AF NC3 WS (AN/USQ-225). The AN/USQ-225 is comprised of AF communications systems and components (radios, terminals, messaging, and conferencing systems that establish and function across the NC3 networks) through which the President exercises nuclear command and control. The AN/USQ-225 is operationalized via nomenclated Configuration Elements that reside on or within the host platforms and facilities employed to execute nuclear command and control and operations (e.g., fixed and mobile command centers, senior leader aerial platforms, nuclear execution forces, etc.). Each Configuration Element encompasses the host NC3 radios, terminals, messaging and conferencing systems within a single configuration boundary and functions as the host's "NC3 subsystem". Link and relay systems, or other equipment external to the configuration elements, (e.g., communications satellites, ground entry points, communications terminals not physically connected, and DoD Information Network links) are categorized as "external dependencies", and are considered for system of systems integration, test, and certification purposes only. The AN/USQ-225 is the AF communications subset of the NC3 System, and while it provides critical connectivity, it does not include all of the systems and components (e.g., early warning radar, planning systems) necessary to execute all aspects of NC2.

1.6. Classification and Security Information. Refer to AFI 16-1404, *Air Force Information Security Program* for classification and security information.

1.6.1. The distribution of and access to NC2 Extremely Sensitive Information must be strictly limited and based on rigorously justified operational requirements, or need-to-know, and must be protected IAW CJCSI 3231.01B, *Safeguarding Nuclear Command and Control Extremely Sensitive Information*. Submit any deviation from procedures to the authorizing official (formerly known as the Designated Accrediting Authority) for adjudication IAW AFI 13-502, *Safeguarding Nuclear Command and Control Extremely Sensitive Information*. (T-0)

1.6.2. Safeguard, protect, and mark NC3 classified and unclassified controlled nuclear information IAW DoDI 5200.01, *DoD Information Security Program and Protection of Sensitive Compartmented Information*, DoDI 5210.02, *Access to and Dissemination of Restricted Data and Formerly Restricted Data*, DoDI 5210.83, *DoD Unclassified Controlled Nuclear Information*, DoDM 5200.01, *DoD Information Security Program*, DoDM 5200.45, *Instructions for Developing Security Classification Guides*, DoDM 5205.07, *DoD Special Access Program Security Manual*, AFI 35-102, *Security and Policy Review Process*, AFI 61-201, *Management of Scientific and Technical Information* and all relevant DoD-approved security classification guides. (T-0)

1.6.3. Maintenance documentation of AN/USQ-225 shall be recorded IAW AF Technical Order 00-20-2, *Maintenance Data Documentation*, paragraph 4.26, "Systems on which real time reporting would divulge classified vulnerabilities will be reported only after the system has been restored and the Job Control Number has been closed," for systems otherwise, normal maintenance documentation will be performed. (T-1)

Chapter 2

GENERAL ROLES AND RESPONSIBILITIES

2.1. Overview. The following roles and responsibilities generally apply to the AF NC3 mission area. The topical chapters that follow prescribe additional, more specific responsibilities.

2.2. Responsibilities.

2.2.1. Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration (AF/A10) will:

2.2.1.1. In accordance with AFPD 13-5, *Air Force Nuclear Mission*, provide guidance for implementing AF NLCC/NC3 policy, strategy, and planning IAW national-level, DoD, CJCS, and AF directives. (T-0)

2.2.1.2. Act as the primary interface to the OSD, the JS, and serve as the HAF accountable officer responsible to the Secretary of the Air Force (SecAF) and the CSAF for the AF NLCC/NC3 mission area IAW HAF MD 1-60, *Deputy Chief of Staff of the Air Force Strategic Deterrence and Nuclear Integration*. (T-0)

2.2.1.3. Lead HAF efforts in the assessment of AF NC3 programs, policies, and capabilities to ensure that the Service budgets for, develops, acquires, supports, and maintains assigned AF NC3 systems and Air Force elements of the NMCS.

2.2.2. Deputy Chief of Staff for Manpower, Personnel, and Services (AF/A1) will provide guidance for policies and practices affecting AF NLCC/NC3 human capital management, recruitment, accession, development, promotion, compensation, recognition, and work force planning.

2.2.3. Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance (AF/A2) will establish policies and processes to provide intelligence and threat support to Air Force NLCC/NC3 programs IAW AFI 14-111, *Intelligence Support to the Acquisition Life-Cycle*, and AFGSC Intelligence, Surveillance, and Reconnaissance Support to NC3 Standard Operating Procedure. Additionally AF/A2 will promulgate these products with AF/A10, AFGSC, and other relevant MAJCOMs, subordinate units, and other units.

2.2.4. Deputy Chief of Staff for Operations (AF/A3) will:

2.2.4.1. As lead for the AF continuity of operations policy and programs, coordinate with **AF/A10** and Chief, Information Dominance and Chief Information Officer (**SAF/CIO A6**) for AF continuity of operations communications requirements.

2.2.4.2. As HAF lead for AF operational reporting, provide guidance to and coordinate with AFGSC for AN/USQ-225 weapon system operational reporting requirements and processes.

2.2.4.3. As HAF lead for conventional command and control (C2) and operations, assist in the integration of nuclear and conventional forces into NC3 operational strategies, organizational concepts, policy, and guidance (e.g., conventional support to nuclear operations, integrated nuclear and conventional operational planning, and integrated conventional and nuclear C2 in any theater of operations).

2.2.4.4. In coordination with AF/A10, advocate for AF NC3 requirements and integration with respect to military satellite communications, as well as space- and ground-based missile warning systems, in order to ensure AF space equities and activities are integrated and coordinated across Department and Interagency efforts.

2.2.5. **Deputy Chief of Staff for Logistics, Engineering, and Force Protection (AF/A4)** will provide guidance for AN/USQ-225 maintenance documentation and reporting processes.

2.2.6. **Deputy Chief of Staff for Strategic Plans and Requirements (AF/A5/8)** will:

2.2.6.1. Integrate AF NC3 into the Nuclear Deterrence Operations (NDO) corporate panel.

2.2.6.2. Act as AF lead for AF NC3 requirements. Represent the AF at appropriate Joint Capabilities Integration and Development System boards and working groups (e.g., C4/Cyber and Battlespace Awareness Functional Capability Boards) IAW CJCSI 5123.01H, *Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS)*.(T-0)

2.2.7. **Director for Studies, Analyses and Assessments (AF/A9)** will provide guidance and feedback on the integration of AF NC3 analyses of programs, plans, and operations; synchronizing DoD and Air Force NC3 capabilities; and requirements analyses designed to optimize operations and sustainment efforts.

2.2.8. **Air Force Chief of Safety (AF/SE)**, in coordination with AF/A10, will develop and establish Air Force nuclear surety standards and policies for safety, and will assess nuclear weapons systems and systems requirements for safety.

2.2.9. **The Assistant Secretary of the Air Force for Acquisition, Technology and Logistics (SAF/AQ)**, through multiple AF Program Executive Officers (PEO) to include the Air Force Program Executive Office (AFPEO) NC3, will ensure the timely delivery and life-cycle sustainment of Air Force NC3 system capabilities and equipment to the warfighter based on validated requirements and funding. (T-0)

2.2.10. **Chief, Information Dominance and Chief Information Officer (SAF/CIO A6)** will:

2.2.10.1. Serve as Headquarters Air Force lead for non-NC3 components of NLCC (senior leader communications and continuity of operations communications).

2.2.10.2. In accordance with AFI 17-130, *Cybersecurity Program Management*, serve as lead for cybersecurity policy implementation.

2.2.11. **AFGSC** will:

2.2.11.1. Serve as the lead command for the NC3 mission area and as designated Lead Command for the AN/USQ-225 IAW PAD D16-01, AAFP 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*, and AFI 13-500, *Air Force Nuclear Mission Responsibilities*.

2.2.11.2. Integrate AN/USQ-225 into the NDO Service Core Function and Domain Mission Chief Architect roles and responsibilities.

2.2.11.3. Develop AF NC3 strategic vision and roadmap and identify requirements to weapon system lead and using commands.

2.2.12. **AFNC3C** , as the designated lead organization for centralized organize, train and equip functions for the AN/USQ-225, will:

2.2.12.1. In coordination with HAF functionals and MAJCOMs, act as focal point within AFGSC to lead issue resolution across the entire AF NC3 mission area, including, but not limited to, the following areas: requirements development and publication, architecture development and publication, capability performance assessment, resiliency against Electromagnetic Pulse (EMP) and cyber vulnerabilities, and human capital and training. (T-1)

2.2.12.2. Execute Lead Command oversight and management of the AN/USQ-225. (T-1)

2.2.12.3. Develop and analyze metrics to support AN/USQ-225 health assessment, life cycle and risk management processes and provide life cycle sustainment and resource management oversight for the AN/USQ-225. (T-1)

2.2.12.4. Coordinate with other MAJCOMs to organize, train, and equip AF NC3 systems that are external to AFGSC or the AN/USQ-225. (T-1)

2.2.12.5. IAW AFI 63-101 / 20-101, *Integrated Life Cycle Management*, establish standardized procedures to review, validate, certify, prioritize, and implement modification proposals to the AN/USQ-225. (T-1)

2.2.13. **AFMC** designates the **Air Force Nuclear Weapons Center, NC3 Integration Director (AFNWC/NC)** as the designated Principle Integrator for AN/USQ-225 materiel management and sustainment activities. These responsibilities include authority and responsibility for weapon system architecture, weapon system configuration management, overall integration, system test, system verification, and system certification spanning AN/USQ-225 constituent elements, external dependencies, and hosts across multiple MAJCOMs. AFNWC/NC will:

2.2.13.1. Sustain, modernize and recapitalize the AN/USQ-225. (T-1)

2.2.13.2. Act as lead systems engineer and technical configuration manager for the AN/USQ-225. (T-1)

2.2.13.3. Assess the health of AN/USQ-225 processes, procedures, and practices of Program Offices using standardized tools such as Logistics Health Assessment and Systems Engineering Assessment Model. (T-1)

2.2.13.4. Provide recommendations for AF leadership to use in making programmatic and operational decisions. (T-1)

2.2.13.5. Provide direct support to AFGSC by synchronizing modernization and procurement of AN/USQ-225 systems using AFGSC delineation of prioritized warfighter needs (based on its role as Lead Command). (T-1)

2.2.14. **AFMC** designates **the Air Force Nuclear Weapons Center, Nuclear Technology and Interagency Directorate (AFNWC/NT)** as lead test organization for EMP protection efforts for AF NC3 systems. (T-1)

2.2.15. AFMC designates the **Air Force Installation and Mission Support Center (AFIMSC)** to advocate for and execute real property requirements for NC3 facilities to mitigate against EMP protection, sustainment, and maintenance shortfalls. (T-1)

2.2.16. All MAJCOMs, the Air National Guard (ANG), Field Operating Agencies (FOAs) and Direct Reporting Units (DRUs), and their subordinate units will support Air Force NC3 systems, equipment, personnel, and partnerships to ensure viable AF NC3 operations, training, and security. (T-1)

2.2.16.1. Support AF NC3 operations with a responsibility for developing plans, guidance, procedures, training, and budgets in accordance with the CSAF directed Strategic Planning and Programming Process. (T-1)

2.2.16.2. Support AF NC3 requirements development, metric development, metric updating, and program management reviews. (T-1)

2.2.16.3. Ensure subordinate units process status and discrepancy data for the AN/USQ-225 using the Integrated Maintenance Data System or Core Automated Maintenance System for mobility aircraft. (T-1)

2.2.16.4. Where an AF organization is the executive agent for components of the NMCS: provide support, funding, and other program aspects to ensure the components enable the NMCS to meet assigned responsibilities. In accordance with CJCSI 3280.01D, AF executive agents will establish memorandums of agreement with user agencies to ensure accurate assignment of responsibility, accountability, and resources. (T-0)

Chapter 3

GOVERNANCE

3.1. Overview. The Office of the Secretary of Defense maintains robust and recurring oversight of NLCC and NC3 issues across the DoD. Under authority vested in Title 10 United States Code Section 171a, *Council on Oversight of the National Leadership Command, Control, and Communications System* (established by Section 1052 of the FY14 National Defense Authorization Act), the DoD established a Council on Oversight of National Leadership Command, Control, and Communications systems. This Council, co-chaired by Vice Chairman of the Joint Chiefs of Staff and Under Secretary of Defense for Acquisition and Sustainment, governs and oversees NLCC, to include NC3, across all DoD agencies, including AF-owned portions. The Council provides a centralized decision-making structure and forum through which AF senior officials can elevate AF-owned NC3 issues. Subordinate to the Council, DoD Chief Information Officer (CIO) chairs a NLCC Executive Management Board, Senior Steering Group, and numerous working groups IAW DoDI S-5100.92, *Defense and National Leadership Command Capability Governance*, to elevate issues through the Council's governance structure.

3.2. Air Force Governance Structure. The AF will establish and maintain a governance structure to evaluate and act on AF NC3 topics at the appropriate level, and to feed AF issues to the OSD governance process. The Air Force will use a Council, Board, and Group structure described as follows:

3.2.1. AF NLCC/NC3 Council. The Air Force NLCC/NC3 Oversight Council implements the authority to provide oversight of the AF-owned (funded) portions of NLCC/NC3 for the national leadership of the United States across assigned mission areas. The Council is a 4-Star level forum, chaired by AFGSC/CC, to exercise authority, responsibility, and establish priorities for AF NLCC/NC3.

3.2.2. AF NLCC/NC3 Board. The primary role of the AF NLCC/NC3 Oversight Board is to provide senior-level Air Force oversight and strategic direction to resolve key NLCC/NC3 issues affecting the Air Force Nuclear Mission. AFGSC/CD and AF/A10 co-chair the board, which includes participation from MAJCOM/CDs and key Headquarters Air Force functionals.

3.2.3. AF NLCC/NC3 Group. The primary role of the AF NLCC/NC3 Oversight Group is to act as the action arm for the Council governance process by preparing and forwarding issue recommendations to the Board. The Group is tri-chaired by the AFNC3C Commander, AFNWC/NC, and AF/A10N. Participation will include MAJCOM representatives and key HAF functionals.

3.2.4. Issues and topics addressed by the AF NLCC/NC3 governance process will include, but are not limited to: AF NC3 requirements, AF NC3 resourcing, AF NC3 capability performance assessment, AF NC3 acquisition program fielding, AF NC3 systems sustainment, AF NC3 architecture and configuration management, AF NC3 resiliency, AF NC3 operations and maintenance, and AF NC3 human capital and training.

3.3. Responsibilities.

3.3.1. AF/A10 will:

3.3.1.1. Co-chair the AF NLCC/NC3 Board and Group.

3.3.1.2. Act as the primary AF interface to DoD CIO who serves as the Secretariat for the Council on Oversight of the National Leadership Command, Control, and Communications Systems and chair for its subordinate boards and working groups. AF/A10 will defer to SAF/CIO A6 on non-NC3 related NLCC issues. (T-0)

3.3.2. Headquarters Air Force functionals will participate as advisory members in all AF NLCC/NC3 governance forums as determined by agenda topics.

3.3.3. AFGSC will:

3.3.3.1. Chair the AF NLCC/NC3 Council.

3.3.3.2. Co-chair the AF NLCC/NC3 Board and Group.

3.3.3.3. Publish and maintain a charter governing the AF NLCC/NC3 governance structure and process.

3.3.3.4. Act as Secretariat for all forums.

3.3.4. AFNWC/NC will co-chair the Group.

3.3.5. MAJCOMs will participate as voting members in all AF NLCC/NC3 governance forums.

Chapter 4

RESOURCING

4.1. Overview. Appropriate and timely resourcing during development, acquisition, sustainment and modernization of the AF NC3 mission area is the foundation of a sustainable, robust capability for the proper execution of authorized command and control of the nation's nuclear forces. The establishment of the AN/USQ-225, alignment of NC3 under the NDO Service Core Function, and establishment of a governance structure helps to centralize resourcing processes and decisions. However, due to the expansive scope and breadth of the nuclear command and control mission space, NC3 will continue to overlap with other service core functions. Nuclear mission roles for numerous AF system platforms and personnel result in NC3 equities in the Space Superiority, Cyberspace Superiority, Air Superiority, Global Precision Attack, Global Integrated Intelligence, Surveillance and Reconnaissance, Command and Control, Rapid Global Mobility, Agile Combat Support, and Education and Training service core functions.

4.2. The AF will holistically assess and evaluate NC3 resourcing needs across all affected service core functions.

4.3. Responsibilities.

4.3.1. **AF/A10** will:

4.3.1.1. Lead AF NC3 Issue Team participation in DoD Program and Budget Review for the AF NC3 programs and resources. (T-0)

4.3.1.2. Maintain AF-wide resourcing focus on AF NC3 systems and facilities, and maintain close coordination with service core functions, Lead Commands/Lead Agents, and corporate panels (e.g., NDO, Space, and C2).

4.3.2. **AF/A5/8** will integrate AF NC3 into Air Force long-range strategic planning, resource allocation planning, and AF Program Objective Memorandum builds. Coordinate with AF/A10, SAF/AQ, AFGSC, and other appropriate Air Force components.

4.3.3. **SAF/AQ** will monitor execution status of AF NC3 acquisition programs, identify program budget disconnects, and coordinate investment programming and reprogramming actions.

4.3.3.1. AFPEO NC3 will provide execution status to SAF/AQ for assigned NC3 programs in order to monitor the execution status, identify program budget disconnects, and coordinate investment programming and reprogramming actions.

4.3.3.2. All PEOs will provide execution status to SAF/AQ for assigned programs providing constituents to the AN/USQ-225, or providing other capabilities supporting the AF NC3 mission area (e.g., integrated tactical warning and attack assessment or military satellite communications).

4.3.4. **AFGSC** will:

4.3.4.1. Identify and coordinate inclusion of AF NC3 funding requirements in the NDO Service Core Function portfolio budget.

4.3.4.2. Identify AF NC3-related facility requirements at AFGSC installations, to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.4.3. Coordinate with relevant Lead Commands/Lead Agents to identify AF NC3-related funding requirements in non-NDO service core functions. Synchronize planning and programming activities for NC3 capability areas that overlap with those Service Core Functions.

4.3.4.4. Provide input to the AF NLCC/NC3 governance process and Air Force Corporate process through a prioritized resource requirements list for all NC3 capability areas.

4.3.4.5. Coordinate with appropriate CCMDs on modification proposals affecting the NC3 capability of AF procured delivery systems and supporting infrastructure to ensure system sustainment and modernization is executable.

4.3.5. Air Combat Command (ACC) will:

4.3.5.1. Identify AF NC3-related funding requirements within ACC and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.5.2. Identify AF NC3-related facility requirements at ACC installations (e.g. command centers, wing command posts), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.5.3. Identify shortfalls in AF NC3-related requirements within their Lead Command/Lead Agent or installation portfolios and elevate through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.6. Air Education and Training Command (AETC) will:

4.3.6.1. Identify funding and manning for AF NC3-related education and training requirements and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.6.2. Identify AF NC3-related facility requirements at AETC installations, to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.6.3. Identify shortfalls in AF NC3-related requirements within their Lead Command/Lead Agent or installation portfolios and elevate through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.7. AFMC will:

4.3.7.1. Identify AF NC3-related funding requirements within AFMC and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.7.2. Identify AF NC3-related facility requirements at AFMC installations, to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.7.3. Identify shortfalls in AF NC3-related requirements within their Lead Command/Lead Agent, installation portfolios, or acquisition portfolios and elevate through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.7.4. Oversee AFNWC/NC, as Principal Integrator for AN/USQ-225 sustainment, modernization, and recapitalization, to offer recommendations and technical advice to AFGSC to use in making programmatic resourcing decisions.

4.3.8. Air Force Reserve Command (AFRC) will:

4.3.8.1. Identify NC3-related resource shortfalls and elevate them through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.8.2. Identify AF NC3-related facility requirements at AFRC installations (e.g. wing command posts), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.9. Air National Guard (ANG) will:

4.3.9.1. Identify NC3-related resource shortfalls and elevate them through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.9.2. Identify AF NC3-related facility requirements at ANG installations (e.g. wing command posts), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with the owning MAJCOM and AFIMSC.

4.3.10. Air Force Space Command (AFSPC) will:

4.3.10.1. Identify AF NC3-related funding requirements within AFSPC and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.10.2. Identify AF NC3-related facility requirements at AFSPC installations (e.g. command centers, radar sites), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.10.3. Identify shortfalls in AF NC3-related requirements within their Lead Command/Lead Agent, installation portfolios, or acquisition portfolios and elevate through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.11. Air Mobility Command (AMC) will:

4.3.11.1. Identify AF NC3-related funding requirements within AMC and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.11.2. Identify AF NC3-related facility requirements at AMC installations (e.g. wing command posts), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.11.3. Identify shortfalls in AF NC3-related requirements within their Lead Command/Lead Agent or installation portfolios and elevate through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.12. Pacific Air Forces (PACAF) will:

4.3.12.1. Identify U.S. Indo-Pacific Command theater unique AF NC3-related funding requirements and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.12.2. Identify AF NC3-related facility requirements at PACAF installations, to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.12.3. Identify NC3-related resource shortfalls and elevate them through the AF NLCC/NC3 governance and AF Corporate Structure processes.

4.3.13. United States Air Forces in Europe (USAFE) will:

4.3.13.1. Identify European Command (EUCOM) theater unique AF NC3-related funding requirements and coordinate their inclusion in the AF NC3 funding requirements list with AFGSC and the appropriate Lead Command/Lead Agent.

4.3.13.2. Identify AF NC3-related facility requirements at USAFE installations (e.g. command centers, Munitions Support Squadron sites), to include EMP protection, sustainment, and maintenance, and coordinate mitigation resourcing with AFIMSC.

4.3.13.3. Identify NC3-related resource shortfalls and elevate them through the AF NLCC/NC3 governance and AF Corporate Structure processes.

Chapter 5

ARCHITECTURE AND CONFIGURATION MANAGEMENT

5.1. Overview. NC3 capabilities derive from a complex system of systems consisting of sensors, platforms, and decision support tools connected via communications links and networks transiting the terrestrial, aerial, and space domains. The AF portion of the NC3 mission area has numerous touch points to external systems managed by external organizations (e.g., Navy, Army, and Defense Information Systems Agency (DISA)). These characteristics dictate the need for forward thinking architecture planning and deliberate configuration change control and change management processes.

5.2. The AF will develop and maintain an AF NC3 architecture and implement a configuration management process.

5.3. Responsibilities.

5.3.1. AF/A10 will:

5.3.1.1. Act as the primary AF interface on NC3-related architecture and configuration management matters to other services and external agencies at the headquarters level.

5.3.1.2. Coordinate AF participation in joint NLCC/NC3 architecture and configuration management forums. (T-0)

5.3.2. SAF/CIO A6 will:

5.3.2.1. Serve as lead for the NC3 Enterprise Architecture.

5.3.2.2. Coordinate with AF/A10, AF/A2, and AFGSC on AF NLCC/NC3 architecture requirements.

5.3.2.3. Provide NC3 architecture integration and planning support to improve design integrity, survivability, endurance, interoperability, compatibility, security, performance, and reliability as components of the NLCC.

5.3.3. AFGSC will:

5.3.3.1. Appoint a Chief Architect for NDO (to include AF NC3) Service Core Function architecture oversight as specified in, but not limited to, AFI 17-140, *Architecting*. Establish the AF NC3 Enterprise Architecture.

5.3.3.2. In coordination with AFNWC, engage with PEOs, Services, CCMDs, and agencies with NC3 related programs not aligned to the AFPEO NC3, but who act as architects for their NC3 related systems. Coordinate with SAF/CIO A6 to negotiate compatible interfaces to enable a federated approach to architecture IAW AFI 17-140.

5.3.4. AFNC3C will:

5.3.4.1. Be a voting member of the AFNWC/NC-chaired AN/USQ-225 Configuration Control Board (CCB). (T-1)

5.3.4.2. Establish policy to assure fleet-wide interoperability of the NC3 mission area. (T-1)

- 5.3.4.3. Establish policy to assure fleet-wide commonality and configuration control through the preservation of baselined characteristics to AN/USQ-225 constituents. (T-1)
- 5.3.4.4. Ensure all operational changes or degradation of baselined characteristics to a system or end-item are coordinated with and assessed by AFNWC/NC. (T-1)
- 5.3.4.5. Perform periodic verification audits, each consisting of pre-audit preparation, audit conduct, and post-audit reporting and follow-up for the AN/USQ-225. (T-1)
- 5.3.4.6. Validate AN/USQ-225 configuration element capabilities to execute mission essential tasks and responsibilities. (T-1)
- 5.3.4.7. Establish a Requirements Review Board process to validate all AN/USQ-225 configuration modification or maintenance procedure change prior to submission to AFNWC/NC. (T-1)
- 5.3.5. **AFNWC/NC** , as Principal Integrator of the AN/USQ-225, will:
 - 5.3.5.1. Establish and chair the AN/USQ-225 Configuration Control Board (CCB), to include representatives of the operational, maintenance, sustainment, safety, and test and evaluation communities. (T-1)
 - 5.3.5.2. Establish and maintain configuration management of AN/USQ-225 operational, implementation, and target baselines. (T-1)
 - 5.3.5.3. Establish interface control documentation defining the system interfaces between AN/USQ-225 and external sensors, platforms, facilities, and other critical external dependencies. (T-1)
 - 5.3.5.4. Coordinate with other PEOs and MAJCOM facility owners or agency facility owners to integrate AN/USQ-225 constituent systems with external sensors, platforms, facilities, and other critical dependencies. (T-1)
 - 5.3.5.5. As the AN/USQ-225 mission worthiness certification authority, grant AN/USQ-225 operational baseline certification based on a technical assessment that the system will perform in a known and understood manner. (T-1)
 - 5.3.5.6. Coordinate directly with external agencies (e.g., Navy, Army, DISA, and National Security Agency) in order to coordinate system engineering and configuration management activities across the broader DoD NC3 mission area. (T-0)
- 5.3.6. MAJCOMs supporting AN/USQ-225 host facilities, constituents, or external dependencies will coordinate requested or planned configuration baseline changes with AFGSC and AFNWC/NC-AFPEO NC3 prior to implementation.
- 5.3.7. AF PEOs will coordinate requested or planned AN/USQ-225 host platform, constituent, or external dependency configuration baseline changes with AFGSC and AFNWC/NC-AFPEO NC3 prior to implementation. Provide necessary configuration data (e.g. engineering drawings) as required.

Chapter 6

RESILIENCE

6.1. Overview. By national policy, NC3 capabilities must be assured, reliable, and resilient across the range of threat conditions—from benign to highly contested—through all phases of nuclear (and, at times, non-nuclear) conflict. This chapter will focus on two of the most broadly applied challenges: hardening against the effects of electromagnetic pulse and threats in the cyberspace domain.

6.2. The AF will establish a resource-informed process to manage resilience against threats to include, but not limited to, EMP and cyberspace threats IAW governing DoD and CJCS directives and Military Standard documents. (T-0)

6.3. Responsibilities.

6.3.1. AF/A10 will:

6.3.1.1. Coordinate AF responses to OSD and JS direction to develop EMP mitigation plans for AF NC3 nodes and facilities and develop cybersecurity strategies and plans for AF NC3 systems. (T-0)

6.3.1.2. Coordinate AF participation in joint NC3 EMP and NC3 cybersecurity forums.

6.3.1.3. Advise CSAF and SecAF on AF NC3 EMP and cybersecurity issues and mitigation plans.

6.3.1.4. In coordination with SAF/CIO A6, coordinate the appointment of AF NC3 system authorizing officials to AF organizations IAW AFI 17-130.

6.3.2. AF/A2 will:

6.3.2.1. Implement NC3 and intelligence cybersecurity policy IAW AFI 17-130.

6.3.2.2. Execute authorizing official duties for a subset of AF NC3 systems IAW DoDI 8510.01, *Risk Management Framework for DoD Information Technology*, AFI 17-130, and applicable CDRUSSTRATCOM Memoranda delegating the authorizing official responsibilities for specified systems. (T-0)

6.3.2.3. Participate in designated NC3 system modernization efforts to ensure appropriate controls are in place to protect mission data and system resources.

6.3.3. AF/A3 will enter Mission Critical AF NC3 equipment and facilities as identified by responsible AF offices on the Service's annual Mission Critical Report (IAW DODI 3150.09, *The Chemical, Biological, Radiological, and Nuclear (CBRN) Survivability Policy*). (T-0)

6.3.4. SAF/CIO A6 will:

6.3.4.1. Serve as AF lead for NC3 cybersecurity policy.

6.3.4.2. Ensure cybersecurity is an integral part of AF NC3 systems and applications design, guaranteeing appropriate controls are in place and provided to protect mission data and system resources.

6.3.5. SAF/AQ will:

6.3.5.1. Ensure cybersecurity policy implementation for NC3 systems. Ensure cybersecurity is an integral part of NC3 system design such that appropriate design principles and measures are used and controls are in place and provided to protect mission data and system resources.

6.3.5.2. Ensure acquisition security is an integral part of AF NC3 systems and applications design IAW AFI 63-101 / 20-101. Implement appropriate program protection planning measures to protect critical program information, critical components, mission data, and system resources.

6.3.6. AFGSC will:

6.3.6.1. Execute authorizing official duties for a subset of AF NC3 systems IAW DoDI 8510.01, AFI 17-130, and applicable CDRUSSTRATCOM Memoranda delegating authorizing official responsibilities for specified systems. (T-0)

6.3.6.2. Provide cybersecurity oversight for AF NC3 systems, including: strategies, guidance, training, and support to AF organizations.

6.3.6.3. Serve as the EMP Hardness Maintenance and Hardness Surveillance (HM/HS) oversight authority for AF NC3 nodes and facilities.

6.3.6.3.1. Coordinate mitigation plan cost estimates to bring AF NC3 nodes in compliance with EMP survivability and durability standards IAW CJCSI 3222.01B, *CJCS Requirements for High Altitude Electromagnetic Pulse Protection of Nuclear C3 Nodes and Systems* and USSTRATCOM Instruction 501-2, *Operations, Planning, and Command and Control Survivability Certification*. Coordinate for subject matter expert support, as required, with DOD organizations (e.g. USSTRATCOM, Defense Threat Reduction Agency, AFNWC, AFIMSC, or other MAJCOMs) or industry partners. (T-0)

6.3.6.3.2. Provide EMP mitigation cost data to AFIMSC so they can fund and execute facility modifications.

6.3.6.3.3. Establish a HM/HS process to maintain AF NC3 node EMP compliance.

6.3.6.3.4. Develop training programs on EMP effects, mitigation, and recovery of system operations for AF NC3 systems and supporting architecture, installations, and personnel.

6.3.7. AFMC will:

6.3.7.1. Perform cyber vulnerability assessments for weapon system platforms with a nuclear mission. Provide results to owning MAJCOMs.

6.3.7.2. Coordinate support from AFIMSC to fund and execute facility modifications to mitigate EMP hardness shortfalls at AF NC3 nodes and facilities.

6.3.7.3. Implement acquisition security for AF NC3 systems IAW AFI 63-101 / 20-101.

6.3.8. AFSPC will:

6.3.8.1. Execute authorizing official duties for a subset of AF NC3 systems IAW DoDI 8510.01, AFI 17-130, and applicable CDRUSSTRATCOM Memoranda delegating authorizing official responsibilities for specified systems. (T-0)

6.3.8.2. Coordinate resourcing for EMP protection shortfalls at AFSPC NC3 nodes and facilities with AFIMSC.

6.3.8.3. Coordinate with AFGSC on any modifications to identified AN/USQ-225 external dependencies (e.g. communications satellites, ground entry points, non-collocated communications terminals, and DoD Information Network links).

6.3.8.4. Identify NC3 cybersecurity risks against AFSPC systems and facilities. Coordinate mitigation planning with AF/A10, AFGSC, AFNC3C, and AFNWC.

6.3.9. Remaining MAJCOMs, ANG, FOAs, and DRUs will:

6.3.9.1. Identify NC3 cybersecurity risks against associated systems and facilities. Coordinate mitigation planning with AF/A10, AFGSC, AFNC3C, AFNWC, and owning MAJCOM (when applicable).

6.3.9.2. Coordinate resourcing for EMP protection shortfalls at AF NC3 nodes and facilities with AFIMSC and owning MAJCOM (when applicable).

Chapter 7

ASSESSMENTS

7.1. Overview. Paramount to an effective nuclear deterrent is a ready, high-performing NC3 System. Given that the AF owns the preponderance of the overall NC3 system, a deliberate and proactive AF assessment program is critical to the functionality of the overall system.

7.2. The AF will establish and maintain an assessment program to measure performance, identify shortfalls, and correct deficiencies in the AF NC3 system.

7.3. Responsibilities.

7.3.1. **AF/A10** will:

7.3.1.1. Act as the primary AF interface on AF NC3 assessment matters to OSD, JS, other services, and external agencies at the headquarters level. (T-0)

7.3.1.2. Coordinate AF participation in joint NC3 assessment forums.

7.3.1.3. Conduct periodic comprehensive NC3 assessments and provide such assessments to the SecAF, CSAF, and other organizations as directed by law. (T-0)

7.3.1.4. Monitor consolidated assessments, exercises, and reporting regarding the health and status of the AF NC3 mission area, with support from MAJCOMs, HAF functionals, and others as required.

7.3.1.5. Maintain situational awareness of AF participation and review metrics generated by formal DoD NC3 assessment and exercise programs, such as: USSTRATCOM Continuing Evaluation Program (CEP) (US Strategic Command Instruction 513-3, *Continuing Evaluation Program*) and the Joint Staff POLO HAT and PAUL REVERE programs (CJCSI 3264.01F, *Nuclear Command, Control, and Communications (NC3) Operational Assessment Programs*). (T-0)

7.3.1.6. Pull inspection reports from the Inspector General Evaluation Management System on a recurring basis to conduct trend analysis and continual evaluation IAW AFI 90-201, *The Air Force Inspection System*.

7.3.2. **AF/A9** will support reliability and resource decision analysis with advanced data analytics on AF NC3.

7.3.3. MAJCOMs, FOAs, DRUs, and their subordinates will participate in formalized AF NC3 System assessments and exercises IAW CJCSI 3264.01F and USSTRATCOM SI 513-3. (T-0)

7.3.4. AFGSC will:

7.3.4.1. Implement and maintain an AF Continuing Evaluation Program IAW USSTRATCOM Instruction SI 513-3. (T-0)

7.3.4.2. Establish and maintain an AN/USQ-225 operational reporting process IAW AFMAN 10-206, *Operational Reporting*, to identify, elevate, and resolve system problems. Conduct trend analyses to identify systemic issues.

7.3.4.3. Establish and maintain an AN/USQ-225 maintenance data-reporting tool to identify, elevate, and resolve maintenance problems. Conduct trend analyses to identify systemic issues.

7.3.4.4. Establish an assessment process to review performance metrics generated from CEP data, POLO HAT assessments, and operational and maintenance data reporting on a periodic basis. The process should develop and mature an AN/USQ-225 health dashboard, identify root causes, identify corrective measures, and track performance improvements through issue resolution.

7.3.5. **AFNWC/NC** , as Principal Integrator for AN/USQ-225 sustainment, modernization, and recapitalization, will:

7.3.5.1. Perform AN/USQ-225 acquisition and sustainment health assessments and integrate them into the Nuclear Weapon System Enterprise Review.

7.3.5.2. Assess health of processes, procedures, and practices of program offices using standardized tools such as Logistics Health Assessment and Systems Engineering Assessment Model.

7.3.5.3. Support AFGSC through the development of AF NC3 metrics collection tools, development of tools to support an AN/USQ-225 health dashboard, and the provision of technical expertise for root cause analysis and issue resolution.

7.3.6. NC3 supporting MAJCOMs will:

7.3.6.1. Establish a command NC3 assessment lead to coordinate MAJCOM participation in, and issue resolution resulting from assessment programs to include POLO HAT and CEP.

7.3.6.2. Participate in cross-functional reviews of assessments to identify system deficiencies, tactics, techniques, and procedures.

7.3.6.3. Ensure participating units designate lead assessment agents for NC3 assessments.

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Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References:***

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Abbreviations and Acronyms

ACC—Air Combat Command

AETC—Air Education and Training Command

AFGSC—Air Force Global Strike Command

AF—Air Force

AFI—Air Force Instruction

AFIMSC—Air Force Installation and Mission Support Center

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFNC3C—Air Force Nuclear Command, Control, and Communications Center

AFNWC—Air Force Nuclear Weapons Center

AFPD—Air Force Policy Directive

AFPEO—Air Force Program Executive Office

AFRC—Air Force Reserve Command

AFSEC—Air Force Safety Center

AFSPC—Air Force Space Command

AMC—Air Mobility Command

ANG—Air National Guard

C2—Command and Control

C3—Command, Control, and Communications

C4—Command, Control, Communications, and Computers

CBRN—Chemical, Biological, Radiological, and Nuclear

CCB—Configuration Control Board

CCMD—Combatant Command

CEP—Continuing Evaluation Programs

CIO—Chief Information Officer

CJCS—Chairman of the Joint Chiefs of Staff

CJCSI—Chairman of the Joint Chiefs of Staff Instruction

CSAF—Chief of Staff of the Air Force

DISA—Defense Information Systems Agency

DoD—Department of Defense

DoDCIO—Department of Defense Chief Information Officer

DoDI—Department of Defense Instruction

DoDM—Department of Defense Manual

DRU—Direct Reporting Unit

EMP—Electromagnetic Pulse
EUCOM—European Command
FOA—Field Operating Agency
HAF—Headquarters Air Force
HAFMD—Headquarters Air Force Mission Directive
HM/HS—Hardness maintenance/hardness Surveillance
IAW—In Accordance With
JS—Joint Staff
MAJCOM—Major Command
NC2—Nuclear Command and Control
NC3—Nuclear Command, Control, and Communications
NDO—Nuclear Deterrence Operations
NLCC—National Leadership Command Capability
NMCS—National Military Command System
OPR—Office of Primary Responsibility
OSD—Office of the Secretary of Defense
PACAF—Pacific Air Forces
PEO—Program Executive Officer
PPD—Presidential Policy Directive
SAF—Secretary of the Air Force
SecAF—Secretary of the Air Force
SI—STRATCOM Instruction
U.S.—United States
USAFE—United States Air Forces in Europe
USSTRATCOM—United States Strategic Command
WS—Weapon System

Terms

AF Nuclear Mission—The Air Force nuclear mission consists of the people, organizations, processes, procedures, and systems conducting, executing, and supporting nuclear operations, and developing and implementing nuclear policy and guidance. Reference AFI 13-500 for a description of the major deliberative bodies of the Air Force Nuclear Governance Structure and a description of key nuclear mission functions. (AFPD 13-5)

AN/USQ—225 Configuration Baselines - Three Configuration Baselines define management of the AN/USQ-225: Operational, Implementation and Target. The Operational Baseline consists of

the systems and associated support equipment, end-items and commodities comprising the AN/USQ-225 currently fielded and in operational use. The Implementation Baseline consists of those Post-Milestone B acquisition programs that are developing replacements for systems, end-items and commodities in the Operational Baseline. The Target Baseline consists of those Pre-Milestone B programs identified to upgrade or replace NC3 systems, end-items or commodities that are not yet in execution.

AN/USQ-225 Configuration Element—The AF terminals, radios, direct ancillary communications devices and support equipment that reside on or within each NC3 platform or within each NC3 mission facility employed to execute nuclear command and control.

AN/USQ-225 External Dependency—Systems, end-items and commodities external but directly connected to one or more Air Force AN/USQ-225 Configuration Elements that are required to support the host platform or facility NC3 mission and are critical for system-of-systems integration.

Air Force AN/USQ—225 Mission Worthiness Certification - The verified and documented degree, to which the Air Force AN/USQ-225 operational configuration baseline, through the constituted Configuration Elements, can perform its mission with the confidence that capabilities, limitations, and risks are known, understood and deemed acceptable.

Architecture—A systematic approach that organizes and guides design, analysis, planning, and documentation activities. (AFI 17-140)

Configuration Management—Configuration Management is formalized change management of the system Technical Baseline, which includes a Functional Baseline, an Allocated Baseline, and a Product Baseline. (AFI 63-101 / 20-101)

Continuity of Operations—An internal effort within individual DoD Components to ensure uninterrupted, essential DoD Component functions across a wide range of potential emergencies, including localized acts of nature, accidents, and technological and/or attack related emergencies. (DoDD 3020.26)

Cybersecurity—Prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation. (AFI 17-130)

Decision Making—The set of C3 activities relating to the assessment, review, and consultation regarding consideration for use or movement of nuclear weapons or the execution of other nuclear control orders. (CJCSI 6811.01C)

Electromagnetic Pulse—The electromagnetic radiation from a nuclear explosion caused by Compton-recoil electrons and photoelectrons from photons scattered in the materials of the nuclear device or in a surrounding medium. The resulting electric and magnetic fields may couple with electrical or electronic systems to produce damaging current and voltage surges. Depending on the burst type, can cause power spikes ranging from several hundred volts per meter up to more than one million volts per meter. Can cause component or sub-system burnout or degradation and system upset. (DoDI 3150.09)

Force Direction—The set of C3 activities relating to the assignment, training, deployment, maintenance, and logistic support of nuclear forces and weapons before, during and after any crisis. (CJCSI 6811.01C)

Force Management—The set of C3 activities relating to the assignment, training, deployment, maintenance, and logistic support of nuclear forces and weapons before, during and after any crisis. (CJCSI 6811.01C)

National Leadership Command Capability (NLCC)—The combination of capabilities, to include; command, control, communications, computer, intelligence, surveillance, and reconnaissance systems, that provide national leadership (regardless of location and environment) with diverse, accurate, integrated, timely, and assured access to data, information, intelligence, communications, services, situational awareness, warnings, and indications from which planning, understanding, and decision-making activities can be initiated, executed, and monitored. (PPD-35)

National Military Command System (NMCS)—The NMCS provides senior leaders with assured access to a secure and collaborative information environment that enables situational awareness, course of action development, national-level decision-making, force execution, and monitoring across the range of military operations. (CJCSI 3230.01D)

Nuclear Command and Control (NC2)—The exercise of authority and direction by the President, as Commander-in-Chief of the U.S. Armed Forces, through established national command authority lines over nuclear weapons, nuclear weapon systems, and nuclear weapon operations of military forces. (PPD-35)

Nuclear Command and Control System (NCCS)—The Nuclear Command and Control System is the combination of capabilities necessary to ensure the authorized employment and termination of nuclear weapon operations under all threats and scenarios; to secure against the accidental, inadvertent, or unauthorized access to U.S. nuclear weapons; and to prevent the loss of control, theft, or unauthorized use of U.S. nuclear weapons. Collectively, these capabilities help ensure the effectiveness of the U.S. nuclear deterrent. (PPD-35)

Nuclear Command, Control, and Communications (NC3) System—The NC3 System is the means through which Presidential authority is exercised and operational command and control of nuclear operations is conducted. The NC3 System is part of the larger National Leadership Command Capability (NLCC), which encompasses the three broad mission areas of: (1) Presidential and senior leader communications; (2) NC3; and (3) continuity of operations and continuity of government communications. (PPD-35; see PPD for the full, classified definition)

Planning—The set of C3 activities relating to the development and modification of plans for employment of nuclear weapons and other operations in support of nuclear employment. (CJCSI 6811.01C)

Situation Monitoring—The set of C3 activities relating to the collection, maintenance, assessment, and dissemination of information on friendly forces; adversary forces and possible targets; emerging nuclear powers; and military, political, environmental, and other events. (CJCSI 6811.01C)