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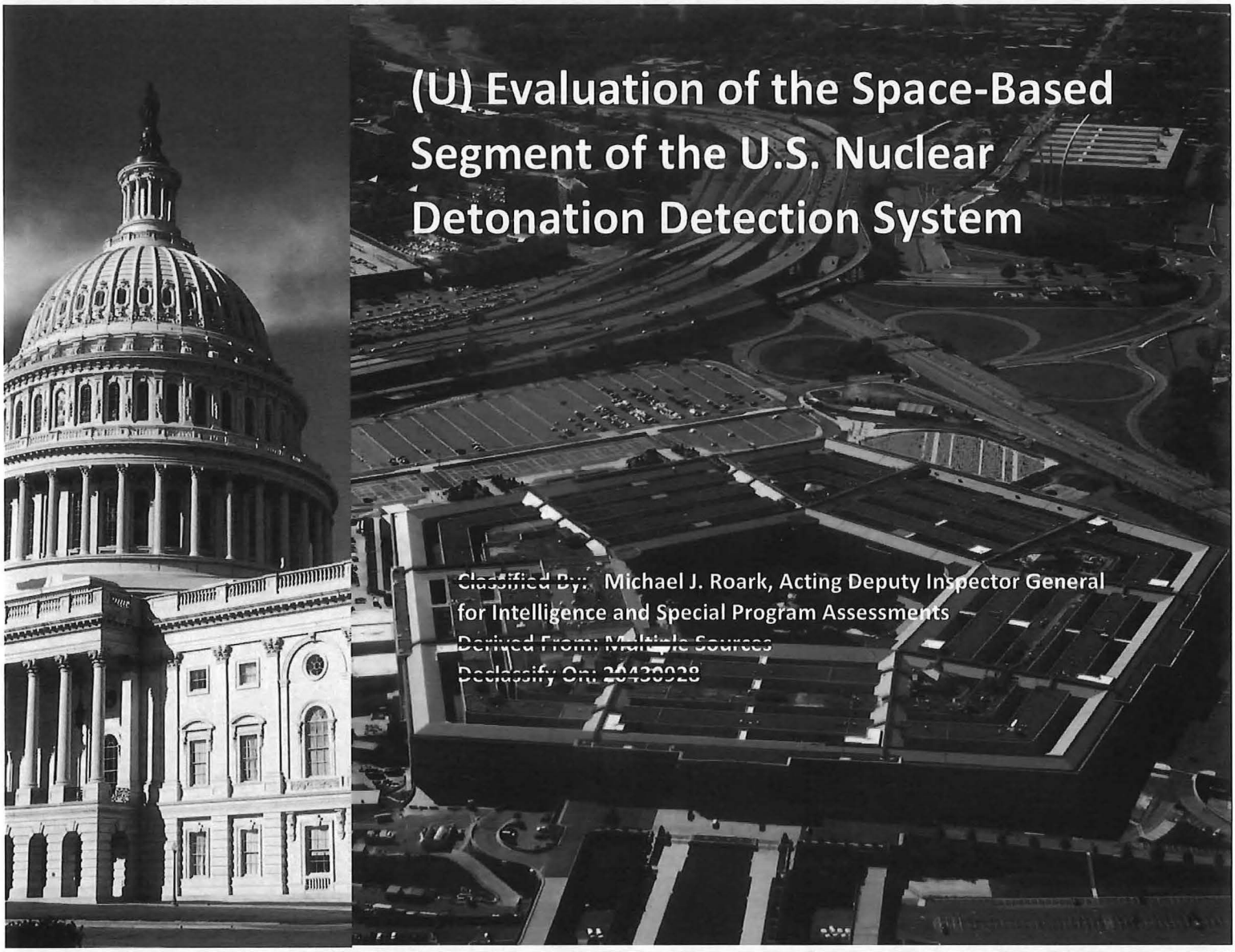
Report No. DODIG-2018-160

INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 28, 2018



(U) Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System

~~Classified By:~~ Michael J. Roark, Acting Deputy Inspector General for Intelligence and Special Program Assessments
~~Derived From: Multiple Sources~~
~~Declassify On: 20430928~~

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

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INSPECTOR GENERAL
INTEGRITY
EFFICIENCY
DEPARTMENT OF DEFENSE

(U) Results in Brief

(U) Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System

September 28, 2018

(U) Objective

(U) We determined whether the space-based segment of the U.S. Nuclear Detonation Detection System (USNDS) met DoD requirements to detect, identify, locate, characterize, and report nuclear detonations in the earth's atmosphere and in space.

(U) Background

~~(S)~~ The USNDS is a worldwide system of space-based sensors and ground processing equipment designed to detect, [redacted], locate, [redacted], and report nuclear detonations in the earth's atmosphere and in space. The USNDS space-based segment is [redacted] hosted on a combination of global positioning system (GPS) satellites, Defense Support Program (DSP) satellites, and other classified satellites. [redacted]

~~(S)~~ The Common Operational Requirements Document (ORD) AFSC 003-94 I, "Space-Based United States Nuclear Detonation Detection System," January 21, 2004, identifies five Key Performance Parameter (KPP) requirements: (1) probability of report, (2) location accuracy, (3) characterization data availability, (4) timeliness, and (5) interoperability. The ORD also identifies the requirements for USNDS survivability and endurability. Specifically, the USNDS [redacted]

Background (cont'd)

(U) The National Defense Authorization Act of 2008 stated that the "Secretary of Defense shall maintain the capability for space-based nuclear detection at a level that meets or exceeds the level of capability as of the date of the enactment of this act." [redacted]

~~(S)~~ In January 1997, the U.S. Air Force and DOE signed a memorandum of understanding that identified the Air Force [redacted] Additionally, the memorandum called for a USNDS management working group to coordinate [redacted]

(U) The Air Force outlined service roles and responsibilities in a Program Management Directive (PMD). The last issuance of the PMD was signed in 2004 and rescinded in 2013. Currently, there is no authoritative document that defines the roles and responsibilities for the USNDS.

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(U) Results in Brief

(U) Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System

Background (cont'd)

(U) In June 2017 a Principal DoD Space Advisor (PDSA) position was created to provide oversight of space systems like the USNDS. However, pursuant to the National Defense Authorization Act for FY 2018, the PDSA position was terminated. The duties, responsibilities, personnel, and resources of the PDSA's staff were transferred to the Deputy Secretary of Defense. No governance structure currently exists to collaborate and coordinate across the USNDS communities.

(U) Finding

(S) PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

(S) PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

(S) PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

(S) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

(S) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted] [1]

(U) Recommendation

(U) We recommend that the Deputy Secretary of Defense, in coordination with the appropriate interagency stakeholders:

- (U) Establish a USNDS governance structure to coordinate requirements and capabilities within the DoD and throughout the interagency. Once the new governance structure is in place, establish guidance to lead, manage, and operate the USNDS.
- (S) PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]
- (U) PER USSTRATCOM: (b) (1), 1.7(e) [redacted]

[1] PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

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(U) Results in Brief

(U) Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System

(U) Management Comments and Our Response

(U) The Deputy Secretary of Defense stated that in January 2017, his guidance, "Guidance for Increasing Lethality and Warfighting Readiness in Space," outlined the roles and responsibilities of organizations in the DoD. The Deputy Secretary added that the Air Force currently provides the most DoD resources for the USNDS mission, will continue to facilitate the development of future capabilities and funding strategies with other DoD and Agency stakeholders, and is in the best position to lead, manage, and operate USNDS. To ensure synchronization within the DoD and across the interagency, the Air Force will ensure the appropriate participation in governance with the Under Secretary of Defense (USD) for Acquisition and Sustainment, the USD for Policy, and the U.S. Strategic Command on changes to USNDS policies, procurement plans, and survivability requirements. The Deputy Secretary of Defense added that in the interim, he asked the Director, Cost Assessment and Program Evaluation to review programmatic options to address capability shortfalls.

(U) Although not required to comment, the Headquarters Air Force Space Command Director of Strategic Plans, Programs, Requirements, and Analysis also provided comments on the finding and recommendations. The comments are summarized in the report.

(U) Our Response

(U) Although the Deputy Secretary of Defense did not agree to establish a governance structure for the USNDS, he provided planned actions that met the intent of the recommendations. We consider the recommendation to establish a governance structure resolved, and will close this recommendation after reviewing meeting minutes of future Air Force forums that demonstrate interagency stakeholder participation and engagement in determining changes to USNDS policies, procurement plans, and survivability requirements.

~~(S)~~ We consider the recommendation [redacted] We will close this recommendation when the Director, Cost Assessment and Program Evaluation determines a programmatic option to ensure the USNDS [redacted] and the Air Force has implemented the selected option.

~~(S)~~ We consider the recommendation to identify [redacted] and will close this recommendation when the Director, Cost Assessment and Program Evaluation identifies [redacted] needed to accomplish the USNDS missions.

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(U) Recommendations Table

(U) Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
(U) Deputy Secretary of Defense	None	1.a, 1.b, and 1.c	None

NOTE: The following categories are used to describe agency management's comments to individual recommendations:

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

September 28, 2018

MEMORANDUM FOR DEPUTY SECRETARY OF DEFENSE

SUBJECT: (U) Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System (Report No. DODIG-2018-160)

(U) We are providing this report for information and use. We conducted this evaluation in accordance with the Council of the Inspectors General on Integrity and Efficiency Quality Standards for Inspection and Evaluation. We considered management comments on a draft of this report when preparing this final report. Comments from the Deputy Secretary of Defense conformed to the requirements of DoD Instruction 7650.03; therefore we do not require additional comments.

(U) We appreciate the courtesies extended to the staff. Please direct questions to the Project Manager, DoD OIG: (b) (6) [redacted]

Michael J. Roark
Acting Deputy Inspector General
for Intelligence and Special
Program Assessments

cc:
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
COMMANDER, U.S. STRATEGIC COMMAND
COMMANDER, U.S. NORTHERN COMMAND
COMMANDER, AIR FORCE SPACE COMMAND
COMMANDER, AIR COMBAT COMMAND
DEPARTMENT OF STATE
DEPARTMENT OF ENERGY
DEPARTMENT OF HOMELAND SECURITY
DEPARTMENT OF JUSTICE
OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE

(U) Contents

(U) Introduction

(U) Objective

(U) We determined whether the space-based segment of the U.S. Nuclear Detonation Detection System (USNDS) met DoD requirements. Specifically, we evaluated four USNDS Key Performance Parameters (KPPs) and survivability requirements.

(U) Background

~~(S)~~ The USNDS is a worldwide system of space-based sensors and ground processing equipment designed to detect, PER OSD/JS: (b) (1), 1.4(a), 1.4(g) locate, PER OSD/JS: (b) (1), 1.4(a), 1.4(g) and report nuclear detonations in the earth's atmosphere or in space. PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

(U) USNDS Space and Ground Segments

~~(S//NF)~~ The USNDS space-based segment includes a PER OSD/JS: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted] Data from these space-based sensors, PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g), are transmitted to the USNDS ground segment, PER OSD/JS, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted] The USNDS ground segment is operated by the Air Force Technical Applications Center's (AFTAC) Detachments 45 and 46, located at Buckley Air Force Base (AFB), Colorado, and Schriever AFB, Colorado, respectively. Operators at Detachments 45 and 46 are on duty 24 hours a day, 365 days a year, monitoring USNDS sensors through the Integrated Correlation and Display System (ICADS).

~~(S//NF)~~ PER OSD/JS: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted] Headquarters AFTAC at

~~(S//NF)~~ Patrick AFB, Florida, [redacted]

(U) USNDS Funding

~~(S//NF)~~ The USNDS has three sources of funding—the Air Force, the Department of Energy's National Nuclear Security Administration (NNSA), [redacted] [2] The Air Force funds the ground segment and integration of NNSA sensors on GPS host platforms. The NNSA funds research and development of all USNDS space-based sensors and also integration of NNSA's sensors on geostationary satellites. [redacted]

(U) Requirements

(U) We reviewed the following directives, instructions, and guidance to identify USNDS requirements.

~~(S)~~ Presidential Policy Directive (PPD) 33, "Detection and Early Warning of Nuclear Proliferation," August 27, 2016, [redacted]

~~(S)~~ PPD-35, "United States Nuclear Weapons Command and Control, Safety, and Security," December 8, 2015, [redacted]

[2] (U) [redacted]

(~~S~~) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6811.01C, "Nuclear Command and Control System Technical Performance Criteria," February 7, 2014, PER OSD, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

(U) DoD Directive 5100.96, "DoD Space Enterprise Governance and Principal DoD Space Advisor," June 9, 2017, designated the Secretary of the Air Force as the Principal DoD Space Advisor (PDSA). The role of the PDSA was established to strengthen the leadership of the DoD Space Enterprise by centralizing authorities and responsibilities in a single DoD official, who is empowered to unify the diffused and potentially competing voices of a broad range of stakeholders, and to provide a cohesive and unified space governance model. On January 17, 2018, pursuant to the National Defense Authorization Act for FY 2018, section 1601, the Deputy Secretary of Defense terminated the position and the office of the PDSA. In his memorandum, "Guidance for Increasing Lethality and Warfighting Readiness in Space," January 17, 2018, the Deputy Secretary of Defense assumed the duties, responsibilities, personnel, and resources of the PDSA.

(~~S~~) Common Operational Requirements Document, Air Force Space Command (AFSPC) 003-94 I, "Space-Based United States Nuclear Detonation Detection System," January 21, 2004, PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted] PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g); PER [redacted] PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted] Moreover, the nuclear detonation detection system must have the capability to detect, PER OSD/JS: (b) (1), 1.4(a), 1.4(g) [redacted] locate, and report nuclear detonations occurring worldwide in the atmosphere and in space. The document is used as the primary reference by the acquisition community to develop design specifications for the USNDS space and ground segments. The document also establishes requirements for the USNDS to be survivable and endurable.

(~~S~~) The Common Operational Requirements Document establishes Key Performance Parameters (KPPs) to ensure that the USNDS meets critical minimum requirements. The KPPs are defined as the performance attributes of a system considered critical or essential to the development of an effective military capability. We evaluated the following KPPs identified in the Common Operational Requirements Document.

- **~~(S)~~ Probability of report** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]
- **~~(S)~~ Location accuracy** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]
- **~~(S)~~ Characterization data availability** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]
- **~~(S)~~ Timeliness** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]
- **(U) Interoperability** is the ability to meet 100 percent of critical top-level Information Exchange Requirements and Global Information Grid requirements, as applicable. We did not evaluate this KPP because the vast amount of interoperability elements that were driven by external USNDS system interfaces.

(U) USNDS Mission Areas

(U) AFSPC 003-94 I and AFTAC Instruction 10-1201, "AFTAC Space-Based Nuclear Detonation Detection Operations," January 14, 2016, identify the five following USNDS mission areas.

- **(U) Integrated tactical warning and attack assessment (ITW/AA)** provides unambiguous, timely, accurate, and continuous assessment information of a nuclear attack. This information is provided to the President and other national authorities for assessment of attacks through all levels of conflict.

- **(U) Nuclear force management** provides worldwide NUDET data in near-real time in a post-nuclear attack environment to assist in damage assessment, strike assessment, residual capability assessment, force management, and force reconstitution.[3]
- ~~(S//NF)~~ PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g); PER OSD/JS, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted]
- **(U) Treaty monitoring** monitors countries that are signatories to nuclear arms control treaties for treaty violations. USNDS data distinguish possible nuclear events from non-nuclear events for national policymakers and the international community.
- **(U) Space control** provides situational awareness of high-altitude (30,000 to 50,000 kilometers) nuclear explosion impacts to national, DoD, civil, and commercial satellites.

~~(S)~~ AFSPC 003-094 I identifies the threshold requirements for each KPP in relation to PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

[3] ~~(S)~~ CJCSM 3500.04B, "Universal Task List," defines "Near real time" to be "within 5 seconds to 5 minutes of occurrence."

(U) Table. USNDS Key Performance Parameters (in Percentages)

PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g); PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

(U) Source: AFSPC 003-094 I, January 21, 2004.

~~(S)~~ PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

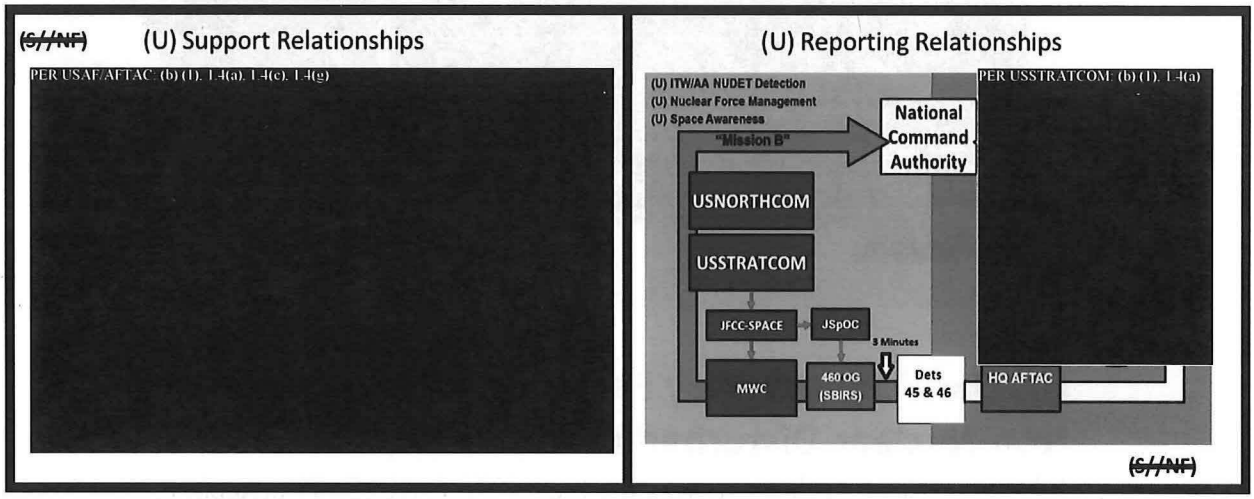
PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

(U) USNDS Stakeholders

~~(S)~~ The USNDS is a complex interagency program with reporting and supporting relationships that span the DoD; the Departments of Energy, PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g); PER USSTRATCOM: (b) (1), (see Figure 1). The USNDS is not solely a DoD-managed program; it is a joint DoD and NNSA program, with each Department funding and building separate pieces of the architecture. PER OSD/JS: (b) (1), 1.4(a), 1.4(g) Furthermore, two government national security laboratories build the sensors and ground processing equipment.

~~(S//NF)~~ PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted] Specifically, U.S. Strategic Command (USSTRATCOM) is the primary user for ITW/AA and nuclear force management data, PER USSTRATCOM: (b) (1), 1.4(a); PER OSD/JS, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted].

(U) Figure 1. USNDS Supporting and Reporting Relationships



(U) Source: Air Force Technical Applications Center.

(U) Methodology

(U) We interviewed 104 personnel from 14 organizations during this evaluation. We reviewed modeling and simulation data to determine whether the USNDS met the requirements for probability of report, location accuracy, and characterization of data. For the timeliness requirement, we interviewed representatives from AFTAC Detachments 45 and 46 and reviewed information on their evaluation program that tests the timeliness KPP. Finally, we compared survivability reports to technical performance standards to determine whether the USNDS met survivability requirements.

(U) Finding

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

(U) USNDS Meets Key Performance Requirements in a Non-Nuclear-Disturbed Environment

(U) We interviewed subject matter experts at the Air Force Technical Applications Center (AFTAC), Air Force Space Command (AFSPC), USSTRATCOM, and the National Nuclear Security Administration's Office of Defense Nuclear Nonproliferation. Subject matter expertise included satellite operations, nuclear weapons effects, war planning, and sensor development. These interviews focused on two key questions.

- (U) How do you determine whether the USNDS is meeting the KPPs?
- (U) How do you verify and validate your determination is accurate?

~~(S)~~ Subject matter experts at AFTAC stated that their organization and AFSPC used a modeling and simulation program to PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]. The program, called the Nuclear Detonation Detection System Modeling and Simulation (NDSMS), was

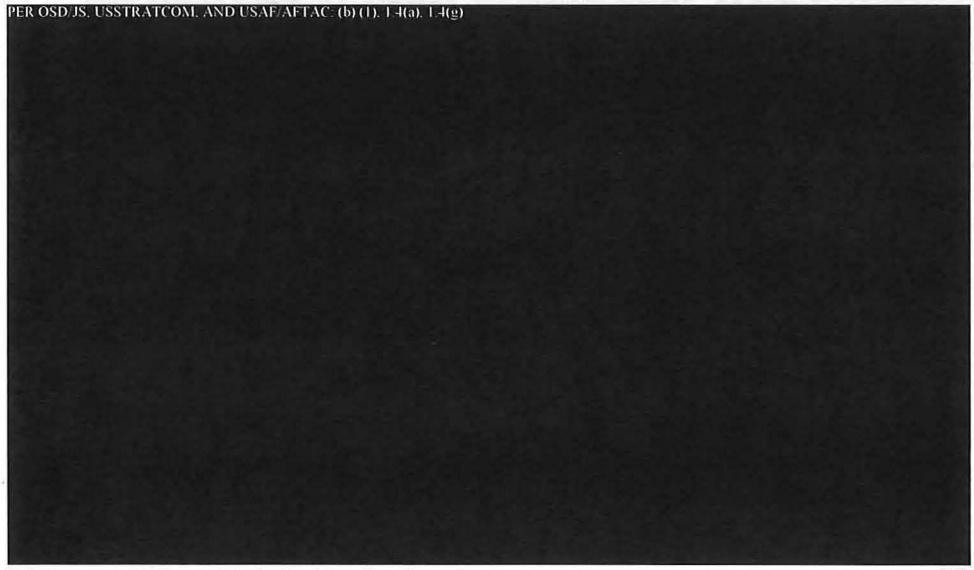
~~(S)~~ developed by Sandia National Laboratories.[4] The NDSMS [redacted]

(U) Probability of Report

~~(S)~~ [redacted]

(U) Figure 2. Probability of Report

~~(S)~~



(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) Legend
(U) ITW/AA – Integrated Tactical Warning and Attack Assessment
(U) P_r – Probability of Report

[4] (U) Sandia National Laboratories is a contractor that specializes in nuclear weapons and defense systems assessments for the U.S. Department of Energy's National Nuclear Security Administration.

(U) Location Accuracy and Characterization of Data

~~(S)~~ AFTAC personnel also provided reports on location accuracy and characterization of data KPPs. These location accuracy globes are produced by the NDSMS through data collected PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

(U) Figure 3. Location Accuracy

~~(S)~~

PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

[redacted]

(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) Legend

(U) ITW/AA – Integrated Tactical Warning and Attack Assessment

(U) LER – Low Event Rate

(U) NFM – Nuclear Force Management

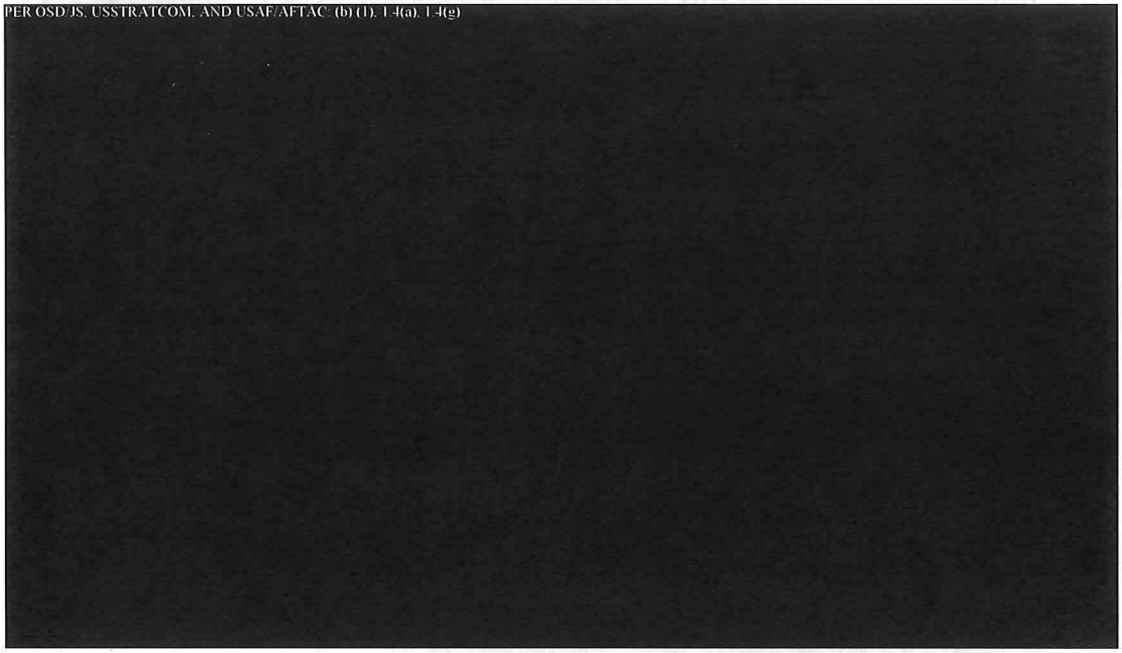
(U) CEP – Circular Error of Probability

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC (b) (1), 1.4(a), 1.4(g)

~~(S)~~ *Figure 4.* PER OSD/JS, USSTRATCOM, AND USAF/AFTAC (b) (1), 1.4(a), 1.4(g)

~~(S)~~

PER OSD/JS, USSTRATCOM, AND USAF/AFTAC (b) (1), 1.4(a), 1.4(g)



~~(S)~~

(U) Source: Air Force Space Command USNDS Resilience Capacity Report, July 2017

(U) Legend

(U) DSP – Defense Support Program (satellite)

(U) AH – Alternate Host (satellite)

~~(S)~~ To determine whether the NDSMS analyzes and reports the data correctly, Sandia National Laboratories and AFTAC personnel PER OSD/JS, USSTRATCOM, AND USAF/AFTAC (b) (1), 1.4(a), 1.4(g) Additionally, Sandia National Laboratories incorporated a program that included analysis, documentation, testing, and review for verification and validation purposes. This program encompassed the processes of both verifying that NDSMS software works as designed by the developer's conceptual description and specifications and validating that the design was correct to determine the degree to which the data provide an accurate

~~(S)~~ representation of the real-world uses of the model. We did not conduct a formal review of the program at Sandia National Laboratories; however, we reviewed NDSMS release notes and documentation to confirm that the verification and validation process was in place.

(U) Timeliness

~~(S)~~ USSTRATCOM representatives stated that there have been no atmospheric nuclear detonations or testing (evasive or otherwise) in more than 35 years. PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) PER OSD/JS, USSTRATCOM; (b) (1), 1.4(a), 1.4(g) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g)

~~(S)~~ AFTAC representatives stated that from time of detection, the Integrated Correlation and Display System (ICADS) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g)

~~(S)~~ Additionally, AFTAC personnel stated that PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) PER OSD/JS, USSTRATCOM; (b) (1), 1.4(a), 1.4(g) The evaluator would then analyze the operators' actions and report any findings or discrepancies through AFTAC's chain of command.

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g)

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g)

(~~S~~) [redacted].[5] PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted] [redacted].[6]

(U) The USSTRATCOM "Integrated Nuclear Survivability and Endurability Report (INSER)," January 30, 2015, identifies the status of sensors, systems, and facilities of the Nuclear Command and Control System that are subject to survivability or endurability standards in CJCSI 6811.01C.[7] The report evaluates and classifies NC3 systems and facilities in three categories.

- (U) Green. The system or facility is survivable against EMP or is certified survivable by U.S. Strategic Command.
- (U) Yellow. The system or facility is resistant to EMP and should be effective. Known weaknesses won't have significant operational impact.
- (U) Red. The system or facility is not expected to perform as intended after an EMP event. Major flaws in shielding or hardness exist."

(~~S~~) The INSER report classifies PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) USSTRATCOM representatives stated during interviews PER OSD/JS, USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted] Common Operational Requirements Document, Air Force Space Command (AFSPC) 003-94 I, "Space-Based United States Nuclear Detonation Detection System," January 21, 2004.

(~~S~~) The current USNDS satellite constellation PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

[5] (~~S~~) CJSCI 6811.01C defines PER OSD/JS: (b) (1), 1.4(a), 1.4(g) [redacted]

[6] (~~S~~) CJCSI 6811.01C defines PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g) [redacted]

[7] (U) This report is required by CJCSI 5119.01C, "Charter for the Centralized Direction, Management, Operation, and Technical Support of the Nuclear Command, Control and Communication System," December 14, 2007.

(~~S~~) PER OSD/JS, USSTRATCOM; (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) [redacted]

(~~S~~) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) [redacted]

(~~S~~) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) [redacted]

(~~S~~) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) [redacted]

(~~S~~) Subject matter experts at AFTAC and USSTRATCOM stated that PER OSD/JS, USSTRATCOM, AND USAF/AFTAC; (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, USSTRATCOM; (b) (1), 1.4(a), 1.4(g) [redacted]

[8] (U) The GPS control segment consists of a global network of ground facilities that track the GPS satellites, monitor their transmissions, perform analysis, and send commands and data to the satellites.

[9] (U) The navigational information, or ephemeris, are computerized tables that provide the coordinates of celestial bodies during specific times. This information is used to locate a satellite's exact position in conjunction with the location of a nuclear detonation.

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S//NF)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S)~~ According to subject matter experts at AFTAC and AFSPC, PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S)~~ Representatives from the Air Force, USSTRATCOM, and AFTAC PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted] PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S)~~ During our interviews and documentation reviews, we determined PER USSTRATCOM: (b) (1), 1.4(a), PER OSD/JS, AND USAF/AFTAC: (b) 1.4(a), 1.4(g) [redacted] In a memorandum to the USNDS community, AFTAC PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

~~(S)~~ We asked representatives from AFSPC, USSTRATCOM, and AFTAC whether the PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[10]

~~(S//NF)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

~~(S)~~ PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

[10] (U) Memorandum for the Under Secretary of Defense for Acquisitions, Technology, and Logistics, "Above Ground Nuclear Detonation (NUDET) Detection Requirements," April 27, 2010.

(U) No Clear USNDS Governance Structure

~~(S)~~ We determined that the Air Force did not have a clearly defined USNDS governance structure in place to coordinate with the DoD and the interagency. PER OSD/JS. AND USSTRATCOM: (b) (1). 1.4(a). 1.4(g) [redacted].

~~(S)~~ The USNDS has reporting and supporting relationships that span the Departments of Defense, Energy, PER OSD/JS. (b) (1). 1.4(a). 1.4(c). 1.4(g). PER USSTRATCOM: (b) (1). 1.4(a). 1.4(g) [redacted].[11] PER OSD/JS. AND USSTRATCOM: (b) (1). 1.4(a). 1.4(g) [redacted]

~~(S)~~ PER USSTRATCOM: (b) (1). 1.4(a). 1.4(g). PER OSD/JS. AND USAF/AFTAC: (b) (1). 1.4(a). 1.4(c). 1.4(g) [redacted]

~~(S)~~ We identified three separate organizations involved in the USNDS acquisition and sustainment process—the NNSA, AFTAC, and Air Force Space Command Space and Missile Center. PER USSTRATCOM: (b) (1). 1.4(a). PER OSD/JS. AND USAF/AFTAC: (b) (1). 1.4(a). 1.4(g) [redacted]

~~(S)~~ For example, even though the Joint Requirements Oversight Council supported PER OSD/JS. AND USSTRATCOM: (b) (1). 1.4(a). 1.4(g) [redacted] Through our interviews and review of documentation provided by the Air Force and

[11] ~~(S//NF)~~ PER OSD/JS. (b) (1). 1.4(a). 1.4(g). PER USSTRATCOM: (b) (1). 1.4(a) [redacted]

~~(S)~~ USSTRATCOM, PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[redacted]

12 PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[redacted]

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

[redacted]

PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[redacted]

PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[redacted]

~~(S)~~ PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

[redacted]

PER OSD/JS, NSC, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

~~(S)~~ Two overarching documents outline USNDS funding and management responsibilities for the Departments of Defense and Energy.

- (U) Memorandum of Understanding (MOU) Number 95F142, "Memorandum of Understanding Between the United States Air Force and the Department of Energy Concerning the United States Nuclear Detonation (NUDET) Detection System," January 8, 1997.

- (U) Air Force Program Management Directive (PMD) 6112, "United States Nuclear Detonation Detection System," August 5, 2004.

[12] (U) Memorandum for the Under Secretary of Defense for Acquisitions, Technology, and Logistics, "Above Ground Nuclear Detonation (NUDET) Detection Requirements," April 27, 2010.

(U) The purpose of the MOU was to affirm the continuation of long-term arrangements between elements of the Air Force and the Department of Energy for USNDS research and development, acquisition, integration, deployment, operations, and logistical support. We identified two concerns with the MOU. First, the memorandum directs the Air Force to develop detailed plans to execute the activities described in the MOU. During our interviews, the Air Force could not provide any plans that implemented the MOU. Second, the MOU directs an interagency USNDS Management Working Group to coordinate interagency planning and direction efforts. Our interviews revealed that 2006 was the last time a senior-level interagency management meeting was held on the USNDS. Furthermore, the USNDS Management Working Group directed in the MOU does not include the other necessary stakeholders, such as the Department of State and representatives from the Intelligence Community.

(U) We also identified two problems with PMD-6112. First, PMDs are no longer enforceable. The Air Force rescinded the requirement for PMDs in 2013.[13] The purpose of a PMD, as stated in the April 2009 version of Air Force Instruction 63-101, was to "convey the guidance and direction of the decision authority and [identify] various organizations along with their essential responsibility for ensuring the success of a program or effort." Second, based on our interviews with the Secretary of the Air Force Directorate of Space Programs, we determined that the Air Force did not identify any new instrument to replace PMDs. Because the PMD was no longer enforceable, funding responsibilities were not clear for USNDS stakeholders.

(U) On June 9, 2017, the Deputy Secretary of Defense established the position of the Principal DoD Space Advisor (PDSA). Codified in DoD Directive 5100.96, "DoD Space Enterprise Governance and Principal DoD Space Advisor," June 9, 2017, the Deputy Secretary of Defense designates the Secretary of the Air Force as the PDSA to strengthen the leadership of the DoD space enterprise by centralizing authorities and responsibilities in a single DoD official. DoD Directive 5100.96 defined the DoD Space Enterprise as all defense-related and national security space assets within the DoD and across the U.S. Government.

(U) The PDSA was the primary space advisor to senior DoD officials, including the Secretary and Deputy Secretary of Defense, the Chairman and Vice Chairman of the Joint Chiefs of Staff, the Deputy's Management Action Group, the Joint Requirements Oversight Council, and the Defense Acquisition Board. DoD Directive 5100.96 directed the PDSA to oversee all DoD space matters, including policies, strategies, plans, programming, and architecture assessments across the DoD Space Enterprise.

[13] (U) Air Force Instruction 63-101, "Acquisition and Life Cycle Sustainment," 2013.

(U) On January 17, 2018, pursuant to the National Defense Authorization Act for FY 2018, section 1601, the Deputy Secretary of Defense terminated the position and the office of the PDSA. In the memorandum, "Guidance for Increasing Lethality and Warfighting Readiness in Space," January 17, 2018, the Deputy Secretary of Defense assumed the duties, responsibilities, personnel, and resources of the PDSA.

(U) Conclusion

~~(S)~~ We determined that during a non–nuclear-disturbed environment, the U.S. Nuclear Detonation Detection System (USNDS) met the requirements we evaluated. [redacted]

PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

[redacted]

~~(S)~~ PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g)

[redacted]

(U) In addition, there is no organization designated to ensure that USNDS requirements and capabilities are planned, resourced, sustained, or modernized as an integrated program of record in the DoD or interagency. The lack of an established and empowered governance body contribute to the risk of potential mission failure we identified. Additionally, an Air Force Program Management Directive assigning departmental roles and responsibilities expired and was not replaced.

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation 1

(U) We recommend that the Deputy Secretary of Defense, in coordination with the appropriate interagency stakeholders:

a. (U) Establish a USNDS governance structure to coordinate requirements and capabilities within the DoD and throughout the interagency. Once the new governance structure is in place, establish guidance to lead, manage, and operate the USNDS.

b. (~~S~~) PER OSD/JS, USSTRATCOM, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(g) [redacted]

c. (U) PER USSTRATCOM: (b) (1), 1.7(e) [redacted]

(U) Deputy Secretary of Defense Comments

(U) The Deputy Secretary of Defense stated that in January 2017, his guidance, "Guidance for Increasing Lethality and Warfighting Readiness in Space," outlined the roles and responsibilities of organizations in the DoD. The Deputy Secretary added that the Air Force currently provides the most DoD resources for the USNDS mission, will continue to facilitate development of future capabilities and funding strategies with other DoD and Agency stakeholders, and is in the best position to lead, manage, and operate USNDS. To ensure synchronization within the DoD and across the interagency, the Air Force will ensure the appropriate participation in governance with the Under Secretary of Defense (USD) for Acquisition and Sustainment, the USD for Policy, and the U.S. Strategic Command on changes to USNDS policies, procurement plans, and survivability requirements. The Deputy Secretary of Defense (U) added that in the interim, he asked the Director, Cost Assessment and Program Evaluation to review programmatic options to address capability shortfalls.

(U) Our Response

(U) Although the Deputy Secretary of Defense did not agree to establish a governance structure for the USNDS, he provided planned actions that met the intent of the recommendation to ensure synchronization within the Department and across the interagency. We consider Recommendation 1.a resolved, and will close this recommendation after reviewing meeting minutes of future Air Force forums that demonstrate interagency stakeholder participation and engagement in determining changes to USNDS policies, procurement plans, and survivability requirements.

~~(S)~~ We consider Recommendation 1.b resolved, and will close this recommendation when the Director, Cost Assessment and Program Evaluation determines a [redacted]

~~(S)~~ We consider Recommendation 1.c resolved, and will close this recommendation when the Director, Cost Assessment and Program Evaluation [redacted]

(U) Headquarters Air Force Space Command Comments

(U) Although not required to comment, the Headquarters Air Force Space Command, Director of Strategic Plans, Programs, Requirements, and Analysis provided comments on the report and recommendations.

~~(S)~~ The Director of Strategic Plans, Programs, Requirements, and Analysis (hereinafter the Director) stated that many of Air Force Space Command's concerns regarding the draft of this report focused on the report findings and conclusions related to the [redacted]

(U) The Director stated that the Joint Capabilities Integration and Development System is the clear governance structure in place to provide oversight on USNDS. The Director added that the USNDS, an interagency program, lacks a forcing function to resolve funding responsibility disagreements.

~~(S)~~ [redacted]

(U) Our Response

~~(S//NF)~~ [redacted]

(U) We disagree that the Joint Capabilities Integration and Development System is a governance structure. The Joint Capabilities Integration and Development System is the formal DoD process to identify joint military capability requirements. The lack of agreement, oversight, and a forcing function are reasons why we are recommending a governance structure.

(U) We acknowledge the Director's comments that there [redacted] However, we decline to change the wording of the recommendation, as Air Force Program Action Directive 16-01, "Centralized Management of the Nuclear Enterprise," August 2, 2016, defines [redacted]

(U) Appendix A

(U) Scope and Methodology

(U) We conducted this evaluation from January 2017 through August 2017 in accordance with the Council of the Inspectors General on Integrity and Efficiency Quality Standards for Inspection and Evaluation. These standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objective.

(U) We interviewed 104 personnel from 14 different organizations at the following locations.

- (U) Joint Staff J3 and J6 – Pentagon, Arlington, Virginia
- (U) Department of Defense Chief Information Officer – Pentagon, Arlington, Virginia
- (U) Under Secretary of Defense for Acquisition, Technology, and Logistics – Pentagon, Arlington, Virginia
- (U) The Office of Cost Assessment and Program Evaluation – Pentagon, Arlington, Virginia
- (U) Office of the Secretary of the Air Force – Pentagon, Arlington, Virginia
- (U) The Office of the Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration (AF/A10) – Joint Base Anacostia–Bolling, Washington D.C.
- (U) U.S. Strategic Command – Offutt Air Force Base (AFB), Nebraska
- (U) U.S. Northern Command – Peterson AFB, Colorado
- (U) Air Force Technical Applications Center (AFTAC) – Patrick AFB, Florida
- (U) AFTAC Detachment 45 – Buckley AFB, Colorado
- (U) AFTAC Detachment 46 – Schriever AFB, Colorado
- (U) Air Force Space Command – Peterson AFB, Colorado

- (U) 233rd Space Group – Greeley Air National Guard Base, Colorado
- (U) Air Force Space and Missile Center – Los Angeles AFB, California
- (U) U.S. Department of Energy, National Nuclear Security Administration – Washington D.C.

(U) We reviewed the following criteria during this evaluation.

- (U) Presidential Policy Directive (PPD) 33, "Detection and Early Warning of Nuclear Proliferation," August 27, 2016
- (U) PPD-35, "United States Nuclear Weapons Command and Control, Safety, and Security," December 8, 2015
- (U) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6811.01C, "Nuclear Command and Control System Technical Performance Criteria," February 7, 2014
- (U) CJCSI 3222.01B, "Requirements for High Altitude Electromagnetic Pulse Protection of Nuclear C3 Nodes and Systems," May 1, 2013
- (U) CJCSI 6210.02C, "Information and Operational Architecture of the Integrated Tactical Warning and Attack Assessment System," November 15, 2013
- ~~(S//NF)~~ [redacted] PER USSTRATCOM: (b) (1), 1.4(a), 1.4(c). PER OSD/JS, AND USAF/AFTAC: (b) (1), 1.4(a), 1.4(c), 1.4(g) [redacted]
- (U) Common Operational Requirements Document, Air Force Space Command 003-94 I, "Space Based United States Nuclear Detonation Detection System," January 21, 2004
- (U) U.S. Strategic Command Instruction (SI) 534-16, "Operations, Planning, and Command and Control: Missile Warning and Nuclear Detonation Detection Operations," September 26, 2011
- (U) Air Force Space Command Instruction 10-1204, "Satellite Operations," May 15, 2014

- (U) Air Force Technical Applications Center Instruction "USAEDS Event Processing and Reporting Procedures," Interim Change 1, June 28, 2013
- (U) Air Force Technical Applications Center Instruction "AFTAC Space-Based Nuclear Detonation Detection Operations," January 14, 2016

(U) Use of Computer-Processed Data

(U) We used computer-processed data to perform this evaluation. We reviewed functional analysis charts from the Nuclear Detonation Detection System Modeling and Simulation system developed by Sandia National Laboratories. We did not evaluate system reliability, but we verified that Sandia National Laboratories and AFTAC personnel [redacted]. Additionally, we reviewed Nuclear Detonation Detection System Modeling and Simulation release notes and documentation to confirm the verification and validation process is in place. Although we completed these steps, the reliability of computer-processed data could not be determined.

(U) Prior Coverage

(U) No prior coverage has been conducted on the Space-Based Segment of the U.S. Nuclear Detonation Detection System during the last five years.

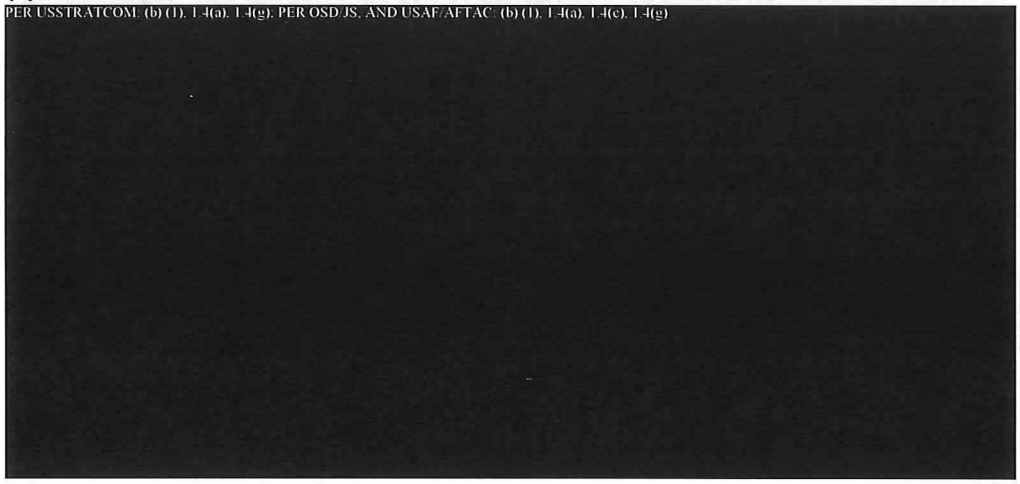
(U) Appendix B

(U) Functional Analysis Charts and Globe Charts

(U) The Air Force Technical Applications Center (AFTAC) provided the following functional analysis charts that show the probability of report from July 2008 through January 2017. The green area in the following plots represents the KPP threshold for each USNDS mission.

(U) Figure 5. Probability of Report

~~(S)~~



(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) **Legend**

(U) PER USSTRATCOM: (b) (1), 1.7(e)

~~(S)~~ Key Point from Figure 6. PER USSTRATCOM: (b) (1). 1.4(a). 1.4(g); PER OSD/JS. AND USAF/AFTAC: (b) (1). 1.4(a). 1.4(c). 1.4(g) [redacted]

(U) Figure 6. Probability of Report

~~(S)~~

PER USSTRATCOM: (b) (1). 1.4(a). 1.4(g); PER OSD/JS. AND USAF/AFTAC: (b) (1). 1.4(a). 1.4(c). 1.4(g) [redacted]

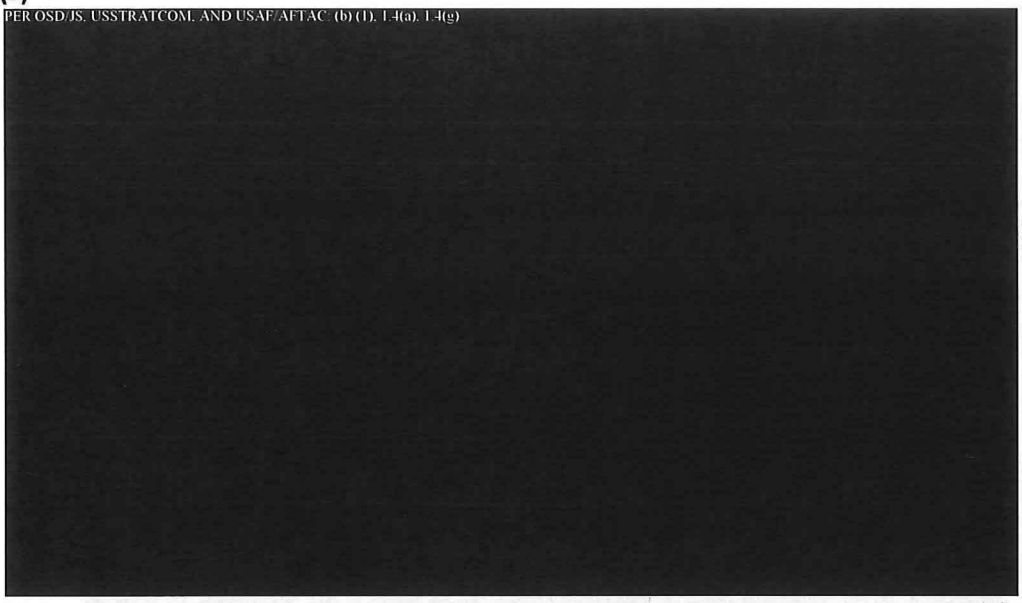
(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) **Legend**

(U) PER USSTRATCOM: (b) (1). 1.7(e) [redacted]

(U) Figure 7. Probability of Report

~~(S)~~



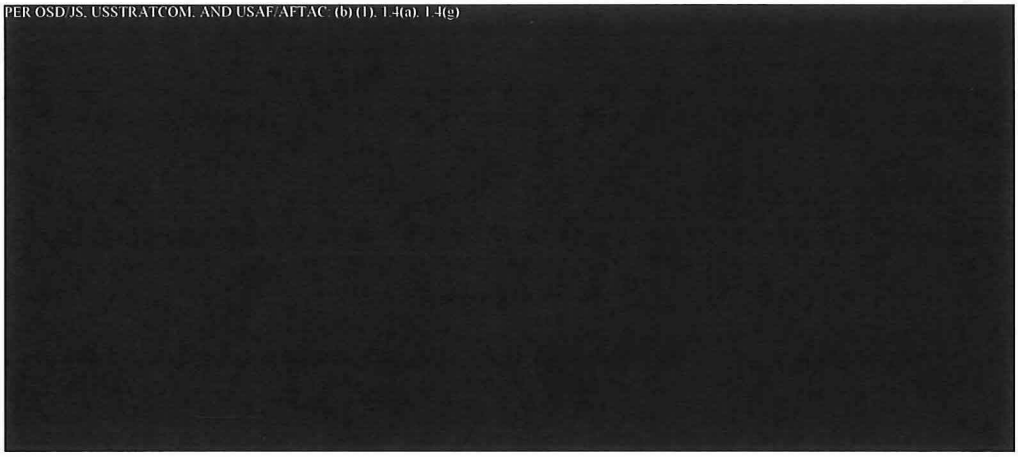
(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) Legend

(U) ITW/AA – Integrated Tactical Warning and Attack Assessment

(U) Figure 8. Probability of Report

~~(S)~~



(U) Source: Air Force Technical Applications Center. ~~(S)~~

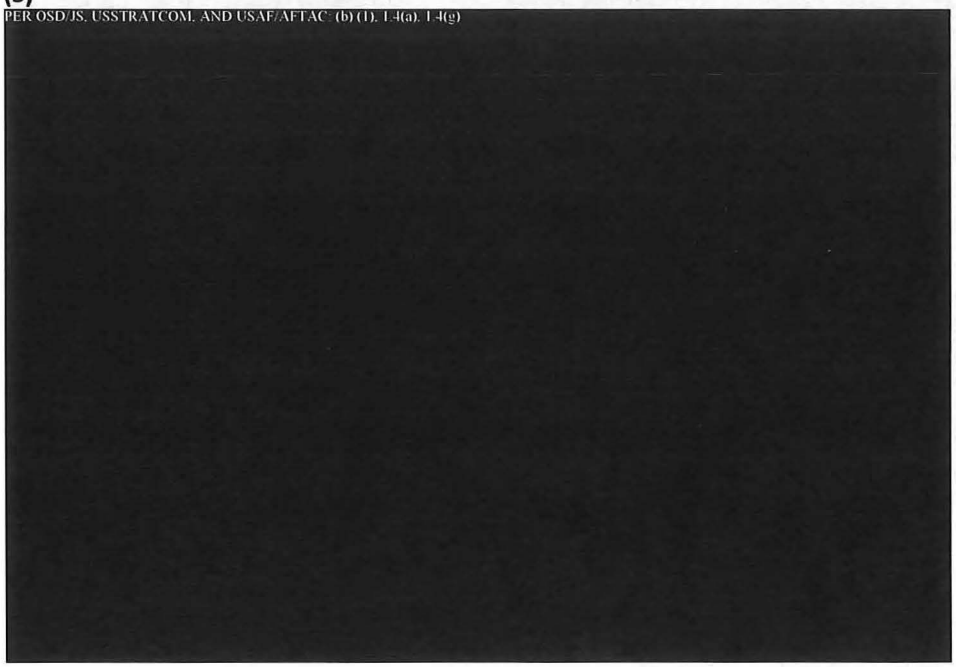
(U) Legend

(U) NFM – Nuclear Force Management

(U) AFTAC provided the following globe charts, which show the location accuracy for the ITW/AA and nuclear force management mission area.

(U) Figure 9. Location Accuracy

~~(S)~~



(U) Source: Air Force Technical Applications Center. ~~(S)~~

(U) Legend

(U) ITW/AA – Integrated Tactical Warning and Attack Assessment

(U) LER – Low Event Rate

(U) NFM – Nuclear Force Management

(U) CEP – Circular Error of Probability

(U) Management Comments

(U) Deputy Secretary of Defense

~~SECRET~~

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

SEP 1 8 2018

MEMORANDUM FOR INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE

SUBJECT: (U) Draft Report on U.S. Nuclear Detonation Detection System

(U) Please consider the following comments on draft report, "Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System."

~~(S)~~ The report concludes that space-based U.S. Nuclear Detonation Detection System (USNDS) PER OSD JS: (b) (1), 1.4(a), 1.4(g) [redacted] The report also contained some specific recommendations/findings on future USNDS operational capabilities. The main DoD Inspector General recommendation was to establish a space-based USNDS governance structure to coordinate those requirements and capabilities within the DoD and between all concerned U.S. Government Agencies.

(U) In January 2017, I signed out "Guidance for Increasing Lethality and Warfighting Readiness in Space," which outlines the roles and responsibilities of organizations in the Department.

(U) The Air Force currently provides the most DoD resources for the USNDS mission, will continue to facilitate development of future capabilities and funding strategies with other Department/Agency stakeholders, and is in the best position to lead, manage, and operate USNDS. To ensure synchronization within the Department and across the interagency, the Air Force will ensure the appropriate participation in governance with the Under Secretary of Defense (USD) for Acquisition and Sustainment, the USD for Policy, and the U.S. Strategic Command on changes to USNDS policies, procurement plans, and survivability requirements.

(U) In the event that space organizational structures change pursuant to the President's recent proposal for a Space Force, the governance structures will change accordingly.

~~(S)~~ In the interim, I have asked the Director, Cost Assessment and Program Evaluation to review programmatic options to address capability shortfalls.

Patrick M. Shanahan

~~Classified By:~~ DoD OIG: (b) (6)
~~Derived From: Multiple Sources~~
~~Declassify On: October 9, 2043~~

OSD070695-18/CMD072102-18

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(U) Headquarters Air Force Space Command

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UNCLASS when separated from attachment
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPACE COMMAND

23 MAY 18

MEMORANDUM FOR DoD Inspector General (Attn: [redacted])

FROM: AFSPC/A5/8/9
150 Vandenberg Street, Suite 1105
Peterson AFB CO 80914-4500

SUBJECT: DoD IG Draft Report "Evaluation of the Space-Based Segment of the U.S. Nuclear Detonation Detection System (Project No. D2017-DISPA1-0056.000)

1. (U) Thank you for the opportunity to review the subject draft dated 3 May 2018. We have 19 comments total (9 critical, 8 substantive, 2 administrative) attached for your consideration. As a result of the critical comments, we non-concur on the draft report. Many of our concerns were focused on the report findings and conclusions related to the [redacted] capability and proposed new governance structure.

2. (U) My POC is [redacted]

JOHN E. SHAW
Brigadier General, USAF
Director of Strategic Plans, Programs,
Requirements and Analysis

Attachment:
(U) AFSPC CRM for Draft 3 May 18 DoD IG USNDS Report, 15 May 18 ~~(S//NF)~~

cc:
AFSPC/A2/3/6
SMC/GP/GPG
SAF/AQS/SPA
AF/A10/A3O
ACC/A5/8/9
AFTAC/CC
AFGSC/A5/8/9
USSTRATCOM/J8/J3/J2
NNSA/NA-22
AFAA

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GUARDIANS OF THE HIGH FRONTIER

(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
1.	1	[redacted]	A	i			Administrative: (U) Change page number in lower right from i to I.	(U) Roman numerals used for numbering this section.	A
2.	2	[redacted]	A	i	5	last	Administrative: (U) Change sentence to read "The group last met in 2014."	(U) DoD OIG: (b) (5) [redacted]	A
3.	3	[redacted]	C	II	3		Critical: PER OSD JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted] Change Findings para 2 to read: PER OSD JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted]	PER OSD JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted]	R

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Page 1 of 11

(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
							PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R
4.	4	[redacted]	C	II			Critical: PER OSD/JS: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		R
5.	5	[redacted]	S	II			Substantive: Change 2nd sub-bullet under Recommendation to read: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		R

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Page 2 of 11

(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
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6.	6	[redacted]	S	4			**Substantive:** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R
7.	1	[redacted]	C	8	1		**Critical:** PER USSTRATCOM: (b) (1), 1.7(e); DoD OIG: (b) (5) **First finding should be reworded to** PER USSTRATCOM: (b) (1), 1.7(e); DoD OIG: (b) (5) **(U) 1 of 2 comments:**	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R

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Page 3 of 11

(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
								PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
								PER OSD/JS: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
8.	2	[redacted]	C	8			Critical: First finding should be reworded to [redacted] PER USSTRATCOM: (b) (1), 1.7(e); DoD OIG: (b) (5) (U) 2 of 2 comments [redacted] PER USSTRATCOM: (b) (1), 1.7(e); DoD OIG: (b) (5)	PER OSD/JS: (b) (1), 1.4(a), 1.4(c), 1.4(g); PER USSTRATCOM: (b) (1), 1.4(a); DoD OIG: (b) (5)	R

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
								PER OSD/JS: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
9.	7	[redacted]	C	8	1		Critical: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R
10.	1	[redacted]	S	14	1st on page	Final line of para	Substantive: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		A

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(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
								PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
11.	3	[redacted]	C	15			Critical: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted] DoD OIG: (b) (5) [redacted]		R

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(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
								PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
12.	8	[redacted]	C	15	2	5	Critical: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		R

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(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
							this year."	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	
13.	2	[redacted]	S	15	1st on page	4th sentence in para	**Substantive:** PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		R
14.	9	[redacted]	S	15	4		**Substantive:** PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)		R

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(U) Headquarters Air Force Space Command (cont'd)

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
15.	4	[redacted]	C	17	2		Critical: PER USSTRATCOM: (b) (1), 1.4(a); DoD OIG: (b) (5) [redacted]	PER USSTRATCOM: (b) (1), 1.4(a); DoD OIG: (b) (5) [redacted]	R
16.	10	[redacted]	S	18	4	2, 5	Substantive: DoD OIG: (b) (5) [redacted]	(U) Both AFSPC and AFTAC have ground funding responsibilities. AFSPC budgets for 100% GNT/UGNT. AFTAC budgets for 100% off-line processing at AFTAC HQ. Both organizations currently involved in budgeting for ICADS --- AFTAC for SABRS related processing and select other costs; AFSPC for much of the rest.	R
17.	11	[redacted]	C	21	2		Critical: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted]	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5) [redacted]	

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CRM for Draft 3 May 18 DoD IG USNDS Report

ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
		[redacted]					PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R
18.	5	[redacted]	S	22			**Substantive:** **Recommendation 1 might be scaled back considerably.**	DoD OIG: (b) (5)	R

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ITEM	#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	DECISION
19.	12	[redacted]	S	22			Substantive: PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	PER OSD/JS, AND USSTRATCOM: (b) (1), 1.4(a), 1.4(g); DoD OIG: (b) (5)	R

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(U) Acronyms and Abbreviations

AFB	Air Force Base
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
DSP	Defense Support Program
EMP	Electromagnetic Pulse
GPS	Global Positioning System
ICADS	Integrated Correlation and Display System
ITW/AA	Integrated Tactical Warning and Attack Assessment
KPP	Key Performance Parameter
MOU	Memorandum of Understanding
NC3	Nuclear Command, Control, and Communications
NDSMS	Nuclear Detonation Detection System Modeling and Simulation
NNSA	National Nuclear Security Administration
NUDET	Nuclear Detonation
PDSA	Principal DoD Space Advisor
PMD	Program Management Directive
SABRS	Space and Atmospheric Burst Reporting System
USNDS	U.S. Nuclear Detonation Detection System
USSTRATCOM	U.S. Strategic Command

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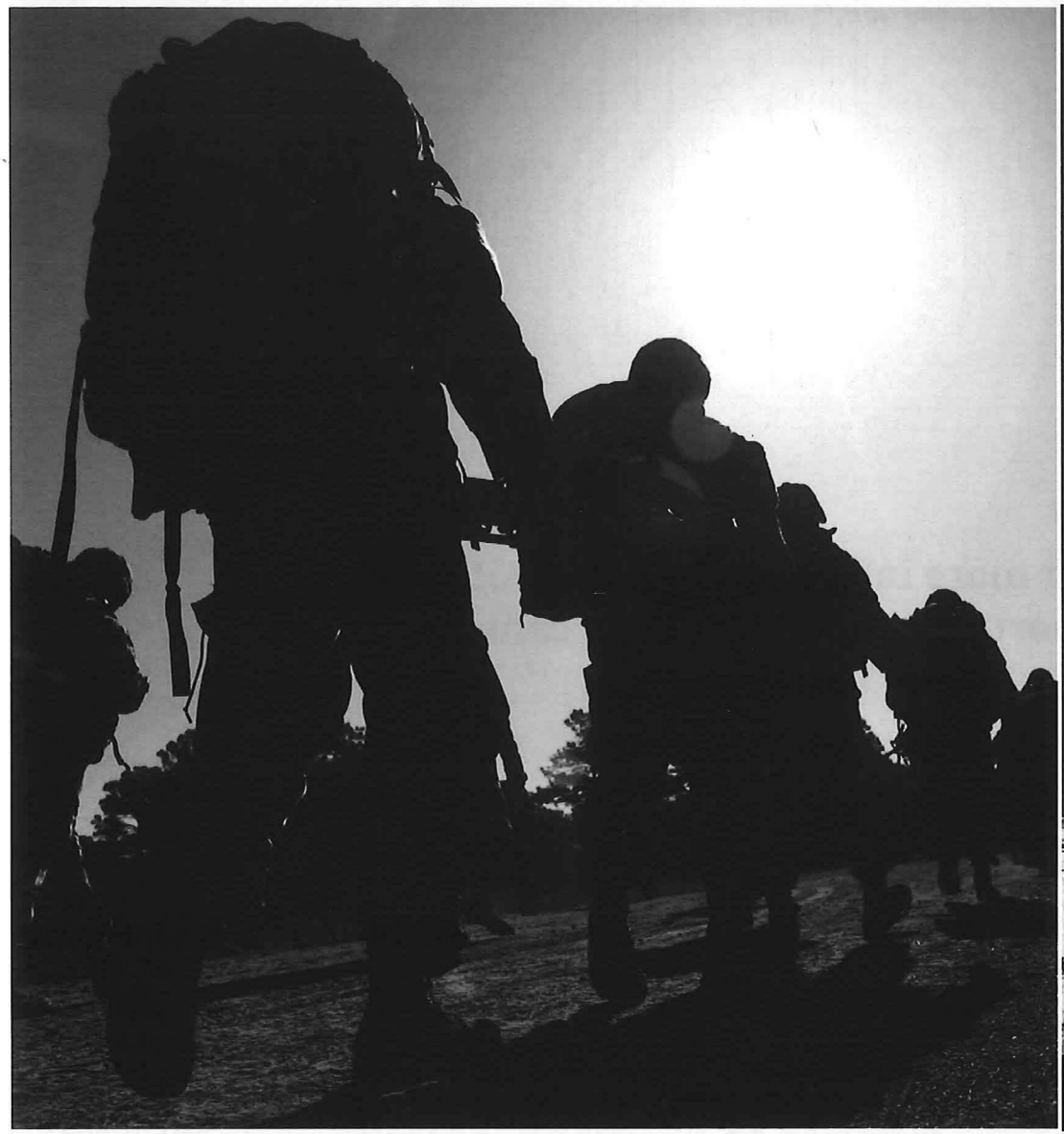

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