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Headquarters U.S. Air Force

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AIR FORCE BLUE RIBBON REVIEW OF NUCLEAR WEAPONS POLICIES AND PROCEDURES

Major General Polly A. Peyer
Chair

8 February 2008

Air Force Blue Ribbon Review of Nuclear Weapons Policies and Procedures

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Foreword

Nuclear weapons remain an integral part of the United States' national security posture. As the Chief of Staff of the Air Force (CSAF), General T. Michael Moseley, noted in his recent White Paper (dated 29 December 2007), the US nuclear arsenal "continues to serve as the ultimate backstop of our security, dissuading opponents and reassuring allies through extended deterrence." The United States Air Force (USAF), in fact, provides the majority of the nation's nuclear weapon capability. It operates, maintains, secures, and supports a variety of nuclear-capable systems, including intercontinental ballistic missiles and manned bombers.

In his 9 October 2007 memorandum, the CSAF commissioned a Blue Ribbon Review (BRR) on nuclear weapons policies and procedures. The BRR gives the USAF an opportunity to improve the nuclear enterprise. Specifically, the CSAF tasked the BRR to examine organizational structure; command authorities and responsibilities; personnel and assignment policies; and education and training associated with the operation, maintenance, storage, handling, transportation, and security of USAF nuclear weapons systems.

In many ways, the challenge to sustain the excellence of our nuclear forces is greater today than ever. The operational demands of the Global War on Terrorism coupled with the costs of fielding modern forces across the Department of Defense continue to challenge our nuclear enterprise. The need to appropriately establish priorities and balance resources has never been more difficult. Yet, the USAF has the responsibility to ensure the nuclear weapons in its custody are safe and secure. The nation relies on the USAF, and the USAF in turn relies on its Airmen to uncompromisingly fulfill this sacred trust.

This report addresses several important aspects of the USAF's ability to organize, train, and equip its nuclear-capable systems. It draws upon numerous independent studies on the nuclear weapons enterprise, as well as visits to 54 different organizations at 29 separate locations (both within the Air Force and in other services and agencies), and interviews with 822 people. The report makes 36 specific recommendations intended to ensure that the nuclear weapons systems entrusted to the Air Force remain safe, secure, and reliable. The scope and scale of these recommendations range from those which can be quickly accomplished to those which are more complex and require more time and resources to implement.

POLLY A. PEYER, Major General, USAF
Chair, USAF Blue Ribbon Review
Nuclear Weapons Policies and Procedures

1.0 Executive Summary

On 9 October 2007, the Chief of Staff of the Air Force (CSAF) appointed Major General Polly A. Peyer to chair an Air Force blue ribbon review (BRR) of nuclear weapons policies and procedures. On 19 October 2007, the Secretary of the Air Force (SECAF) announced the formation of the BRR in a press conference. The CSAF tasked the review to take an enterprise-wide look at United States Air Force (USAF) nuclear responsibilities. Specifically, the CSAF highlighted a need to examine organizational structure; command authorities and responsibilities; personnel and assignment policies; and education and training associated with the operation, maintenance, storage, handling, transportation, and security of USAF nuclear weapons systems.

The chair formed a cross-command, cross-functional team of 30 Airmen with a mix of ranks, skills, and experiences from five commands, Headquarters Air Force (HAF), the Air Force Safety Center, and the United States Navy (USN). The BRR team defined the nuclear enterprise as the spectrum of nuclear weapons management responsibilities, aircraft and intercontinental ballistic missiles (ICBM), within the USAF. The team visited 29 locations, met with 54 organizations, and interviewed 822 people. Additionally, the team researched more than 250 books, periodicals, reports, papers, publications, and documents. The results are organized in five areas:

- Leadership and Relationships
- Mission Focus and Culture, History, Safety, and Surety
- Training and Force Development
- Transportation, Accountability, Tracking, Scheduling, and Security
- Organization and Resources

As the United States (US) reduced its nuclear stockpile following the end of the Cold War, emphasis on nuclear weapons declined and the forces assigned to operate, maintain, and support the nuclear capability reduced accordingly, especially in flying units. The ongoing challenge to the USAF is how to achieve a focused, dedicated nuclear capability with a smaller, but equally professional work force.

This report contains 36 observations which lead to 5 general conclusions:

- Nuclear surety in the USAF is sound, but needs strengthening.
- USAF focus on the nuclear mission has diminished since 1991.
- The nuclear enterprise in the USAF works despite being fragmented.
- Declining USAF nuclear experience has led to waning expertise.
- USAF nuclear surety inspection programs need standardization.

This report outlines 36 specific recommendations which lead to 5 general recommendations:

- Communicate senior USAF commitment to the nuclear mission.
- Refocus and reinvigorate the USAF nuclear enterprise.
- Energize USAF commitment to better organize, train, and equip the nuclear enterprise.
- Develop a long-range Force Development strategy to support the USAF nuclear enterprise.
- Consolidate the USAF nuclear surety inspection program.

The observations and recommendations contained in Appendix H range in scope and scale from the ones which can be quickly accomplished to those which are more complex and require more time and potentially substantial resources to implement.

Previous reports and studies during the past 15 years identified many of these observations and recommendations but none have been as comprehensive as this report. A consistent observation permeating this BRR is the friction between the need for surety perfection and operating in an environment of tightly constrained resources. An opportunity to refocus the USAF's commitment to the nuclear enterprise exists in improving advocacy and realigning priorities. Taken in its entirety, this BRR advises the USAF to undertake this endeavor.

Recognizing there are always potential risks, the USAF has a sound nuclear surety program. That said, the BRR team observed areas needing enhancement. Some of the observations and recommendations may warrant further study or expanded resolution, but in this review the BRR team is confident that it has highlighted the relevant areas for improvement. The way ahead must reaffirm the USAF's long-standing commitment to the nuclear enterprise and prove an unequivocal dedication to supporting both deterrence and response. At the heart of this look to the future is a strategy to ensure the USAF nuclear arsenal remains safe, secure, and reliable.

2.0 Introduction

"During the Cold War, nuclear weapons and their delivery; command, control, and communications (C^3); and associated systems were central to US security policy, planning and posture. They received intense attention from all levels of the US national security community. [Department of Defense] DoD, in partnership with the Department of Energy (DOE), developed and sustained dedication, expertise, and capabilities that provided exceptionally high standards of nuclear weapons systems and nuclear forces safety, surety, reliability, and readiness.

While still important, US nuclear forces no longer occupy such a central role in US security strategy. Post-Cold War challenges focus attention on other elements of US security policy and posture. However, nuclear weapons, with their destructive potential, the consequences of an accident or incident, and their continuing deterrent role, demand continual special attention, exceptionally high standards and superior personnel. The challenge is to preserve these characteristics while downsizing the nuclear forces and nuclear warhead stockpile, and while maintaining much of the nuclear force in a more relaxed response posture."

Report on the Nuclear Readiness of the Department of Defense, 1995, pg 1.

2.1 Tasking/Charter

On 9 October 2007, the CSAF appointed Major General Polly A. Peyer to chair an Air Force BRR of Nuclear Weapons Policies and Procedures. On 19 October 2007, the SECAF announced the formation of the BRR in a press conference. The CSAF tasked the review to take an enterprise-wide look at USAF nuclear responsibilities. Specifically, the CSAF highlighted a need to examine organizational structure; command authorities and responsibilities; personnel and assignment policies; and education and training associated with the operation, maintenance, storage, handling, transportation, and security of USAF nuclear weapons systems.

2.2 Methodology

To accomplish this task, the chair formed a team of 30 members from across the USAF and the USN ranging in rank from senior master sergeant (SMSgt) to colonel (Col) (See Appendix A for a detail of team organization.). These Airmen formed into five focus teams each lead by a colonel to analyze specific portions of the tasking:

1. Leadership and relationships
2. Mission focus and culture, history, safety, and surety
3. Training and force development
4. Transportation, accountability, tracking, scheduling, and security (TATSS)
5. Organization and resources

The report's results reflect these five groupings. Members of the five focus teams traveled in "Silver" and "Blue" teams. Two senior mentors and 20 advisors from various agencies periodically advised and provided relevant material. An additional six-person "Gold" team provided research support to the chair, co-chair, and the five focus team leads.

Data to support the review came primarily from extensive research and field interviews conducted by this review team. The five focus teams developed tailored interview questions (Appendix F) to support data gathering at four organizational levels:

1. Combatant commands (COCOMs) and other agencies
2. Higher headquarters (HHQ) (including Secretariat of the Air Force (SAF), HAF, major commands (MAJCOMs), and numbered air forces (NAFs))
3. Wings and groups
4. Squadrons

The travel teams visited 29 locations, met with 54 organizations, and interviewed 822 people. A non-attribution environment encouraged openness. Research and analysis substantiated information gathered in the field and assessed trends identified by other studies. This report details the results within the five focus areas and offers specific observations and recommendations, then provides conclusions.

2.3 Research

A thorough literature review confirmed the message that emerges in the following pages. The Joint Advisory Committee (JAC), Defense Science Board (DSB), RAND, Congressional Research Service (CRS), Government Accountability Office (GAO), and other agencies have voiced concern about shifting the USAF primary focus from nuclear to conventional missions. Their concerns pointed to a decline in nuclear expertise. Some have gone so far as to say the situation presents an irreversible "withering away" of US dominance in nuclear expertise as an inevitable result of service priorities. Others have commented that there is a "general lack of interest in nuclear issues" (*RAND Strategic Systems Programs (SSP)*, 2003). In 1998, the Vice Chief of Staff of the Air Force (VCSAF) commissioned an institutional support review/special

management review (ISR/SMR). The results of this ISR/SMR are in Appendix G. Interestingly, the findings of the ISR/SMR parallel many BRR observations even though the BRR arrived at its observations separately and a decade later. This BRR report takes these previous studies into consideration but is an independent report.

2.4 Chief of Staff Memorandum

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

29 OCT 2007

MEMORANDUM FOR MAJOR GENERAL POLLY A. PEYER

FROM: HQ USAF/CC
1670 Air Force Pentagon
Washington DC 20330-1670

SUBJECT: Air Force Blue Ribbon Review of Nuclear Weapons Policies and Procedures

Our Air Force is committed to our core values of integrity, service and excellence and a reputation of disciplined mission accomplishment -- we owe our nation nothing less. In order to continue that commitment, we will undertake an enterprise-wide review of our nuclear responsibilities.

To that end, you are hereby appointed as Chair of an Air Force Blue Ribbon Review (BRR) of Nuclear Weapons Policies and Procedures. The BRR will examine the organizational structure, command authorities and responsibilities, personnel and assignment policies, and education and training associated with the operation, maintenance, storage, handling, transportation and security of nuclear weapon systems under Air Force purview. The BRR will identify both strengths and weaknesses, and make recommendations to Air Force leadership regarding the Air Force's fulfillment of its nuclear weapon responsibilities.

The BRR will examine policies and procedures across all levels of organization within the Department of the Air Force to include units with a nuclear weapons-related mission. Numbered Air Forces, Major Commands, Field Operating Agencies, Direct Reporting Units, Headquarters Air Force, and the Office of the Secretary of the Air Force.

The BRR will provide a report to me and to the Secretary of the Air Force no later than 15 January 2008 that, as a minimum, addresses:

a. **Leadership and Supervision.** Assess the experience base (both depth and breadth) at all leadership and supervisory levels.

b. **Mission focus.** Assess the emphasis placed on the nuclear mission by the Air Force. Gauge the intensity, depth, realism and frequency of nuclear exercises and inspections at unit, NAF, and MAJCOM levels.

c. **Quality of training, evaluation and certification.** Examine the intensity, depth, realism, and frequency of initial, recurring and upgrade nuclear training, evaluation and any associated certifications for all disciplines.

Chief of Staff Memorandum (cont'd)

d. **Assess transport, accountability, tracking and security of nuclear weapons.** Examine processes for handling nuclear weapons while in Air Force custody. Assess the discipline of the force and its adherence to established procedures to ensure seamless execution of nuclear weapons responsibilities.

e. **Resources.** Assess whether adequate resources are available to organizations with nuclear responsibilities, to include equipment, facilities, and manpower.

f. **Organization.** Examine if the Air Force is appropriately organized and staffed at all levels (unit, NAF, and MAJCOM) to succeed in its nuclear mission. Evaluate the impact of headquarters reorganizations and consolidations.

g. **Relationships.** Assess adequacy of relationships between units with nuclear responsibilities and organizations with nuclear expertise (US Strategic Command, Defense Threat Reduction Agency, the National Nuclear Security Administration, and others, as appropriate).

Report the progress of the BRR to me and to the Secretary of the Air Force (or our delegates) as requested. Additional membership of the BRR may include representatives from SAF, HAF, appropriate MAJCOMs, NAFs, and Centers (as required) at your discretion. Additionally, I have requested US Navy participation in this review. Membership may include a range of nuclear and non-nuclear experts.

The BRR will make full use of existing inspections and reports (such as Nuclear Surety Inspections and safety reports) as well as previous studies' analyses and recommendations. It may also conduct interviews and field visits, as required. AF/A3O-S shall serve as executive secretary to the BRR. Additionally, AF/A3O-S will arrange for contractor support as warranted and deemed necessary.

T. MICHAEL MOSLEY
General, USAF
Chief of Staff

cc:
SAF/OS
AF/A3O-S

3.0 Focus Area Assessments

The team concentrated on five focus areas:

1. **Leadership and Relationships**
   The team assessed the experience base of the USAF nuclear enterprise in terms of depth and breadth for all leadership and supervisory levels. It also examined the adequacy of relationships between USAF and non-USAF units and organizations with nuclear missions.

2. **Mission Focus and Culture, History, Safety and Surety**
   The team assessed the emphasis the USAF places on the nuclear mission and the intensity, depth, realism, and frequency of nuclear exercises and inspections at unit, NAF, and MAJCOM levels. It also considered culture, history, safety, and surety.

3. **Training and Force Development**
   The team assessed the intensity, depth, realism, and frequency of initial, recurring, and upgrade training, evaluation, and any associated certifications for all disciplines. It also considered the adequacy of force development.

4. **Transportation, Accountability, Tracking, Scheduling, and Security**
   The team assessed transportation, accountability, tracking, scheduling, and security of nuclear weapons. It examined processes for handling nuclear weapons in USAF custody. It also assessed the discipline of the force and its adherence to established procedures.

5. **Organization and Resources**
   The team assessed whether the USAF is properly organized and staffed at all levels (unit, NAF, and MAJCOM) to succeed in its nuclear mission and assessed the adequacy of resources available to organizations with nuclear responsibilities, including equipment, facilities, and manpower.

3.1 Leadership and Relationships

Focus Area Tasking

The team assessed the experience base of the USAF nuclear enterprise in terms of depth and breadth for all leadership and supervisory levels. It also examined the adequacy of relationships between USAF and non-USAF units and organizations with nuclear missions.

General

Personal interviews were the principal data source. Questions focused on whether those filling key leadership positions have adequate nuclear experience. Below, the review highlights the different insights gleaned from the aircraft and missile communities, as well as other major career fields.

Additionally, the team assessed the adequacy of relationships among and between USAF and non-USAF units involved with the nuclear enterprise. The team assessed command authorities and responsibilities. This review also examined the existence and implications of "skip-echelon" relationships in the USAF nuclear enterprise.

The Leadership and Relationships focus area includes Observations 1 - 8.

Leadership

Description

The discussion below focuses first on overall observations and recommendations, followed by a more detailed look at nuclear-capable aircraft operations, intercontinental ballistic missile (ICBM) operations, and other major communities in the USAF nuclear enterprise.

3.1.1 Observation 1

3.1.1.1 Statement

Leadership in the USAF's nuclear enterprise is professional and dedicated, but experience levels continue to decline.

3.1.1.2 Supporting Information

Numerous studies have highlighted the steady decline of nuclear experience in DoD since the early-1990s. For example, the *Independent Review of the [Defense Threat Reduction Agency] DTRA [Defense Nuclear Surety Inspection] DNSI Team* report of 2007 identified specific USAF weaknesses in nuclear weapons experience. The following statements are telling:

> *"The Air Force has an "indifference toward 'growing' nuclear expertise in officer and enlisted ranks" (pg 6).*
>
> *"The issue of declining nuclear expertise is a problem in specific areas in the Air Force—including operations, nuclear munitions officers, weapons technicians and security forces" (pg 8).*

There are notable similarities between the results of the DTRA report and those of this review. This review observed that a declining experience base is most prevalent in aircraft units tasked with both nuclear and conventional missions. However, units whose sole mission (e.g., ICBM) involves nuclear weapons also have a diminishing experience base.

Current leaders rely heavily on legacy experience to be successful in the nuclear enterprise. Many, if not most, of these senior leaders were on active duty during the Cold War, giving them an historical perspective on the gravity of the USAF's nuclear mission. These senior leaders must rely on their experience due to a lack of specific training for their leadership roles. As these Airmen transition out of the USAF, the challenge will be to keep their successors, those who have not had the benefit of this experience, focused on the nuclear mission.

There are some leaders with little, no, or dated nuclear experience who hold key positions in the USAF nuclear enterprise, including supervisors and enlisted members as well as squadron, group, and wing commanders. For example, one ICBM wing commander (1 of 3) did not have a nuclear background. Additionally, 16 percent of the squadron commanders in non-flying squadrons at 5 of the bases the BRR visited have no prior nuclear experience. In the support arena, a recently selected munitions squadron commander had dated experience (limited exposure as a second lieutenant). These examples illustrate the declining experience in the USAF. Leadership training, as it relates to the nuclear enterprise, is critical because a lack of formal training and/or experience results in high reliance on informal methods of learning the demands and nuances in the nuclear environment. This can lead to less effective decision making.

The Air Force Materiel Command (AFMC)'s Nuclear Weapons Center (NWC) at Kirtland Air Force Base (AFB) is developing a course for officers, senior enlisted, and civilian-equivalents new to the nuclear enterprise to improve their understanding of nuclear weapon management fundamentals. The NWC course will help train leaders and supervisors lacking a nuclear background for command or key supervisory positions.

DTRA also offers courses for orientation to the nuclear enterprise; however, these courses are not specific to the USAF mission and are not designed with a leadership focus. Leaders assigned to critical positions in the USAF nuclear mission could attend these DTRA courses in addition to the NWC leadership course.

This review also observed there is no standardized tracking of nuclear experience, with the exception of the space and missile operations career field. This makes it difficult to search for the most qualified candidates to be assigned to nuclear positions.

3.1.1.3 Recommendation(s)

Formalize a career development plan for officers, enlisted, and civilians to provide them with the depth and breadth of experience necessary for them to assume leadership positions in the nuclear enterprise.

Provide focused, nuclear-related leadership training, such as the new Nuclear Weapons Center course, for Airmen prior to assuming command or supervisory roles in the USAF nuclear enterprise.

Develop a reliable and easily accessible system to track nuclear experience across the USAF.

Observation 4 has the same recommendation.

3.1.2 Observation 2

3.1.2.1 Statement

Nuclear-related aviator experience and expertise is diminishing within the bomber and dual-capable aircraft units.

3.1.2.2 Supporting Information

An historical perspective (Figure 1) helps to explain the reasons for the declining nuclear weapons experience and expertise. With the end of the Cold War and the corresponding transformation of US military forces, the primacy of the nuclear weapons mission rapidly declined relative to the attention devoted to conventional capabilities. Key events in USAF history during this period included the September 1991 nuclear bomber stand-down from 24/7 (24 hours a day, 7 days a week) alert status (to include the stand-down of Minuteman II ICBMs), the transfer of bombers to Air Combat Command (ACC) with the deactivation of Strategic Air Command (SAC) in 1992, the transition from a mostly nuclear-focused bomber force to a conventional-focused force, the conversion of the B-1B from a nuclear bomber to an exclusively conventional bomber, and the reduction in the size of the USAF bomber force as a whole. Without an alert

commitment for 17 years and in the face of these developments, the bomber force has seen a dramatic atrophy of its nuclear operational and academic skills set.

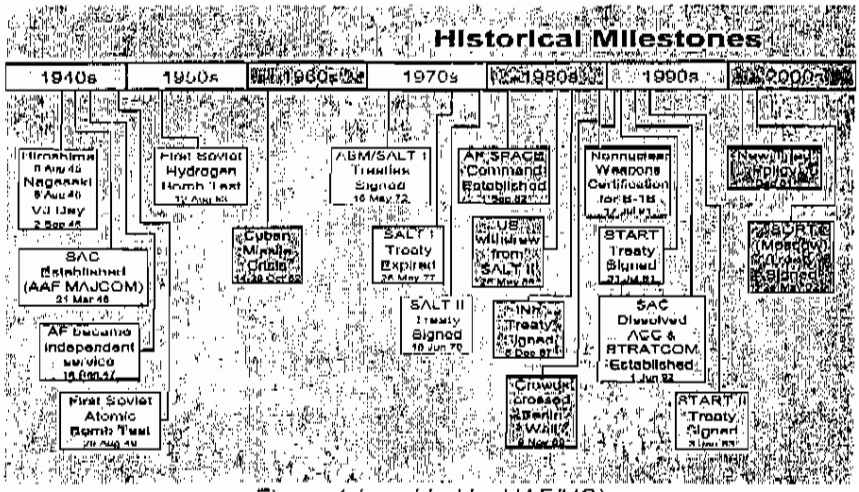

Figure 1 (provided by HAF/HO)
**Note: not all treaties signed were ratified.*

Today, the bomber operations career field retains a limited cadre of officers who stood nuclear alert duty. This foundation is eroding as these nuclear-experienced officers become retirement eligible. Within the next few years, the USAF will no longer have a pool of bomber wing commanders who performed extended nuclear alert duty. Company grade officers (CGO) currently receive little exposure to nuclear tasks and activities; instead, they focus on the conventional mission dominating dual-tasked bomber unit activities in support of the Global War On Terrorism (GWOT).

Bomber aircrews' primary nuclear interaction is through recurring command and control procedures (CCP) training. Bomber pilots and navigators spend relatively little time studying and practicing CCP compared to when bombers were on continuous nuclear alert. In the past, aircrews trained and tested on CCP in conjunction with the alert cycle. Roughly every third week a crew would stand alert and receive CCP training and testing. Failure to pass the test resulted in removal from alert and from the mission ready crew. Retraining was intense. Currently, aircrews study and test on a monthly basis and, if an aircrew member fails, then testing is

corrected to 100 percent on the spot. Further, due to limited aircraft nuclear generations, aircrews have little experience interacting with operational issues involved with bringing aircraft to nuclear alert status.

The same set of factors impacts the nuclear-capable fighter community even more so, since almost all of its activities are conventionally focused.

Training, evaluations, and exercises are important to ensure success of the nuclear mission. However, the day-to-day demands of a conventional focus required for the GWOT and non-nuclear deployments in support of today's global commitments distract aircraft unit commanders from executing a robust nuclear exercise and training program.

3.1.2.3 Recommendation(s)

Assess the frequency and impact of reduction in nuclear training due to demanding conventional requirements in dual-tasked aircraft units.

3.1.3 Observation 3

3.1.3.1 Statement

Intercontinental ballistic missile units find it difficult to attract and retain nuclear-experienced Airmen because of the perceived emphasis on and desirability of serving in space operations as opposed to intercontinental ballistic missile-related duties.

3.1.3.2 Supporting Information

In the 1990s, the USAF ICBM force drew down from six to three wings. As a result, the USAF combined the missile operations career field with space operations to provide both career fields with viable career development opportunities. The resultant cross-flow between the missile and space mission areas diluted the nuclear expertise that had historically existed in missile operations.

Significant numbers of 13S (space and missile operations) officers traditionally have three- or four-year tours in ICBM operations. Currently 54 percent of CGO crew positions in Air Force Space Command (AFSPC) are in ICBM operations, but as officers gain seniority, the experience base shifts to space operations at the expense of missile operations.

Many of the 13S officers interviewed perceive that within AFSPC, space operations duties are more highly regarded than nuclear operations duties. Younger officers see space as a growing mission area while the opposite is true of missiles thereby hastening their professional distance from missile operations.

3.1.3.3 Recommendation(s)

Develop a sufficient pool of officers with broad experience in intercontinental ballistic missile-related assignments to serve in key missile leadership positions, to include squadron, group, and wing commands.

Expand career broadening opportunities (such as missile maintenance, systems engineering, program management, and policy-related assignments) both to retain officers in missiles and develop them for leadership roles in the intercontinental ballistic missile community.

3.1.4 Observation 4

3.1.4.1 Statement

The diminishing base of nuclear experience in some support specialties makes it difficult to select and prepare leaders for command and supervisory positions.

3.1.4.2 Supporting Information

Overall, solid nuclear expertise exists with the 21M (munitions and missile maintenance) officers who are in missile maintenance positions. But 21M munitions officers serving in aircraft units do not, as a whole, have the same degree of nuclear expertise as those in missile maintenance units. In the 1990s, the USAF restructured maintenance career fields to

sustain maintenance/munitions career field specialties, resulting in the current 21M career field for missile maintenance and munitions officers. Today, about 50 percent of 21M officers are in the conventional munitions specialty with the remaining 21M officers spread about evenly across nuclear munitions and missile maintenance specialties. As mentioned in paragraph 3.1.3.3, some cross-flow between missile operations and missile maintenance helps to sustain the 21M career field for missiles and keep the nuclear expertise.

Maintenance enlisted career fields in the USAF nuclear enterprise vary in terms of nuclear experience. The USAF personnel drawdown and merger of specialties further reduced the corps of experienced nuclear weapons maintenance and munitions professionals. Within the ICBM and cruise missile career fields, the 2M0 (missile maintenance) career specialties retain significant experience, though the experience base will become smaller with the elimination of the advanced cruise missile force and reduction of the air-launched cruise missile inventory. The 2W2 (nuclear munitions) experience base is solid as their focus is exclusively on nuclear weapons. However, 2W specialties (2W0, 2W1) have a mixed experience base, as they handle and load both conventional and nuclear weapons. There are only a small number of nuclear-capable units in the USAF, thus offering limited opportunities to attain significant experience.

Munitions squadrons in United States Air Forces in Europe (USAFE) have a solid nuclear-capable experience base. Approximately 130 personnel are assigned to each squadron and encompass about 20 different Air Force Specialty Codes. However, many positions are one deep so rotations, deployments, and illnesses can cause shortfalls.

Concerns with the declining nuclear experience base in the security forces community are evident. The merger of security and law enforcement specialties in 1996, in addition to the reduced number of bases with a nuclear mission, negatively affects the nuclear experience base of security forces personnel.

Leadership and supervision in the security forces enlisted corps have challenges. In the early 1990s, staff sergeants (SSgts) or technical sergeants (TSgts) would normally supervise a maximum of four airmen, while today, a senior airman (SrA) often supervises up to ten airmen. Also, key technical positions, such as flight security controllers in the missile field previously manned by SSgts or TSgts in the early 1990s, are now manned predominately by SrA with a growing number of airmen first class (A1Cs) also performing those duties. In traditional nuclear munitions storage areas, A1Cs and SrAs routinely fill the critical positions of security controller and alarm monitor, positions historically held by non-commissioned officers (NCOs). Within the weapons storage areas (WSAs), inexperienced junior NCOs perform critical area supervisory responsibilities.

3.1.4.3 Recommendation(s)

Formalize a career development plan for officers, enlisted, and civilians to provide them with the depth and breadth of experience necessary for them to assume leadership positions in the nuclear enterprise.

Provide focused, nuclear-related leadership training, such as the new Nuclear Weapons Center course, for Airmen prior to assuming command or supervisory roles in the USAF nuclear enterprise.

Develop a reliable and easily accessible system to track nuclear experience across the USAF.

Observation 1 has the same recommendation.

Relationships

Description

The effectiveness of USAF relations among organizations with a nuclear portfolio within and outside the USAF is best described as "mixed." Following are the BRR team's observations regarding USAF relationships with combatant

commands (COCOMs), DTRA, and the Office of the Secretary of Defense (OSD). Also included are views regarding USN management of nuclear programs.

3.1.5 Observation 5

3.1.5.1 Statement

USAF relationships with combatant commands for the presentation of forces are sound; however, United States Strategic Command noted some difficulty dealing with the USAF skip-echelon organizational construct.

3.1.5.2 Supporting Information

Senior officers from United States Joint Forces Command described their relationship with the USAF as good especially in terms of reporting force readiness and responding to force apportionment taskings.

Similarly, United States Northern Command officials stated their relationship with the USAF for nuclear accident/incident consequence management was effective, although those interviewed mentioned that there is room for improvement by better defining the specific roles and responsibilities for conducting nuclear accident or incident exercises.

United States Strategic Command (USSTRATCOM) finds it challenging to coordinate some activities with NAFs/task forces (TF). The BRR team noted that the coordination difficulties are more common when MAJCOMs (e.g., ACC) have skip-echelon relationships direct to the units, bypassing the NAF/TF (e.g., 8th Air Force/TF204). The disparity of current organizational relationships leads to confusion and frustration with subordinate commands employing skip-echelon relationships with their respective NAFs. The presentation of forces provided by two separate commands complicates the relationship with USSTRATCOM.

3.1.5.3 Recommendation(s)	Streamline the presentation of forces to a combatant commander as apportioned by the Joint Staff.

3.1.6 Observation 6

3.1.6.1 Statement	Disagreement over nuclear surety inspection standardization negatively affects the relationship between the USAF and the Defense Threat Reduction Agency.
3.1.6.2 Supporting Information	Defense Threat Reduction Agency (DTRA) works closely with the services in several areas: stockpile accounting and tracking, nuclear weapon technical publications, coordination of nuclear weapon/component transportation with the National Nuclear Security Administration, and processing of nuclear weapon unsatisfactory reports. DTRA and the USAF enjoy an effective relationship in these areas. DTRA also conducts and oversees nuclear weapons technical inspections. In the area of NSIs, DTRA is critical of USAF inspections conducted by different MAJCOMs. This criticism negatively impacts USAF relationship with DTRA. A more detailed discussion of the DTRA relationship with the USAF concerning these inspections is described in paragraph 3.2.4.2.
3.1.6.3 Recommendation(s)	Strengthen the relationship with the Defense Threat Reduction Agency by closing gaps in nuclear surety inspection methodology and standardization.

3.1.7 Observation 7

3.1.7.1 Statement	The USAF relationship with the OSD is strong, but there are concerns regarding USAF nuclear enterprise management.
3.1.7.2 Supporting Information	Although the USAF interacts positively with OSD on various councils and working groups, OSD officials interviewed by the BRR team criticized USAF program management of the nuclear enterprise. Their concerns are centered in three specific areas: the USAF does not have a single office to manage nuclear matters; the USAF allocates resources for its nuclear mission at different levels than the USN; and, the USAF funds nuclear programs through multiple financial program element codes.
3.1.7.3 Recommendation(s)	Restructure Headquarters Air Force operations staff to form a directorate-level office which is singularly focused on nuclear matters. *Observation 8 has the same recommendation.* Evaluate OSD concerns in regard to resourcing and financial management to determine if further changes are warranted.

3.1.8 Observation 8

3.1.8.1 Statement	The USAF nuclear enterprise is large and diverse, so direct comparison with the United States Navy nuclear organization is difficult.
3.1.8.2 Supporting Information	The USN Trident submarine fleet has a large operational radius, but only two nuclear support bases, Strategic Weapons Facility Atlantic and Strategic Weapons Facility

Pacific. The USAF nuclear enterprise spans several weapon systems based around the globe. Adding to the complexity, the USAF has several nuclear weapons systems to support, while the USN has a single nuclear weapon system to support. Additionally, while the USAF employs its dual-capable aircraft for conventional taskings, such as currently supporting the GWOT, the USN resources have a single mission assigned to their nuclear forces.

These differences are significant. USN force protection is confined to two locations and is provided by the United States Marine Corps, while the USAF's force protection requires the defense of a large number of fixed areas in some instances bigger than an entire state. This geographic challenge also makes weapon system deployment and maintenance more complicated for USAF forces. Additionally, the USAF has nuclear-capable bases in Europe.

The USN acquisition and sustainment of a single weapon system is centralized. However, the USAF acquisition and support of a variety of weapons in a variety of platforms, some dual-capable, is more diverse. These inherent differences in diversity of weapon systems and geographical layout make comparison difficult.

The USAF nuclear enterprise has been frequently compared with the USN Strategic Systems Programs organizational construct. This comparison often overlooks the distinct differences in the two services' nuclear enterprise management. Despite these differences, the USAF continues to look for ways to improve its oversight of the nuclear enterprise. By establishing the Nuclear Weapons Center (NWC), the USAF centralized nuclear acquisition and sustainment activities; the next phase of NWC implementation will continue to enhance nuclear enterprise management.

This review looked at multiple processes in the USN and compared them with similar processes in the USAF. These included: training; security; storage and handling; and quality assurance. Overall, the review found tremendous value in

teaming with the USN to participate in this review; however, there are no specific areas which need adjustment within the USAF based on the USN model.

3.1.8.3 Recommendation(s)

Restructure Headquarters Air Force operations staff to form a directorate-level office which is singularly focused on nuclear matters.

Observation 7 has the same recommendation.

Continue to develop the Nuclear Weapons Center as the USAF's Center of Excellence for acquiring and sustaining USAF nuclear weapons systems and associated handling and security equipment.

Conclusions

Leadership and Relationships

Nuclear expertise is diminishing across the USAF nuclear enterprise. The reasons for this decline vary by career field. As a whole, the reduced nuclear force structure with a correspondingly smaller nuclear experience base presents challenges for the USAF to enhance nuclear expertise for USAF leaders and supervisors.

In the area of relationships among organizations with a nuclear portfolio, both within and outside the USAF, including a discussion on the USN, this review observed many examples of effective relationships and some that need improvement.

3.2 Mission Focus and Culture, History, Safety, and Surety

Focus Area Tasking

The team assessed the emphasis the USAF places on the nuclear mission and the intensity, depth, realism, and frequency of nuclear exercises and inspections at unit, NAF, and MAJCOM levels. It also considered culture, history, safety, and surety.

General

Overall, the BRR team made the following observations: USAF nuclear surety is sound; the USAF's focus on the nuclear mission has diminished; nuclear surety inspection programs are inconsistent among MAJCOMs; USAF nuclear exercise programs need attention; USAF nuclear doctrine revision requires publication; and, recently published DoD and USAF guidance has addressed long-term negative personnel reliability program (PRP) perceptions. Each of these observations is an element of a larger picture of the nuclear posture in the USAF. The overall conclusion drawn from these observations is an enterprise which needs revitalization to reinstitute a culture of nuclear excellence in the USAF.

The Mission Focus and Culture, History, Safety, and Surety focus area includes Observations 9 - 15.

3.2.1 Observation 9

3.2.1.1 Statement

Nuclear surety and security in the USAF are sound, but improvements can and should be made to enhance performance, particularly in light of evolving threats and the opportunities afforded by advanced technology.

3.2.1.2 Supporting Information

Interview responses and BRR research in nuclear surety indicate existing policies and procedures are sound and effective at supporting all DoD and DOE directives. However, the imperative to ensure discipline in regard to adherence to

regulations and technical data needs to be constantly reinforced by supervisors and commanders.

Additionally, technical data, policies, and procedures which have been in place for years are now used by a different workforce. While 15 years ago, technicians were highly experienced and fully understood the guidance, today's workforce has less nuclear experience. The USAF needs a surety program that develops and supports the force and makes the nuclear business the core business for those engaged in it. Technology, such as automated tracking and scheduling information management software, will assist in this effort but must not be the only solution. Accountability of assets could be improved with use of existing technology solutions (see Observations 26 and 27). Continued emphasis on testing and funding of security enhancements could improve nuclear surety (see Observations 28 - 31). Technology must be reinforced with proper training, in-depth inspections, regular exercises, and a dedicated focus.

The USAF must be careful not to overemphasize efficiency to the detriment of effectiveness in the nuclear enterprise. The USAF is aggressively pursuing efforts to be more efficient through Air Force Smart Operations 21 (AFSO21). These efforts offer great opportunities to achieve savings but must not come at the expense of nuclear effectiveness. Untested lean nuclear policies, procedures, and technical orders could create unintended consequences caused by ambiguity and uncertainty. Redundant nuclear processes purposely exist to ensure absolute adherence to nuclear surety and safety requirements. Removing these redundancies for the sake of efficiency must not jeopardize critically needed effectiveness in nuclear surety.

3.2.1.3 Recommendation(s)

Develop and field advanced technology to enhance nuclear surety and security.

3.2.2 Observation 10

3.2.2.1 Statement

Focus on the nuclear mission, especially in dual-capable bomber units, has diminished from the robust nuclear culture that existed during the Cold War.

3.2.2.2 Supporting Information

The end of the Cold War in the 1990s brought a dramatic shift in this nation's priorities with regard to nuclear capability. With a reduction in inventory and a shift in mission, the workforce also underwent significant change. One USAF senior leader commented, "[The USAF] stopped doing this 24/7 (24 hours a day, 7 days a week) and started doing it as a part-time task...This is a zero-defect business and when you do something part time you are simply not going to get a zero-defect consistent capability."

Interview data indicates there is a wide-spread perception the USAF no longer places the same emphasis on nuclear experience. An oft-heard comment was "our nuclear mission is our number one mission; however, it's not necessarily our number one priority." Competing requirements routinely draw focus, personnel, and resources away from the nuclear mission. Dual-tasked nuclear aircraft units devote minimal time to the nuclear mission, which limits the development of highly proficient leaders, supervisors, operators, and technicians.

A 2003 RAND report examined the future roles of US nuclear forces. The study concluded that "absent some movement, US nuclear policy will become one of 'withering away by default' – the gradual deterioration of US nuclear capability because no one is minding the store." In 2007, the Defense Science Board conducted an independent review of the Defense Threat Reduction Agency nuclear surety inspection team and cited the lack of nuclear expertise as one of the most frequently raised issues.

Several indicators highlight a diminished focus toward the nuclear mission. Among these indicators are a change in culture; the end of continuous aircraft nuclear alert; an increase of conventional taskings, including 17 years of continuous conventional conflict; reduced training; fewer and less rigorous exercises; and, constrained resources.

USAF senior leaders need to lead the way to reinstitute the focus on the nuclear mission, but this alone will not automatically change the culture. Beginning with a strong strategic communications strategy, the USAF then needs to reexamine its commitment to organize, train, and equip the nuclear force to regain a posture which has focus, culture, and support to the nuclear mission.

3.2.2.3 Recommendation(s)

Reinforce the primacy of the nuclear mission within the USAF by addressing organizational constructs, providing more robust training, and appropriately resourcing requirements. Communicate these actions to the force from the top down.

3.2.3 Observation 11

3.2.3.1 Statement

Existing forums for integrating USAF nuclear issues exist, but these disparate groups can and should be used more effectively to serve as an enterprise-wide integrating function.

3.2.3.2 Supporting Information

The existing Air Force Nuclear General Officer's Steering Group (AFNGOSG) is a valuable forum to address and resolve enterprise nuclear issues. Various MAJCOM nuclear surety councils and steering groups facilitate cross-functional dialogue within commands. Although most of the representatives of the AFNGOSG either chair or participate in the various command forums, they are not linked or associated through a formal USAF-wide charter.

These forums would serve as a more constructive integrating function if they were adequately empowered and given sufficient authority to execute actions. The AFNGOSG must be recognized across the USAF and organizations external to the USAF as an authoritative, integrating group focused on the commitment to properly organize, train, and equip the USAF nuclear enterprise. Appointing a more senior USAF general officer to chair the AFNGOSG would enhance its credibility.

3.2.3.3 Recommendation(s)

Change the existing Air Force Nuclear General Officer Steering Group (AFNGOSG) charter to empower the group with appropriate authorities to implement Air Force-wide nuclear enterprise reforms. The AFNGOSG should be chaired by a lieutenant general.

3.2.4 Observation 12

3.2.4.1 Statement

Nuclear surety inspection criteria are being applied differently by each major command inspection team.

3.2.4.2 Supporting Information

Two recent studies (by the Air Force Inspection Agency (AFIA) in 2006 and by DTRA in 2007) concluded that inspection standards are not well understood, nor are they applied uniformly by MAJCOM inspectors general (IG). BRR interviews, both internal and external to the USAF, cited several examples of differences in interpretation of technical and procedural guidance. These disparities among MAJCOMs, AFIA, and DTRA occur often and are documented in various NSIs. The inconsistencies highlight standardization concerns and contradictory inspection applications. The resulting ratings of units and cumulative trend of USAF-wide inspections can be affected by these inconsistencies. Although AFIA analyzes inspection results, the small population size of nuclear units can distort the trend data. To properly analyze inspection trends, leaders must be aware of the variety of factors influencing the entirety of the inspection process.

This review identified a widespread perception that NSI and DNSI expertise is less robust than in the past, and both inspectors and those inspected exhibit a lack of experience and knowledge of inspection requirements. This review also observed a recurring theme of interpretation disagreements or unclear guidance in the reports of DTRA, AFIA, and MAJCOM inspection teams. Of particular note, according to an observation from *An Independent Review of the DTRA DNSI Team*, 28 September 2007, there are "disagreements over interpretation of HHQ guidance occurring during joint NSIs—leading to unit-level confusion and the perception that USAF MAJCOM and DNSI teams work from different criteria."

The *DSB Task Force on Nuclear Weapons Surety*, September 2007, also identified these findings. The report states, "staffing of DNSI teams by the USAF is a significant issue." Interviews conducted by the DSB report and the BRR team indicate that the USAF does not adequately staff nor routinely select the most qualified individuals for duty on DTRA NSI teams. A 2006 AFIA report states "the nuclear experience level and training of some MAJCOM IG NSI inspectors was a concern and some NSI inspectors had not had any nuclear assignments or recent (within 10 years) experience at a nuclear field unit." For example, a key colonel billet in DTRA as a DNSI team lead at Kirtland AFB remains unfilled. Lack of USAF presence in the DTRA NSI team is detrimental to the USAF nuclear mission and challenges the relationship between DTRA and the USAF.

This review questions whether unit nuclear capability is accurately measured by the nuclear inspection process. A common perception held by interviewees at both dual-capable and single focus units was that inspections are heavily scripted and participants are "cherry-picked." This suggests inspections capture an unrealistic snapshot of the unit's capability and are not indicative of the unit's overall day-to-day capabilities. For dual-tasked units, the nuclear mission focus becomes cyclical with nuclear mission focus peaking just prior to and during an NSI/nuclear operational readiness inspection (NORI) and waning as the focus returns to the conventional

mission in support of day-to-day taskings. Many felt that NSIs should be conducted in a no-notice or limited-notice approach with inspectors selecting the individuals and teams for evaluations to provide a more critical look at the unit's day-to-day capabilities. The BRR team realizes that limited- or no-notice inspections pose a challenge to USAFE because of host nation and North Atlantic Treaty Organization (NATO) advance notice. However, adopting a limited- or no-notice inspection methodology would give the USAF a clearer picture of unit capability.

3.2.4.3 Recommendation(s)

Consolidate responsibilities for conducting nuclear surety inspections (NSI) into a single USAF NSI team and conduct NSIs on a limited- or no-notice basis.

3.2.5 Observation 13

3.2.5.1 Statement

Bomber nuclear exercises are not meeting current requirements in frequency or scale.

3.2.5.2 Supporting Information

The frequency of exercises at nuclear-capable aircraft units does not adequately ensure personnel are proficient. Current USAF policy directs all units to conduct exercises to ensure proficiency in performing the nuclear mission. However, due to conventional taskings or other requirements the trend is for these exercises to be waived by MAJCOMs. For example, in fiscal year 2007 (FY07) one nuclear-capable wing did not conduct any nuclear generation exercises (two required, but waived by MAJCOM). Infrequent nuclear generation exercises and fewer generation lines (as few as a single line per unit) greatly diminish the unit's experience base and overall capability to perform its nuclear mission.

	USAF priorities have and will continue to focus on fighting and winning the GWOT and other conventional priorities. However, the USAF must ensure that personnel entrusted with preparing and operating nuclear weapon systems remain proficient.
3.2.5.3 Recommendation(s)	Evaluate and enforce appropriate exercise guidance in regard to frequency and scale to ensure proficiency.

3.2.6 Observation 14

3.2.6.1 Statement	Doctrine is the cornerstone of military operations and training, but the current manual on USAF nuclear doctrine needs updating.
3.2.6.2 Supporting Information	An important underpinning of the warrior culture in the USAF is understanding doctrine. The current Air Force Doctrine Document (AFDD) 2-1.5 is nearly 10 years old although the USAF Doctrine Center is coordinating a new version.
3.2.6.3 Recommendation(s)	Publish revised Air Force Doctrine Document 2-1.5 (nuclear operations doctrine) and include the new version in strategic communication messages designed to reinforce the USAF's commitment to nuclear excellence.

3.2.7 Observation 15

3.2.7.1 Statement	Recent DoD and USAF guidance positively changed the USAF Personnel Reliability Program, but many commanders and administrators still consider the system to be needlessly cumbersome.

3.2.7.2 Supporting Information

The BRR team interviewed some commanders and supervisors who expressed concern that the Personnel Reliability Program (PRP) is cumbersome and difficult to manage. Also, they commented that the PRP does not provide enough targeted training across the system to ensure strict compliance. However, recently published DoD and USAF guidance in 2006 removed many of the burdensome procedures and documentation requirements and addressed earlier complaints of excessive oversight and redundancies. With these changes, a majority of commanders believe the program is more responsive to their needs.

The need for clear and unambiguous guidance for the administration of PRP created layers of redundancy in the application and administration of the program. This review found some of these redundancies were designed to ensure that each person who performs duties involving nuclear weapons meets the reliability standards of PRP.

One noteworthy problem involves the assignment of Airmen from non-nuclear duty to nuclear-capable duty. Too often, the losing commander and medical authorities are unaware of PRP requirements, which results in the potential transfer of an individual ineligible for PRP certification. Also, the pending addition of national guard and reserve forces who do not meet the continuous evaluation requirements while supporting the nuclear mission adds further complexity to the PRP program.

3.2.7.3 Recommendation(s)

Conduct a USAF -wide Personnel Reliability Program (PRP) survey to identify potential areas for improvements to administrative and training processes while continuing to insist upon strict PRP compliance.

Conclusions

Mission Focus and Culture, History, Safety and Surety

Focus on the nuclear mission in the USAF has diminished since the end of the Cold War, especially in dual-tasked units. While this review observed that nuclear surety and safety are sound, the USAF NSI program requires attention and standardization. Bomber nuclear exercises are not robust, nor are they conducted consistently. AFDD 2-1.5 requires updating. The USAF PRP has undergone recent positive changes.

3.3 Training and Force Development

Focus Area Tasking

The team assessed the intensity, depth, realism, and frequency of initial, recurring, and upgrade training, evaluation, and any associated certifications for all disciplines. It also considered the adequacy of force development.

General

Training and force development figure prominently in virtually every USAF endeavor. While training and force development are separate issues, it is almost impossible to address one without addressing the other. Training for the nuclear mission has fallen in priority as a result of the protracted nature of the US's conventional global engagement. To complement training, the objective of force development is to ensure Airmen possess the required skills to successfully accomplish the mission. According to AFDD 1-1, force development is done by deliberately "tailoring the right development to the right person at the right time" (pg 13). Developing Airmen through a deliberate process is a significant task of personnel management.

The Training and Force Development focus area includes Observations 16 - 21.

Training

Description

In order to gain an enterprise-wide perspective on training, the BRR team examined nuclear-capable aircraft operations and maintenance, ICBM operations and maintenance, and security forces operations, as well as HHQ functions and responsibilities.

3.3.1 Observation 16

3.3.1.1 Statement	Focus on nuclear training has shifted as a result of the increased combatant command requirements for conventional force capabilities.
3.3.1.2 Supporting Information	Due to the high conventional operations tempo in dual-capable aircraft communities, exercises supporting the nuclear mission are often cancelled and requirements waived. Nuclear training events in formal training courses are reduced to make room for additional conventional training. For example, the flying training syllabus for new B-52 aircrew includes only one simulator ride devoted to the nuclear mission. Furthermore, the B-52 weapons instructor course, the pinnacle of B-52 training, has only one block of nuclear academic instruction in its syllabi. Finally, until recently, only two percent of HHQ flight evaluations simulated delivery of a nuclear weapon. In comparison, the B-2 weapons instructor course curriculum focuses 20 percent of its training on nuclear operations. At the other end of the spectrum, training in the ICBM community continues to benefit from its singular focus on the nuclear mission. During the four-month initial qualification training program and during monthly recurring training, the ICBM curriculum continues to focus on the core nuclear competency. Additionally, missile crew members complete a monthly simulator ride. This training regimen provides a solid professional foundation for Airmen in the ICBM community.
3.3.1.3 Recommendation(s)	Conduct a risk assessment of trade-offs between conventional and nuclear taskings and adjust priorities as appropriate.

3.3.2 Observation 17

3.3.2.1 Statement	Shortcomings exist in the training for munitions accountable systems officers, particularly on the Defense Integration and Management of Nuclear Data Services system.
3.3.2.2 Supporting Information	Munitions accountable systems officers (MASOs) have significant responsibilities in units with nuclear missions; however, there are gaps in their training. The MASO was previously in the supply officer career field and attended a separate three-week (approximately 90 hours) course dedicated specifically to MASO training. Currently, being a MASO is part of a munitions officer's career development and nuclear MASO training is embedded in the nuclear maintenance officers course (NMOC) and consists of 33 hours of curriculum. This evolution of career field management and training for the MASO results in a MASO capability which is not as robust as in the past. Additionally, the Defense Integration and Management of Nuclear Data Services (DIAMONDS) system is not taught at the NMOC or at nuclear weapons apprentice and craftsmen courses.
3.3.2.3 Recommendation(s)	Require the Nuclear Maintenance Officer's Course syllabus to place stronger emphasis on munitions accountable systems officer duties and responsibilities. Provide realistic, hands-on Defense Integration and Management of Nuclear Data Services system training to officer and enlisted students attending nuclear munitions courses.

3.3.3 Observation 18

3.3.3.1 Statement

Major commands and numbered air forces have created specific nuclear training programs that are external to the formal and institutionalized training curriculum oversight.

3.3.3.2 Supporting Information

This review observed three independent training programs that MAJCOMs created to meet their specific training needs.

USAFE operates its own nuclear training course for Airmen assigned to nuclear mission duties. The course trains technicians on USAFE unique systems such as the weapons storage and security system (WS3) vault and serves as a refresher course on specific weapons systems. An array of technical and non-technical courses is applicable to many different career fields across the rank structure.

AFMC's Nuclear Weapons Center (NWC) has an existing curriculum for acquisition and sustainment professionals with nuclear responsibilities. The NWC is also developing a course targeted at USAF-wide mid- and upper-level leaders and supervisors involved in the nuclear mission. The goal of this course is to improve Airmen's knowledge.

AFSPC's 20th Air Force ICBM Center of Excellence (ICE) provides training specifically focused on the ICBM mission. ICE offers courses focused on operations, maintenance, and security forces. Camp Guernsey, Wyoming, offers additional security forces training focused on tactics, techniques, and procedures. This training includes convoy training, flight leadership training, helicopter operations, integration training, and tactical response force training.

These training initiatives were created to fill a need; however, the opportunity to capitalize on any synergy created within the nuclear enterprise is lost because each is executed by a different MAJCOM without USAF-level oversight.

3.3.3.3 Recommendation(s)	Review the various command-sponsored, nuclear-related courses and determine whether they should remain within each major command or be offered on an enterprise-wide basis.

Force Development

Description	The discussion below addresses aspects of the force development construct, including developmental education.

3.3.4 Observation 19

3.3.4.1 Statement	The USAF needs to increase opportunities for presence and influence in key nuclear billets, especially in joint and interagency organizations, by filling these positions with highly-qualified individuals.
3.3.4.2 Supporting Information	The USAF should place a higher priority on filling billets across the nuclear enterprise with highly qualified individuals. In order for the USAF to have a meaningful presence throughout its nuclear enterprise, priority should be given to placing Airmen with the appropriate skills to influence the decision making process in combatant commands (COCOMs), DTRA, Joint Chiefs of Staff (JCS), National Nuclear Security Administration, OSD, and MAJCOMs. The challenge to fill key nuclear billets, especially staff positions, stems partially from career field shortages, but also is symptomatic of a lack of long-range force development planning. Although the Air Force Personnel Center (AFPC) does not have a specific data base to track nuclear billets, AFPC provided statistics regarding 7 organizations (5 COCOMs and 2 MAJCOMs) which indicate a 79% fill rate for billets requiring nuclear experience. For example, a key colonel billet in DTRA at Kirtland AFB remains unfilled. These billets are particularly important because they offer the USAF

an opportunity for presence and influence, both internal and external to the USAF. These positions are also an important experience in the professional development of Airmen in nuclear-related career fields.

The force development strategy to produce Airmen with the right skill sets needs to be enterprise-wide, long-range, and aligned with established priorities. In the nuclear enterprise, the force development plan should look at future critical requirements, prioritize those requirements, and then work toward developing a pool of Airmen who will eventually be competitive to fill the positions. This long-range force development approach will also shape a viable career path where Airmen seek these assignments rather than shy away from them.

3.3.4.3 Recommendation(s)

Develop a comprehensive list of all critical nuclear-related USAF billets, in the Air Force and other agencies, and ensure they are given the highest priority for assigning experienced Airmen.

3.3.5 Observation 20

3.3.5.1 Statement

The curricula of professional military education schools and courses devote at best only minimal time and attention to nuclear-related topics.

3.3.5.2 Supporting Information

As the focus on the nuclear mission has declined, the emphasis on teaching the relevance and importance of nuclear strategy during professional military education (PME) has also declined. The result is an erosion of the culture of "nuclear excellence." Similar to how the air operations center (AOC) concept of operations was embedded in developmental education (DE), so should the curriculum related to the nuclear enterprise be leveraged to

	help revive the nuclear culture. It is important to emphasize the relevance of the nuclear mission in technical schools and PME courses including officer, enlisted, and civilian DE.
3.3.5.3 Recommendation(s)	Increase the coverage of nuclear policy, technical, and operational issues at all levels of officer, enlisted, and civilian professional military education.

3.3.6 Observation 21

3.3.6.1 Statement	The USAF is not consistently leveraging educational opportunities to optimize follow-on assignments or presence in key nuclear billets.
3.3.6.2 Supporting Information	Each year 10 officers receive in-residence DE credit through the National Technologies Fellowship Program (NTFP). These officers benefit from one year of study at one of five national laboratories (Argonne, Lawrence-Livermore, Los Alamos, Oak Ridge, and Sandia) where they study advanced technologies with an emphasis on nuclear weapons. However, a mandatory follow-on assignment in the nuclear enterprise is not required of graduates. The Air Force Institute of Technology (AFIT) offers a nuclear engineering course of study. Although assignments for graduates are determined by the sponsoring agency, they are not always tied to a long-range strategy of filling critical nuclear billets within and external to the USAF.
3.3.6.3 Recommendation(s)	Fill key billets in the nuclear enterprise with National Technologies Fellowship Program and/or Air Force Institute of Technology nuclear engineering program graduates.

Conclusion

Training and Force Development

Today's Airmen need more focused training and experience to successfully lead the USAF's nuclear mission. Formal training units in dual-tasked aircraft communities have marginalized the nuclear mission training, while ICBM training remains focused on the nuclear mission. Maintenance training varies by discipline. Munitions and missile maintainers are generally well-trained for their nuclear mission. Nevertheless, specific changes, such as including DIAMONDS training in NMOC and nuclear weapons apprentice and craftsmen courses would be beneficial. Aircraft maintainers, faced with competing priorities, do not always have adequate time to devote to training for the nuclear mission. Finally, the high operations tempo throughout the USAF drives many units to a "just-in-time" training philosophy to prepare for inspections and evaluations relating to the nuclear mission.

The goal of force development is to deliberately develop Airmen to fill USAF requirements. However, there are still instances where Airmen have been placed in nuclear leadership positions without the right training for success. Furthermore, the deliberate nature of the force development construct must be focused on the long term.

3.4 Transportation, Accountability, Tracking, Scheduling, and Security (TATSS)

Focus Area Tasking

The team assessed transportation, accountability, tracking, scheduling, and security of nuclear weapons. It examined processes for handling nuclear weapons in USAF custody. It also assessed the discipline of the force and its adherence to established procedures.

General

The net result of the review in this area highlights a disciplined force that understands and uses relatively clear guidance. The focus team has four general observations: MAJCOM and HAF find it increasingly difficult to identify and assign personnel with significant nuclear experience; technology can assist in achieving better standardization for scheduling, tracking, and custody processing; nuclear security remains a concern due to an inability to fully meet DoD requirements as evidenced by waivers; and the USAF needs to ensure MASOs have the appropriate level of experience and training.

The TATSS focus area includes Observations 22 - 31.

Transportation

Description

Transportation is a key component of nuclear weapons operations. The BRR team extensively reviewed USAF, DOE, and USN policies and procedures for transportation and witnessed transportation operations by these agencies.

3.4.1 Observation 22

3.4.1.1 Statement

The nuclear force requires clear and detailed direction in instructions and technical orders particularly in light of a less experienced workforce, especially in aircraft units.

3.4.1.2 Supporting Information

Technicians using technical orders and guidance when the aircraft nuclear mission was a full-time activity were highly experienced and used the guidance daily. Today's workforce in aircraft nuclear units does not participate in frequent nuclear operations. Thus, less exposure and fewer opportunities to implement technical procedures equates to a diminished understanding of the systems being maintained. For example, 54 percent of the individuals interviewed by the BRR team expressed concern that nuclear weapons guidance is not clearly understood. In order to ensure success in the nuclear world, directive words would reduce ambiguity and provide clarity. For instance, the DoD publishes DoD 5210.41M and uses the terms "shall" and "will", but the USAF enforces these imperatives by issuing instructions with less directive language (e.g., "should"). This condition appears to have started when the USAF transitioned from Air Force regulations (AFR) to Air Force instructions (AFI). The less room provided for interpretation, the fewer potential seams will occur in nuclear handling, maintenance, and security operations.

3.4.1.3 Recommendation(s)

Conduct a comprehensive review of all USAF guidance and instructions on nuclear-related operations, maintenance, security, and support to ensure clarity and reduce any potential ambiguity.

Ensure strict compliance with published regulations and technical data.

3.4.2 Observation 23

3.4.2.1 Statement	Aging transportation and handling equipment is adding to the stress on units with a nuclear mission.
3.4.2.2 Supporting Information	There is a trend of aging munitions materiel handling equipment issues exacerbating the stress on units with a nuclear maintenance mission. Documented observations by ACC maintenance inspectors and DTRA shed light on a growing problem. Finding vendors and setting up repair contracts for parts that are obsolete or not stocked in depots are also growing concerns. Delays in contract award and lengthy production lead times extend repair times for critical equipment. Under the current funding concept, MHU-196/204 trailers are lumped into a general pool that includes common aerospace ground equipment. Therefore, advocacy is diluted and disjointed, and the trailers and other nuclear certified support equipment do not compete effectively in the funding process. The MHU-196 trailers, with an average fleet age of 20 years, are difficult to support and problems in the field are well-documented. However, there is no funding specifically programmed to sustain these critical pieces of equipment. The munitions handling trailer issue is currently under review by ACC/A4, Warner Robins Air Logistics Center, and HAF/A4.
3.4.2.3 Recommendation(s)	Develop and resource a long-range replacement recapitalization program for aging nuclear support equipment. *Observation 35 has the same recommendation.*

	Accountability
Description	Accountability of nuclear weapons is a paramount national priority. This review examined procedures and guidance for accountability throughout the nuclear enterprise, including DOE and all DoD organizations.

3.4.3 Observation 24

3.4.3.1 Statement	Accountability of nuclear weapons in the USAF is sound; however, additional experience and training for munitions accountable systems officers will enhance the current process.
3.4.3.2 Supporting Information	Leadership attention for accountability of nuclear weapons is essential. AFI 21-204 recently changed accountability procedures and will strengthen the wing commander's role in the accountability process. Previously AFI 21-204 required the munitions accountable systems officer (MASO) to have "mandatory qualifications [of] 18 months nuclear weapons management experience, Nuclear Ordnance Commodity Management (NOCM) accountability experience or completion of the Nuclear Maintenance Officer's Course (NMOC)." Some bases were appointing the MASO based solely on completion of NMOC without the full 18 months experience. The current NMOC training specific to MASO duties is embedded deeply within the curriculum and does not adequately cover the areas needed to train a MASO without hands-on experience. The revised AFI 21-204 requires a mandatory 12-month experience and completion of NMOC. This requirement is more stringent and emphasizes mandatory experience and training qualification.

3.4.3.3 Recommendation(s)	Implement appropriate Air Force instructions to require 12-month experience and completion of the Nuclear Maintenance Officer's Course.

3.4.4 Observation 25

3.4.4.1 Statement	Custody and transfer processes of nuclear weapons between bases or commands are consistent; however, transfers of assets within a wing require auditable documentation.
3.4.4.2 Supporting Information	There are no differences in the procedures of weapons transfers between bases or commands. All custody transfers between DOE couriers, Air Mobility Command (AMC) aircrews, and the MASO are documented on a DD Form 1911 (also used by the USN). However, this review observed differences in procedures for transferring custody of cruise missiles and gravity weapons within a wing. The process in place during the BRR data collection phase required no signatures, relying instead on an Integrated Maintenance Data System (IMDS) work order for tracking.
3.4.4.3 Recommendation(s)	Require signatures to document custody transfers as directed in the new revision of Air Force Instruction 21-204.

3.4.5 Observation 26

3.4.5.1 Statement	Advanced technology for accountability and tracking can enhance USAF custody of nuclear assets.

3.4.5.2 Supporting Information	Examples of technology which could improve accountability and tracking of nuclear weapons include barcode scanners, portal monitors, and software enhancements. Barcode scanners would help eliminate the errors associated with "stubby pencil" data inputs. Based on their universal commercial and DoD application, barcode scanners increase ease and reduce errors during inventory. Portal monitors offer a method to notify appropriate personnel when nuclear material is moved outside its intended storage or maintenance area. A software system called "MoveRight" tracks materiel movement. These are opportunities for the USAF to explore technology to enhance overall accountability.
3.4.5.3 Recommendation(s)	Evaluate and resource programs in use today, such as "MoveRight" and portal monitors, for potential implementation within the USAF.
	Tracking and Scheduling
Description	Nuclear weapons activities must be carefully tracked and scheduled. Visits to DOE and USAF nuclear-capable units provided clear evidence of due diligence in this area, but the lack of standardization is of concern.

3.4.6 Observation 27

3.4.6.1 Statement	Tracking location and status of assigned weapons and components is being accomplished using locally generated systems.
3.4.6.2 Supporting Information	Observations in multiple Air Force Inspection Agency and ACC IG reports have highlighted "inadequate AF guidance to ensure standardized control, protection, accountability, and

reporting for special weapons." The USAF has been developing an information technology solution for automated tracking for several years, but none has been implemented.

While HAF/A4M has revised AFI 21-204, no automated solution to the tracking problem is included. The BRR team noted several instances of locally produced tools which units used to accomplish their missions. Since individual units are producing these tools, there is neither standardization nor integration of information technology enterprise-wide.

3.4.6.3 Recommendation(s)

Develop and implement standard scheduling and tracking systems which improve the ability to track locations and status of assigned nuclear weapons and components.

Security

Description

Security is a primary consideration in all nuclear-related activities. The USAF and DoD have placed significant emphasis on enhancing security of these vital assets within the last decade. Although the change in philosophy from recapture and recovery to assured denial has levied additional requirements, headway in improving nuclear security within a constrained fiscal environment is being made. Examples include current projects such as the ICBM security modernization program at missile bases and the installation of Remote Target Engagement Systems at some USAF weapons storage areas. Although attention is being given in this area and projects are in progress, security remains a concern within the missile field complex during convoys and maintenance operations due to the significant distances between sites. Also, host nation support to maintain security infrastructure at nuclear-capable units remains an issue.

3.4.7 Observation 28

3.4.7.1 Statement	Potential vulnerabilities in missile field convoy operations continue to be a key concern.
3.4.7.2 Supporting Information	To mitigate the security risk to missile field weapons movements, in 2005 the USAF increased the number of security forces accompanying weapon movements and modified tactics, techniques, and procedures to increase survivability of defense forces and enhance their lethality. Also, AFSPC continues to study technology for improving security of missile field movements to include a prototype of a new payload transporter. Both DoD and DOE continue to analyze the threat to nuclear weapons and components through computer modeling, system effectiveness assessments, threat and vulnerability assessments, engineering studies, and exercises. Virtually all aspects of nuclear security are affected, driving significant increases in resource and funding requirements as well as the refinement of policies and procedures. DoD developed a nuclear security risk management model to provide senior decision makers and commanders with a tool for reviewing technology and manpower mitigations of the threat. This tool is designed to ensure scarce nuclear weapons security resources are used where the risk is most significant.
3.4.7.3 Recommendation(s)	Develop and field a new payload transporter for missile field convoys.

3.4.8 Observation 29

3.4.8.1 Statement	Host nation security at overseas nuclear-capable units varies from country to country in terms of personnel, facilities, and equipment.

3.4.8.2 Supporting Information	The BRR team visited nuclear-capable units in Europe and observed a motivated USAF team working closely with their host nation counterparts. At the base level, there is a strong sense of teamwork between the host nation and the USAF personnel, but each site presents unique security challenges. Inconsistencies in personnel, facilities, and equipment provided to the security mission by the host nation were evident as the team traveled from site to site. Examples of areas noted in need of repair at several of the sites include support buildings, fencing, lighting, and security systems. In some cases conscripts, whose total active duty commitment is nine months, provide security manpower, while other locations have the challenge of working with unionized security personnel. A consistently noted theme throughout the visits was that most sites require significant additional resources to meet DoD security requirements.
3.4.8.3 Recommendation(s)	Investigate potential consolidation of resources to minimize variances and reduce vulnerabilities at overseas locations.

3.4.9 Observation 30

3.4.9.1 Statement	Changing and growing requirements have prompted USAF units to request nuclear security waivers.
3.4.9.2 Supporting Information	As the BRR team traveled across the nuclear enterprise and gained insight into the depth and breadth of the nuclear security forces workload, it became clear there is a gap in meeting all mission requirements. These requirements have not been adequately funded or manned appropriately and units throughout the USAF continue to operate with waivers to DoD requirements. In 2007 for example, major commands documented 79 nuclear security waivers. Levels of physical security vary greatly between MAJCOMs and between sites. Examples of security requirements in need of funding to meet

	current DoD requirements are individual equipment, armored vehicles, facilities, weapons ranges, perimeter fencing, and sensor systems.
3.4.9.3 Recommendation(s)	Develop a long-range enterprise plan to reduce waivers through prioritized funding and resourcing.

3.4.10 Observation 31

3.4.10.1 Statement	To mitigate missile field security vulnerabilities, there is a critical need to fully fund a replacement helicopter and to fund the sustainment costs of the remote visual assessment.
3.4.10.2 Supporting Information	In FY06 the USAF listed its two most significant un-programmed ICBM budget constraints as the critical need for new helicopters to replace an aging fleet and the implementation of remote visual assessment (RVA) capability at individual ICBM launch facilities. An earlier Joint Surety Report in FY03 also noted the same requirements. The replacement helicopter, a key factor in improving security forces response capability in the missile field, remains unfunded. AFSPC has funded and begun installation of RVA at the first of three ICBM bases; however, sustainment is not fully funded. For example, satellite fees are not funded beyond FY08 and contract logistics support is not funded beyond FY10.
3.4.10.3 Recommendation(s)	Field a replacement helicopter as well as field and fully fund sustainment of the remote visual assessment.

Conclusion

Transportation, Accountability, Tracking, Scheduling, and Security (TATSS)

This review concluded that TATSS of nuclear weapons is receiving attention at the appropriate levels, but must compete in a fiscally constrained environment with other USAF priorities. Transportation procedures are clear and well-understood but could be improved. Aging transportation and critical support equipment need recapitalization. Accountability is solid, but technology could improve that process as well as the tracking process. Realistic, hands-on DIAMONDS training should be the standard. An experience level of at least 12 months plus increased emphasis on training for MASOs are needed. A signature requirement, as directed in AFI 21-204, will enhance the custody transfer process. Nuclear security is seeing increased emphasis, but major issues remain unresolved due to limited resources. The development of a new payload transporter, the acquisition of a replacement helicopter, and fielding and sustainment of the RVA at all remote missile sites will improve the security of missile fields and convoys. Finally, the USAF must continue to emphasize to its host nation counterparts their requirement to honor security commitments.

3.5 Organization and Resources

Focus Area Tasking

The team assessed whether the USAF is properly organized and staffed at all levels (unit, NAF, and MAJCOM) to succeed in its nuclear mission and assessed the adequacy of resources, including equipment, facilities, and manpower, available to organizations with nuclear responsibilities.

General

In the ensuing analysis, two assumptions are particularly pertinent. First, each element in the USAF nuclear enterprise – aircraft, ICBMs, mobility forces, training, and sustainment – is performing its assigned mission(s) according to the priorities of the National Military Strategy and the imperatives of the GWOT. Second, in a strategy-to-task construct – where this review focused on the operational level of the nuclear enterprise – this direct link to the nation's priorities must form the principal and overriding basis for assessing the adequacy of resources presently allocated to the nuclear mission. In the end, priorities should drive resource allocation.

Additionally, in light of the resource challenges seen during this review, the USAF requires a comprehensive, enterprise-wide methodology for assessment of risks in this specific mission area, and an approach to make deliberate decisions about which risks to assume, which to mitigate, and which to avoid.

The Organization and Resources focus area includes Observations 32 - 36.

Description

As force structure and Headquarters (HQ) staffs alike have become smaller, the tendency to multi-task staff functions has grown resulting in both organizational and process compromises that have not served the nuclear mission favorably.

3.5.1 Observation 32

3.5.1.1 Statement

Current USAF nuclear organizational construct fragments nuclear weapons advocacy and policy.

3.5.1.2 Supporting Information

USAF nuclear forces are assigned to ACC (bombers), AFSPC (missiles), and USAFE (fighters). AMC supports the nuclear mission with air refueling and mobility assets. These forces, when generated to alert status, tie in to the supported combatant command – USSTRATCOM – via TF arrangements (TF204 for bombers, TF214 for ICBMs, and TF294 for tankers). These organizations represent a mix of essentially "single mission focus" environments (e.g., ICBMs) and high levels of multi-tasking (e.g., bombers). AFMC, through the Nuclear Weapons Center (NWC), provides enterprise-wide acquisition and sustainment support for this mission area. Activities include program management for cruise missiles and bomber weapons integration equipment, as well as nuclear weapon system and support systems engineering, logistics management, nuclear certification, transportation, and maintenance.

The BRR team observed that Airmen assigned to bomber units are concerned there is a lack of bomber advocacy at ACC and HAF. More than advocacy, the nuclear flying mission units look to their HQ for interpretation of policy. In the current organizational structure of NAF, MAJCOM, and HAF, the units cite frustration in communicating with the appropriate HQ to obtain policy guidance. This is in part due

to nuclear policy being embedded in multi-tasked offices or aligned to a non-traditional office. For example, AF/A3O-S is responsible for both nuclear and space operations. Also, in USAFE, nuclear policy is executed by the A4/7 staff whereas nuclear operations normally reside in A3 throughout the rest of the USAF.

There are many ways to examine the effectiveness of organizational constructs. Two of the typical approaches are to look at either process change or organizational structure change. The criteria for measurement in organizational analysis would include in-garrison operations, presentation of forces to the combatant commander, mission focus, and culture among other potential measures of merit.

3.5.1.3 Recommendation(s)	Examine current organizational construct and process integration supporting the nuclear mission area and provide potential alternatives for improvement.

Resources

Description	Resources and investments are currently applied to modernization programs, infrastructure, and security measures. However, shortfalls exist in all three major resource areas: people, equipment, and funding.

3.5.2 Observation 33

3.5.2.1 Statement	Manpower requirements in some nuclear-capable aircraft career fields and units may not be commensurate with total workload.

3.5.2.2 Supporting Information

The logistics composite models (LCOM) supporting the B-2 and B-52 are reasonably current (March 2004 and January 2006, respectively). However, some dual-tasked units interviewed were concerned that the LCOM standards did not include variances for the complexity of nuclear taskings as they combine with conventional requirements.

The prime nuclear airlift force (PNAF) mission assigned solely to one AMC wing creates extra manpower requirements. The selection and preparation of a primary and a back-up aircraft to support PNAF missions requires adherence to rigorous specifications. For example, the typical 8-hour aircraft generation time expands to 48 hours when generating a primary and a secondary aircraft for a PNAF mission. Yet, the manpower resources at the PNAF unit are equivalent to units that do not perform this mission.

USAF medical units servicing military (and, in some cases, civilian) populations certified under the PRP have a significant additional burden placed on providers and support staff who ensure the duties of the competent medical authority are discharged appropriately.

An important consideration associated with manpower requirements as they are affected by PRP is whether 100 percent manning is ever achievable in a unit that requires PRP certifications to execute its mission. A properly administered, unit-level PRP will inevitably result in members awaiting interim or formal certification, having their PRP status suspended, being temporarily decertified, or being permanently decertified. In each of these cases, the unit has personnel counting toward its manpower requirements that cannot be used for its mission requirements.

3.5.2.3 Recommendation(s)

Review logistics composite models to determine if the challenges dual-tasked and prime nuclear airlift force units face in maintaining current mission qualifications and certifications (nuclear and conventional) are adequately reflected in each Air Force manpower standard.

Review medical manpower requirements at bases with large Personnel Reliability Program populations to determine if adequate manpower requirements are documented and resourced.

3.5.3 Observation 34

3.5.3.1 Statement

Program budget decision execution may have caused resource allocation weaknesses in field support for the nuclear mission.

3.5.3.2 Supporting Information

Numerous offices interviewed expressed concern that recent rounds of manpower reductions were too drastic or eliminated key positions. To illustrate the magnitude of these reductions, Program Budget Decision (PBD) 720, "Air Force Transformation Flight Plan," and PBD 725, "STRATCOM TRIAD," eliminated 25 percent of the 2W2 career field (194 positions). However, the career field manager recognized 26 of these eliminated positions were key billets. These key positions include HQ and NAF staff senior NCO positions and safety NCO positions at all levels, some representing one-deep positions. The career field manager is developing a mitigation or restoration plan for these key billets. So far, 10 of the 26 positions are planned for restoration, but 16 key positions remain at risk.

USAF manpower requirements are defined, at least in part, by a full array of Air Force manpower standards. PBD-720 execution may have created manpower gaps in certain functional areas. This is especially pertinent given these cuts occurred with no reduction in taskings, and usually in advance of any Air Force Smart Operations 21 (AFSO21) process changes.

3.5.3.3 Recommendation(s)	Assess nuclear mission career fields to ensure program budget decision reductions were appropriately targeted and left no seams in enterprise support.

3.5.4 Observation 35

3.5.4.1 Statement	Systems and equipment supporting the nuclear mission are aging and continue to impact reliability and availability.

3.5.4.2 Supporting Information

The availability of "excess" assets in the inventory after drawdown has masked the impact of aging equipment and parts availability. However, the excess is transitory because the assets are carry-overs from previous investments for a larger force. The excess will soon be consumed or obsolescent and there is insufficient funding planned to recapitalize. Furthermore, the USAF is already within the decision cycle to compensate. For example:

1. The re-entry system test set for missiles is three to five years away from being unsupportable.

2. The electronic systems test sets (five different test systems) associated with nuclear and conventional cruise missiles are in poor condition, with 80 percent in-commission rates.

3. Large munitions trailers (MHU-196 and MHU-204) which support the bombers (including the conventional mission of the B-2 and B-1) exhibit notional in-commission rates of mid 80 percent, but fail at a higher rate when actually in use.

4. A replacement for the UH-1N helicopter essential to missile field support and security, especially for the integration of an effective tactical response force into convoy operations, remains an unfunded requirement.

3.5.4.3 Recommendation(s)	Develop and resource a long-range replacement recapitalization program for aging nuclear support equipment. *Observation 23 has the same recommendation.*

3.5.5 Observation 36

3.5.5.1 Statement	Funding for second destination transportation to move nuclear weapons is inadequate.
3.5.5.2 Supporting Information	This review discovered Second Destination Transportation (SDT) funding is insufficient to keep up with movement of nuclear weapons resulting from treaty obligation force reductions, presidentially-directed nuclear force realignments, the stockpile surveillance program, re-deployment of resources to meet combatant command requirements, depot-level maintenance completed in a timely fashion, and return of unserviceable weapons to the National Nuclear Security Administration. SDT requirements across the spectrum are below 50 percent funding levels.
3.5.5.3 Recommendation(s)	Ensure nuclear weapon movement support systems receive sufficient funding to execute all required stockpile adjustments.

Conclusion

Organization and Resources	In analyzing whether the USAF is properly organized and resourced to succeed in the nuclear mission, it is important to note that all parts of the nuclear enterprise are performing all their assigned missions – nuclear and conventional alike – according to the nation's priorities, and these priorities drive resource allocation of all types.

Resources to support the nuclear mission are tightly constrained. The BRR team reached this conclusion when looking at the totality of resources -- people, equipment, funding, and time. While this constrained resource challenge applies to many other programs in the USAF, it is specifically problematic in the nuclear mission when considering the criticality of the mission and the consequences of not resourcing it properly. Resource shortfalls also may be symptomatic of other challenges described in this report such as enterprise advocacy and prioritization.

This focus area highlights two examples of constrained resources - - people and equipment. Manpower requirements determination efforts in the bomber, airlift, and medical communities, as well as across the nuclear enterprise at large, need a reexamination to ensure the unusual demands of this mission area are adequately considered and resourced. Test, support, and handling equipment face aging and supportability issues that must be tackled with well-defined, properly resourced modernization and sustainment programs. Sufficient funding must be provided to support nuclear weapons movements resulting from international treaty obligations and in response to changes in national policy affecting the size and composition of the stockpile.

4.0 Conclusions

4.1 Conclusion

4.1.1 Statement	***Nuclear surety in the USAF is sound, but needs strengthening.***
4.1.2 Explanation	Recognizing there are always potential risks, overall USAF nuclear surety programs are sound. That said, the review team observed nuclear policies and procedures require some specific strengthening of policy and exploration of advanced technologies for tracking and security. The proposed improvements detailed in this report reinforce solid procedures, fortify material solutions, and sustain an effective force into the future. While adopting these recommendations will strengthen nuclear surety, any present risk to surety would come from inattention or loss of focus rather than from flawed procedures or equipment.

4.2 Conclusion

4.2.1 Statement	***USAF focus on the nuclear mission has diminished since 1991.***
4.2.2 Explanation	Nuclear requirements have decreased as the US has reduced its nuclear arsenal. There is less nuclear-related activity in the USAF today than 15 years ago. The number of nuclear weapons has reduced, and the number of nuclear-capable platforms has shrunk. When the USAF stopped sitting nuclear aircraft alert 24/7 (24 hours a day, 7 days a week) and started doing the nuclear mission as a part-time task, the focus began to erode. This decrease in activity presents challenges to the USAF in the areas of knowledge, skills, and abilities as opportunities to gain and maintain experience are diminished.

4.3 Conclusion

4.3.1 Statement	***The nuclear enterprise in the USAF works despite being fragmented.***
4.3.2 Explanation	Despite progress in some areas, the USAF nuclear enterprise is fragmented. While some centralization of nuclear activities promises to pay dividends, like the creation of the Nuclear Weapons Center, the overall USAF organization of nuclear forces and staffs complicates the priority and focus of nuclear forces. Nuclear weapon systems and staffs are diversely distributed which results in fragmented enterprise advocacy for the nuclear mission. External agencies are frustrated by the distribution of nuclear responsibility and the lack of high-level nuclear advocates in and outside the Pentagon.

4.4 Conclusion

4.4.1 Statement	***Declining USAF nuclear experience has led to waning expertise.***
4.4.2 Explanation	Experience and expertise in the nuclear enterprise continue to decline as more Airmen who were on active duty during the Cold War leave the USAF. In many cases leaders are relying on a depth of experience obtained during the Cold War. Additionally, focus has shifted toward conventional operations caused by increased contingency operations in the 1990s and intensified by current GWOT commitments. Loss of the historical perspective of the Cold War's nuclear focus, combined with the now long-term emphasis on conventional operations, has culminated in reduced USAF nuclear mission expertise.

4.5 Conclusion

4.5.1 Statement	***USAF nuclear surety inspection programs need standardization.***
4.5.2 Explanation	Currently, each MAJCOM nuclear surety inspection team conducts NSIs within its command. This leads to standardization challenges and inconsistent application of inspection criteria. Both DTRA and AFIA contend that nuclear inspection standards are not well understood, nor are they applied uniformly across MAJCOMs. Additionally current USAF NSIs are scheduled in advance; hence inspections capture an unrealistic snapshot of the unit and are not indicative of the unit's overall day-to-day capabilities.

Appendices

Appendix A – Team Composition

BRR Leadership

Role	Rank	Name	Functional Expertise	Office Symbol
Chair	Maj Gen	Polly Peyer	Logistics	AF/A4/7P
Deputy Chair	Col	[redacted]	Bomber Pilot	AF/A5X-C
Focus Area Lead: Leadership and Relationships (Silver Travel Team Lead)	Col	[redacted]	ICBM Operator	AF/A30-SN
Focus Area Lead: Mission Focus	Col	[redacted]	Logistics	595 Space Group
Focus Area Lead: Training and Force Development	Col	[redacted]	Fighter Pilot	Air Force Personnel Center (AFPC)
Focus Area Lead: TATSS	Col	[redacted]	Logistics	HQ ACC/A4Y
Focus Area Lead: Organization and Resources (Blue Travel Team Lead)	Col	[redacted]	Logistics	498 ARSW/CC
Gold Team Lead	Col	[redacted]	Bomber Pilot	Air University
Senior Mentors	Gen (ret)	Lance Lord		
	Maj Gen (ret)	Charles Henderson		

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BRR Team Members

Rank	Name	Functional Expertise	Organization	Team
Leadership and Relationships				
Lt Col	[redacted]	Logistics	Air Force Inspection Agency	Blue
CDR		Submarine Ordnance	COMSUBFOR	Silver
LCDR		Submarine Ordnance	COMSUBPAC	Silver/Blue
Maj		ICBM Operator	AF/A3	[illegible]
Capt		Security Forces	HQ ACC/A7SON	Blue
CMSgt		Munitions Systems	HQ ACC/A4W	Silver
Mission Focus and Culture, History, Safety, and Surety				
Lt Col	[redacted]	Bomber Pilot	AF/A5RE	Blue
Maj		Logistics	701st Munitions Support Squadron	Silver
Maj		ICBM Operator Safety	Air Force Safety Center	Silver
Maj		Logistics Safety	Air Force Safety Center	Blue
Maj		Logistics	20th Air Force/A4	[illegible]
SMSgt		Security Forces	AF/A7S	Blue
Training and Force Development				
Lt Col	[redacted]	Logistics	AF/A4	Silver
Maj		ICBM Operator	90th Operations Support Squadron	Blue/[illegible]
CMSgt		Munitions Systems	56th Equipment Maintenance Squadron	Blue
Transportation, Accountability, Tracking, Scheduling, and Security				
Col	[redacted]	Security Forces	90th Security Forces Group	Silver
Maj		Civil Engineering	HQ ACC/A7Z	Blue
Maj		Logistics	SAF/LL	Gold
CMSgt		Munitions Systems	AF/A4MW	Silver

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BRR Team Members (cont'd)

Organization and Resources				
Lt Col	[redacted]	Logistics	8th Air Force/CCC	Blue
Lt Col		Bomber Navigator	HQ ACC/A3S	Silver
Maj		Civil Engineering	341st Civil Engineer Squadron	Silver
Maj		Manpower	AF/A1	Blue
Maj		Mobility Pilot	AF/A9	[illegible]
LCDR		Submarine Ordnance	Strategic Systems Programs	Blue

Other Support				
Maj	[redacted]	Logistics Coordinator (Civil Engineering)	316th Wing	
Capt		Executive Officer (Trainer Pilot)	AF/A1	
TSgt		Administrative Aide	11th Wing	
Civ		Financial Manager	AF/A4/7	
Ctr		Technical Editor	General Dynamics Information Technology	Blue
Ctr		Analyst	ARES Corporation	Silver
Ctr		Security Manager/Air Travel Coordinator	SAIC	

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BRR Advisors

Rank	Name	Office Symbol
Col	[redacted]	SAF/CMX
Col		SAF/IGI
CAPT		DOE
Lt Col		SAF/LLW
CDR		COMSUBFOR
Lt Col		AF/RE
Lt Col		ANG/A1MW
Lt Col		AF/A9L
Lt Col		NGB/ANG
Lt Col		AFMOA/SG3P (Flt Surgeon)
Maj		SAF/XCDWO
Maj		SAF/CMX
Maj		AF/A1MR
SMSgt		AFIA/EL
Civ		SAF/PAO
Civ		AFIA/EL
Civ		AFSE/SEW
Civ		AF/HO
Civ		AF/JAO
Civ		AF/SEI

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Appendix B – Organizations Interviewed

Date	Organization	Location	Interviews/ Interviewees
24 Oct	Headquarters Air Combat Command	Langley AFB	N/A
1 Nov	Air Force Space Command	Peterson AFB	18/18
1 Nov	2nd Bomb Wing	Barksdale AFB	12/45
2 Nov	US Northern Command	Peterson AFB	5/5
2 Nov	8th Air Force, Task Force 204	Barksdale AFB	13/21
5 Nov	20th Air Force	F.E. Warren AFB	18/24
5 Nov	509th Bomb Wing	Whiteman AFB	15/51
6 Nov	90th Space Wing	F.E. Warren AFB	12/28
13 Nov	Air Education and Training Command	Randolph AFB	2/6
13 Nov	Air Force Personnel Center	Randolph AFB	5/10
13 Nov	Nuclear Weapons Center	Kirtland AFB	6/19
13 Nov	37th Training Wing	Lackland AFB	4/16
14 Nov	Air Force Inspection Agency	Kirtland AFB	3/8
14 Nov	Air Force Safety Center	Kirtland AFB	2/3
14 Nov	Nuclear Weapons Center	Kirtland AFB	6/19
14 Nov	82nd Training Wing	Sheppard AFB	17/22
15 Nov	National Nuclear Security Administration – Office of Secure Transportation (DOE)	Kirtland AFB	3/5
15 Nov	Defense Threat Reduction Agency	Kirtland AFB	6/18
15 Nov	Military Liaison, Sandia Laboratory	Kirtland AFB	1/1
15 Nov	Pantex	Amarillo, TX	6/21
26 Nov	[redacted]		12/21
26 Nov	Air Mobility Command	Scott AFB	9/16
26 Nov	18th Air Force	Scott AFB	1/1
26 Nov	Tanker Airlift Control Center	Scott AFB	4/10
27 Nov	[redacted]		6/18
28 Nov	Headquarters Air Force /A5X	Pentagon	1/1
28 Nov	62nd Airlift Wing	McChord AFB	12/28
28 Nov	[redacted]		6/18
29 Nov	Headquarters Air Force /A7S	Pentagon	1/1
29 Nov	Strategic Weapons Facility, Pacific	Naval Station Kitsap - Bangor	10/23
30 Nov	Headquarters Air Force /A30	Pentagon	1/1
30 Nov	[redacted]		12/31
3 Dec	The Cohen Group	National Capital Region	2/3
4 Dec	Office of the Under Secretary of Defense for Acquisition, Technology and Logistics	National Capital Region	1/2
4 Dec	US Strategic Command	Offutt AFB	8/29
4 Dec	99th Air Base Wing	Nellis AFB	13/18
4 Dec	896th Munitions Squadron	Nellis AFB	5/8
5 Dec	91st Space Wing	Minot AFB	12/39
6 Dec	5th Bomb Wing	Minot AFB	12/41
6 Dec	381st Training Group	Vandenberg AFB	12/18

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Date	Organization	Location	Interviews/ Interviewees
6 Dec	576th Flight Test Squadron	Vandenberg AFB	4/10
10 Dec	Joint Staff NMCC/JCSJ3	Pentagon	1/2
10 Dec	Nuclear Support Staff	National Capital Region	1/2
10 Dec	Headquarters Air Force/A4M Headquarters Air Force/A1M Headquarters Air Force/A3O-S Headquarters Air Force/SE Headquarters Air Force/A3/5 Headquarters Air Force/A8P	Pentagon	1/1 1/1 1/1 1/1 1/1 1/1
11 Dec	Headquarters Air Force/A7C Headquarters Air Force/A5R	Pentagon	1/2 1/1
11 Dec	US Navy Strategic Systems Programs	National Capital Region	1/2
11 Dec	Strategic Weapons Facility, Atlantic	Naval Submarine Base Kings Bay	6/24
12 Dec	National Nuclear Security Administration	National Capital Region	1/3
12 Dec	Headquarters Air Combat Command	Langley, AFB	9/32
13 Dec	US Joint Forces Command (VTC)	Norfolk, VA	1/2
13 Dec	Air Force Materiel Command and Air Logistics Centers (VTC)	Wright-Patterson AFB	1/12
13 Dec	Space and Missile Systems Center (call)	Los Angeles AFB	1/1
14 Dec	Secretary of the Air Force/Inspector General Deputy	Pentagon	1/1
14 Dec	Defense Threat Reduction Agency	National Capital Region	1/1
17 Dec	Secretary of the Air Force/Inspector General	Pentagon	1/1
17 Dec	[redacted]		1/1
17 Dec	Air Force Materiel Command (call)	Wright-Patterson AFB	1/1
10 Jan	[redacted]		1/1
1 Feb	341st Space Wing	Malmstrom AFB	8/27
1 Feb	[redacted]		4/10
2 Feb			4/9
3 Feb			4/15

E.O. 12958(2003), 1.4(d)

Appendix C – References/Bibliography

Books

[redacted] and [redacted] *Future Roles of US Nuclear Forces Implications for US Strategy.* Santa Monica, CA: RAND, 2003.

Periodicals (Alphabetical by Publication)

[redacted] Lt Col [redacted] "The 'Hyphenaled Airman.'" *Air and Space Power Journal*, no 21 (Fall 2007): 23.

[redacted] "Air Chief approves sweeping study of services future 'capability gaps.'" *Inside the Air Force*, 23 January 2006.

Reports

Combat Capability Assessment

Combat Capability Assessment - 90th Space Wing - F.E. Warren Air Force Base, Wyoming. Report. F.E. Warren AFB, WY: 20th Air Force, 11 March 2005. (FOUO)

Combat Capability Assessment - 90th Space Wing - F.E. Warren Air Force Base, Wyoming. Report. F.E. Warren AFB, WY: 20th Air Force, 18 June 2003. (FOUO)

Combat Capability Assessment - 90th Space Wing - F.E. Warren Air Force Base, Wyoming. Report. F.E. Warren AFB, WY: 20th Air Force, 18 January 2002. (FOUO)

Combat Capability Assessment - 91st Space Wing - Minot Air Force Base, North Dakota. Report. F.E. Warren AFB, WY: 20th Air Force, 1 July 2004. (FOUO)

Combat Capability Assessment - 91st Space Wing - Minot Air Force Base, North Dakota. Report. F.E. Warren AFB, WY: 20th Air Force, 8 October 2002. (FOUO)

Combat Capability Assessment - 341st Space Wing – Malmstrom Air Force Base, Montana. Report. F.E. Warren AFB, WY: 20th Air Force, 17 December 2004. (FOUO)

Combat Capability Assessment - 341st Space Wing – Malmstrom Air Force Base, Montana. Report. F.E. Warren AFB, WY: 20th Air Force, 12 December 2002. (FOUO)

Limited Nuclear Surety Inspection (LNSI)

Limited Nuclear Surety Inspection Report – 2nd Bomb Wing – Barksdale AFB, LA. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 27 September 2007. (FOUO)

E.O. 12958 (2003), 1.4(d)

Limited Nuclear Surety Inspection Report [redacted] USAFE IG Report. [redacted] United States Air Forces Europe Inspector General, 3 November 2007. (FOUO)

Limited Nuclear Surety Inspection Report – [redacted] USAFE IG Report. [redacted] United States Air Forces Europe Inspector General, 9 November 2007. (FOUO)

Limited Nuclear Surety Inspection Report – 509th Bomb Wing Whiteman AFB, MO. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 12 September 2007. (FOUO)

Limited Nuclear Surety Inspection Report - Nuclear Weapons Center – Kirtland AFB, New Mexico. AFMC IG Report. Wright-Patterson AFB, OH: Air Force Materiel Command Inspector General, 14 October 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight

Limited Nuclear Surety Inspection Oversight Report – 2nd Bomb Wing – Barksdale AFB, LA. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, 27 September 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight Report – 90th Space Wing – F.E. Warren AFB, Wyoming. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, 12 September 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight Report – 99th Air Base Wing, 896th Munitions Squadron (AFMC) – Nellis Air Force Base, Nevada. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight Report – 341st Space Wing – Malmstrom AFB, Montana. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, 27 September 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight Report – 377th Air Base Wing (AFMC), 498th Armament System Wing (AFMC) – Kirtland AFB, NM. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, 14 October 2007. (FOUO)

Limited Nuclear Surety Inspection Oversight Report – 509th Bomb Wing – Whiteman AFB, MO. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, 10 September 2007. (FOUO)

Missile Standardization, Evaluation, and Training (MSET) Assessment

Missile Standardization, Evaluation, and Training (MSET) Assessment - 90th Space Wing - F.E. Warren Air Force Base, Wyoming. Report. F.E. Warren AFB, WY: 20th Air Force, 19 December 2006. (FOUO)

Missile Standardization, Evaluation, and Training (MSET) Assessment - 90th Space Wing - F.E. Warren Air Force Base, Wyoming. Report. F.E. Warren AFB, WY: 20th Air Force, 30 January 2006. (FOUO)

Missile Standardization, Evaluation, and Training (MSET) Assessment - 91st Space Wing - Minot Air Force Base, North Dakota. Report. F.E. Warren AFB, WY: 20th Air Force, November 2005. (FOUO)

Missile Standardization, Evaluation, and Training (MSET) Assessment - 341st Space Wing – Malmstrom Air Force Base, Montana. Report. F.E. Warren AFB, WY: 20th Air Force, 26 February 2007. (FOUO)

Missile Standardization, Evaluation, and Training (MSET) Assessment - 341st Space Wing – Malmstrom Air Force Base, Montana. Report. F.E. Warren AFB, WY: 20th Air Force, 4 April 2006. (FOUO)

Nuclear Operational Readiness Inspection (NORI)

Nuclear Operational Readiness Inspection – 2nd Bomb Wing – Barksdale AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 16 July 2005. (FOUO)

Nuclear Operational Readiness Inspection Report – 5th Bomb Wing – Minot AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 28 April 2006. (FOUO)

Nuclear Operational Readiness Inspection – 5th Bomb Wing – Minot AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 2 August 2002. (FOUO)

Nuclear Operational Readiness Inspection – 509th Bomb Wing – Whiteman AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 1 November 2004. (FOUO)

Nuclear Operational Readiness Inspection – 509th Bomb Wing – Whiteman AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 14 September 2001. (FOUO)

Nuclear Surety Inspection (NSI)

Nuclear Surety Inspection Report – 2nd Bomb Wing – Barksdale AFB, LA. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 23 October 2006. (FOUO)

Nuclear Surety Inspection Report – 2nd Bomb Wing – Barksdale AFB, LA. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, July 2005. (FOUO)

Nuclear Surety Inspection Report – 5th Bomb Wing – Minot AFB, ND. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, 8 June 2006. (FOUO)

Nuclear Surety Inspection Report – 62nd Airlift Wing – McChord AFB, Washington. AMC IG Report. Scott AFB, IL: Headquarters Air Mobility Command Inspector General, 18 December 2007. (FOUO)

Nuclear Surety Inspection Report – 62nd Airlift Wing – McChord AFB, Washington. AMC IG Report. Scott AFB, IL: Headquarters Air Mobility Command Inspector General, 18 September 2007. (FOUO)

Nuclear Surety Inspection Report – 62nd Airlift Wing – McChord AFB, Washington. AMC IG Report. Scott AFB, IL: Headquarters Air Mobility Command Inspector General, 16 April 2007. (FOUO)

Nuclear Surety Inspection Report – 62nd Airlift Wing – McChord AFB, Washington. AMC IG Report. Scott AFB, IL: Headquarters Air Mobility Command Inspector General, 17 February 2006. (FOUO)

Nuclear Surety Inspection Report– 90th Space Wing, F.E. Warren Air Force Base, Wyoming. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, September 2007. (FOUO)

Nuclear Surety Inspection Report– 90th Space Wing, F.E. Warren Air Force Base, Wyoming. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, 4 April 2006. (FOUO)

Nuclear Surety Inspection – 91st Space Wing – Minot Air Force Base, North Dakota. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, June 2006. (FOUO)

Nuclear Surety Inspection – 91st Space Wing – Minot Air Force Base, North Dakota. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, June 2005. (FOUO)

Nuclear Surety Inspection – 91st Space Wing – Minot Air Force Base, North Dakota. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, June 2004. (FOUO)

Nuclear Surety Inspection – 341st Space Wing – Malmstrom Air Force Base, Montana. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, 25 June 2007. (FOUO)

Nuclear Surety Inspection – 341st Space Wing – Malmstrom Air Force Base, Montana. HQAFSPC IG Report. Peterson AFB, CO: Headquarters Air Force Space Command Inspector General, 29 January 2006. (FOUO)

Nuclear Surety Inspection (NSI) of the 377th Air Base Wing (ABW). HQ AFMC Report. Wright-Patterson AFB, OH: Headquarters Air Force Materiel Command, August 2005. (FOUO)

Nuclear Surety Inspection Oversight

Nuclear Surety Inspection Oversight Report – 62nd Airlift Wing (AMC) – McChord Air Force Base, Washington. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2007. (FOUO)

Nuclear Surety Inspection Oversight Report – 90th Space Wing (AFSPC) – F.E. Warren Air Force Base, Wyoming. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2007. (FOUO)

Nuclear Surety Inspection Oversight Report – 377th Air Base Wing (AFMC), 498th Armament Wing (AFMC) – Kirtland Air Force Base, New Mexico. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, October 2007. (FOUO)

Nuclear Surety Inspection Oversight Report – 509th Bomb Wing (ACC) – Whiteman Air Force Base, Missouri. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection

Operation Plan (OPLAN) 8044 Inspection Report - 108th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, July. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 126th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, January 2006. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 134th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, June 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 141st Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, August 2006. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 161st Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, June 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 171st Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, October 2005. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 186th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, January 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 305th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, July 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 319th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, June 2006. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report - 452nd Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, July 2006. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 507th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, June 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 60th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, September 2007. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 92nd Air Refueling Wing.. Report. Scott AFB, IL: Air Mobility Command Inspector General, September 2005. (FOUO)

Operation Plan (OPLAN) 8044 Inspection Report – 940th Air Refueling Wing. Report. Scott AFB, IL: Air Mobility Command Inspector General, July 2006. (FOUO)

Other (Alphabetical by Title)

[redacted] Col [redacted] *2007 Capabilities Review and Risk Assessment (CRRA)* (U). Briefing. 14 December 2007. (Secret/ NOFORN)

Sams, Lt Gen Ronald. *Air Force Nuclear Surety Human Factors Study Results (DRAFT)*. Briefing. (Pre-decisional, Not for release)

[redacted] and [redacted] *Air Force Nuclear Systems Management Review*. Briefing. 8 January 2004.

Annex 20 to Appendix B: NWS PSM Details & Mission Area Assessments (U). Report Appendix. (Secret/NOFORN/MR)

Annual Inspection Report FY 2006 (U). DTRA Report. Kirtland AFB, NM: Defense Threat Reduction Agency. (Confidential//X1)

Annual Report 2004. Annual Report. Santa Monica, CA: RAND Project Air Force, 2004.

Appendix B: Process Sequence Model (PSM) Details & Mission Area Assessments (U). Report Appendix. (Secret/NOFORN/MR)

Appendix C: Recommendations from the Chiles Commission Report. Report Appendix.

Commission on Maintaining United States Nuclear Weapons Expertise. Report to the Congress and Secretary of Energy, March 1999.

Commission on Maintaining United States Nuclear Weapons Expertise. US Government Report. Washington DC: Commission on Maintaining United States Nuclear Weapons Expertise, 1 March 1999.

The Defense Integration and Management of Nuclear Data Services (DIAMONDS) and the Air Force. Talking Paper. Kirtland AFB, NM: Defense Threat Reduction Agency, 14 November 2007.

DOD Nuclear Weapon Security Deviation Report (U). DTRA Report. Kirtland AFB, NM: Defense Threat Reduction Agency, May 2007. (Secret/FRD/NOFORN)

DTRA Oversight Inspections of AF LNSIs/INSIs/NSIs. Report. Kirtland AFB, NM: Defense Threat Reduction Agency, 14 October 2007

[redacted] FY07 *ACC Nuclear Surety Inspection Trends.* Briefing. 14 February 2007.

FY02 Nuclear Mission Management Plan. Preface to the Executive Level Version (U). Report. (Secret/NOFORN)

Fiscal Year 2006 Joint Surety Report (U). US Government Report. Washington, DC: Departments of Defense and Energy. (Secret/FRD)

Fiscal Year 2005 Joint Surety Report (U). US Government Report. Washington, DC: Departments of Defense and Energy. (Secret, FRD)

Fiscal Year 2004 Joint Surety Report (U). US Government Report. Washington, DC; Departments of Defense and Energy. (Secret/FRD)

Fiscal Year 2003 Joint Surety Report (U). US Government Report. Washington, DC: Departments of Defense and Energy. (Secret/FRD)

Future Roles of U.S. Nuclear Forces (Implications for U.S. Strategy). Santa Monica, CA: RAND Project Air Force, 2003.

Future Strategic Strike Forces. Defense Science Board Report. Washington DC: Department of Defense, February 2004.

Future Strategic Strike Skills. Defense Science Board Report. Washington DC: Department of Defense, March 2006.

[redacted] *Global Fortress (Final Report)* (U). Briefing. 7 December 2007. (Secret)

HQ AFMC/IG PN 2007-16 (2007 ACC MM LNSI 99ABW, 896 MUNS). Inspection Report. Wright-Patterson AFB, OH: Headquarters Air Force Materiel Command Inspector General, 17 September 2007.

HQ AFMC/IG PN 2007-06 (2007 AFMC NSI NWC 498 ASW). Inspection Report. Wright-Patterson AFB, OH: Headquarters Air Force Materiel Command Inspector General, 28 January 2007.

HQ AFMC/IG PN 2005-11 (2005 AFMC NSI 377 ABW). Inspection Report. Wright-Patterson AFB, OH: Headquarters Air Force Materiel Command Inspector General, 29 August 2005.

Improving the Development and Utilization of Air Force Space and Missile Officers. Report. Santa Monica, CA: RAND Project Air Force, 2006.

Neary, Maj Gen (Ret) Thomas H. and Hagemann, Kenneth L. Maj Gen (Ret), *An Independent Review of the DTRA DNSI Team.* Report. 28 September 2007. (FOUO)

Introduction to JTF-CS OPLAN 3500 and NC-NARP Support Discussion with AF IG. HTF-CS Familiarization Brief. 2 November 2007. (FOUO)

JTF-CS Familiarization Brief, Introduction to JTF-CS OPLAN 3500 and NC-NARP Support Discussion with AF IG. Briefing. 2 November 2007. (FOUO)

Joint Advisory Committee on Nuclear Weapons Surety Establishing Surety Standards (U). Report. May 2001. (Secret/FRD/NOFORN)

Joint DOE and DoD Requirements for Warhead Refurbishment (U). Joint Advisory Committee on Nuclear Weapons Surety, May 2000. *(Secret/RD/CNWDI)*

Joint Nuclear Surety Inspection and Multi-MAJCOM Nuclear Surety Inspection – 99th Air Base Wing, 896th Munitions Squadron – Nellis Air Force Base, Nevada ACC IG, AFMC IG Report. Langley AFB, VA: Air Combat Command Inspector General, Air Force Materiel Command Inspector General, December 2006. (FOUO)

Joint Nuclear Surety Inspection Report– 509th Bomb Wing – Whiteman AFB. ACC IG Report. Langley AFB, VA: Air Combat Command Inspector General, December 2006. (FOUO)

Leveraging the Possibilities, Meeting Future Needs (A Series of White Papers for A3-S Consideration). White Paper. 15 November 2007. (SAIC Proprietary)

Reynes, Brig Gen Joseph. *Limited Nuclear Surety Inspection Results.* Briefing.

Long Range Bombers. US Air Force White Paper. Washington, DC: US Air Force, March 1999.

Long Range Strike. US Air Force White Paper. Washington, DC: US Air Force, 2007.

Nuclear Capabilities (U). US Government Report. Washington DC: Defense Science Board, January 2006. (Secret/FRD)

MAJCOM IG Experience. Briefing. 21 November 2007.

Webber, Maj Gen Richard. *MGT HQ (MHQ) Bottom-Up Review.* Briefing. 18 September 2007.

[redacted] Capt [redacted] *Munitions Career Field Manning.* Briefing.

North American Aerospace Defense Command & United States Northern Command In brief. Briefing. 2007.

Nuclear Command, Control and Communications (NC3). Eagle Look Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2006. (FOUO)

Nuclear Command, Control, and Communication (NC3) Management Process, PN 06-502. AFIA Report. Kirtland AFB, NM: Air Force Inspection Agency, September 2006. (FOUO)

Nuclear Deterrence. Defense Science Board Task Force Report. Washington, DC: Department of Defense, October 1998.

Nuclear Guidance Listing (U). Briefing. (Secret)

The Nuclear Posture Review: How is the "New Triad" New? Washington, DC: Center for Strategic and Budgetary Assessments, 2002.

Nuclear Proficiency Report. Briefing.

Nuclear Skills Retention Measures within the Department of Defense and the Department of Energy. Report. Department of Defense and Department of Energy, 3 November 2000.

Nuclear Surety Inspection Process (NSIP). Special Review PN 05-702. Kirtland AFB, NM: Air Force Inspection Agency, April 2006. (FOUO)

Nuclear Weapon - Improvement Management Needed to Implement Stockpile Stewardship Program Effectively. GAO Report. Washington, DC: Government Accountability Office, December 2000.

Nuclear Weapons in US National Security Policy: Past, Present, and Prospects. Congressional Research Service (CRS) Report for Congress. Washington, DC: Congressional Research Service, October 2007.

Operationally Deployed Weapon Report (U). Report. September 30, 2007. (Secret/FRD)

Swaim, Dan J., President, Pantex. *Pantex Ethical Leadership and the Business Imperative of the High Reliability Organization.* Briefing. Amarillo, TX: Pantex.

Report of the Defense Science Board Task Force on Future Strategic Strike Skills. DSB Report. Washington DC: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, March 2006.

Kravitsky, Maj Stephen M. *Reducing the Intercontinental Ballistic Missile Alert Rate and the Impact on Maintenance Utilization.* Wright Flyer Paper no. 26. Maxwell AFB, AL: Air Command and Staff College, June 2007.

Report on Air Force Nuclear Surety Inspection (NSI) Process and Issues Related to Inspections. Report. Washington, DC: Joint Advisory Committee on Nuclear Weapons Surety 10 February 2004.

Report on the Nuclear Readiness of the Department of Defense (DOD) (U). Washington, DC: Joint Advisory Committee (JAC) on Nuclear Weapons Safety, January 1984. (Secret/FRD)

Report of the Defense Science Board Task Force on Nuclear Capabilities Report Summary. DSB Report. Washington, DC: Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, December 2006.

Report on Nuclear Weapons Physical Security (U). Report. Washington, DC: Joint Advisory Committee on Nuclear Weapons Surety, October 2005. (Secret/FRD)

Statement of B-2 Aircraft Maintenance and Munitions Manpower Requirements. Report. Langley AFB, VA: Headquarters Air Combat Command, January 2006.

SOE for NSIs. AFIA Briefing. Kirtland AFB, NM: Air Force Inspection Agency, 4 October 2007.

Statement of B-52H Aircraft Maintenance Manpower. Report. Langley AFB, VA: Headquarters Air Combat Command, March 2004.

Goure, Daniel. *Strategic Nuclear Forces in U.S. National Security in the 21st Century.* Arlington, VA: Lexington Institute, 2002.

Sustainment of Nuclear Assets. AFAA Report. Washington DC: Department of the Air Force, 14 July 2005.

US Air Force White Paper on Long Range Bombers. White Paper. United States Air Force, 1 March 1999.

US Nuclear Weapons: Changes in Policy and Force Structure. CRS Report for Congress. Washing, DC: Congressional Research Service, August 2006.

US Nuclear Weapons – Future Strategy and Force Posture." Research Brief. Santa Monica, CA: RAND Project Air Force, 2004.

USAFE A-1, % Disc Resulting in Permanent Decert. Briefing. 21 November 2007.

Wallgren. *USNORTHCOM CONPLAN 3505, Nuclear Weapon Accident Response Plan.* Briefing. 2 November 2007.

Raaberg, Maj Gen Douglas L. *An Unauthorized Transfer of Nuclear Warheads Between Minot AFB, North Dakota and Barksdale AFB, Louisiana* (U). Commander Directed Report of Investigation, 30 August 2007. *(Secret/FRD/MR)*

The United States Air Force Capabilities Review & Risk Assessment Report (U). Report. Washington, DC: HQ USAF/A5XC, September 2007. *(Secret/NOFORN/MR)*

Unpublished Papers (Alphabetically by Author)

[redacted] Maj [redacted] "Evaluating US Air Force Nuclear Weapon Storage Area Security in the Post Cold-War Environment." Research Report no 038/2000-04. Maxwell AFB, AL: Air Command and Staff College.

[redacted] "Preparing ACC/IG Nuclear Surety Inspectors." Bullet Background Paper. Air Combat Command, 8 September 2007.

[redacted] Col [redacted] "Air Force Nuclear Surety Human Factors Study Results." Air Force Inspection Agency.

[redacted] Maj [redacted] "Nuclear Experience Identifier Program." AF/XONO, 11 October 2000.

"Congressional Complaint on Nuclear Security" (U). Briefing. Multiple Sources. (Secret/FRD)

[redacted] "Beyond the Task Force CONOPS: The Path to a Capabilities-Based Modernization Framework for the Air Force." Research report. Maxwell AFB: Air War College, 2003.

CMSgt [redacted] "Bullet Background Paper on 2BW LNSI Weapons Postload Sequence of Events." Bullet Background paper, 3 October 2007.

Public Documents

US Senate. *Department of Defense Appropriations Bill, 2008.* 110th Cong., 1st sess., 2007. H.R. 3222.

Memorandums

Bodman, Samuel W., Secretary of Energy, Gates, Robert M., Secretary of Defense. To The President (U). Memorandum, 10 July 2007. *(Secret/RD/CNWDI)*

Burg, Maj Gen Roger W. To HQ USAF/A3FC. Memorandum, 11 August 2006.

~~FOR OFFICIAL USE ONLY~~

Maj Gen Castro, Deputy Director Defense Threat Reduction Agency (DTRA). To ATSD (NCB) and Joint Staff (J3). Memorandum, 28 Sept 2007.

Maj Gen Castro, Deputy Director Defense Threat Reduction Agency (DTRA). To ATSD (NCB) and Joint Staff (J3). Memorandum, 27 Sept 2007.

Maj Gen Castro, Deputy Director Defense Threat Reduction Agency (DTRA). To ATSD (NCB) and Joint Staff (J3). Memorandum, 20 Sept 2007.

Maj Gen Castro, Deputy Director Defense Threat Reduction Agency (DTRA). To ATSD (NCB) and Joint Staff (J3). Memorandum, 17 September 2007.

Maj Gen Castro, Deputy Director Defense Threat Reduction Agency (DTRA). To ATSD (NCB) and Joint Staff (J3). Memorandum, 13 September 2007.

Crower, RADM W.D. To Deputy Assistant to the Secretary of Defense (Nuclear Matters) (U). Memorandum, 14 March 2006. (Secret/FRD/NOFORN)

[redacted] Col [redacted] Directorate of Security Forces. Memorandum. To HQ DTRA/CS. Memorandum, 3 March 2003. (FOUO/UCNI)

[redacted] Col [redacted] Deputy, Space & Nuclear Operations. To HQ USAF/A3O-S. Memorandum, 17 August 2007.

[redacted] Col [redacted] Deputy Director for Integration and Resources. To HQ USAF/A3S. Memorandum, 10 January 2007.

Gates, Robert M., Secretary of Defense. To Acting Under Secretary (Acquisition, Technology, and Logistics) (U). Memorandum, 19 September 2007. (Secret/RD/CNWDI)

HQ AFSPC/IG. To DTRA/CSNI. Memorandum, 15 October 2007.

[redacted] Capt [redacted] Executive Secretary, US Navy. To Secretaries of the Military Departments, Chairman of the Joint Chiefs of Staff, and Under Secretaries of Defense (U). Memorandum, 10 May 2004. (Secret/RD/CNWDI)

Mauney, C.V. To Director, Defense Threat Reduction Agency (NSCS). Memorandum, 16 April 2004. (UCNI)

President of the United States. To Vice President, Secretary of State, Secretary of Defense, Secretary of Energy, Secretary of Homeland Security, Chief of Staff to the

President, Director Office on Management and Budget, Director of National Intelligence, Assistant to the President for National Security Affairs, Assistant to the President for Homeland Security and Counterterrorism, and Chairman, Joint Chiefs of Staff (U). Memorandum, 24 January 2006. (Secret/RD/CNWDI)

[redacted] Lt Col [redacted] Chief, Directorate of Security Forces. To Headquarters HQ DTRA/CSNS. Memorandum, 17 February 2004. (UCNI)

Sams, Lt Gen Ronald F., SAF/IG. To ACC/IG, AFSPC/IG,AFMC/IG, AMC/IG, USAF/IG. Memorandum.

Secretary of Energy and Secretary of Defense. To The President. Memorandum: "FY 2006 Joint Surety Report" (U). (Secret/FRD)

Secretary of Energy and Secretary of Defense. To The President. Memorandum: "FY 2005 Joint Surety Report" (U). (Secret/FRD)

Secretary of Energy and Secretary of Defense. To The President. Memorandum: "FY 2004 Joint Surety Report" (U). (Secret/FRD)

[redacted] Col [redacted] Chief, Force Protection Operations Division, HQ USAF Directorate of Security Forces (U). To HQ DTRA/CSNS. Memorandum. (Secret)

Stufflebeem, J.D. To Director, Defense Threat Reduction Agency. Memorandum, 15 March 2005. (UCNI)

Moseley, T. Michael, Chief of Staff, US Air Force. To Chief of Navy (U). Memorandum, 9 October 2007. (Secret/RD/CNWDI)

Thompson, Robert C. Assistant for Law Enforcement & Physical Security. To Director, Defense Threat Reduction Agency (U). Memorandum, 4 April 2003. (Secret)

[redacted] Col [redacted] Deputy Director of Security Forces. To HQ DTRA/CSNS. Memorandum, 12 May 2006. (UCNI)

Unsigned. To Secretary of Defense (U). Draft Memorandum, 5 October 2007. (Secret/RD/CNWDI)

Welch, Larry D., General, USAF (Ret). To VCJCS, CSAF, CINCUSAFE (U). Memorandum, 5 July 2000. (Secret/RD/CNWDI)

Willard, Admiral Robert F. To Deputy Assistant to the Secretary of Defense (ATTN: Nuclear Matters) Director, Defense Threat Reduction Agency (U). Memorandum, 23 February 2007. (Secret)

Wynne, Michael W. Secretary of the Air Force and Moseley, T. Michael Chief of Staff of the Air Force. To the Airmen of the United States Air Force.

Wynne, Michael W., Acting Under Secretary of Defense (AT&L). To Secretary of Defense (U). Memorandum, 1 December 2003. (Secret/RD/CNWDI)

Young, John L., USD (AT&L), Acting. To Secretary of Defense (U). Memorandum. 12 October 2007. (Secret/RD/CNWDI)

Manuals, Instructions, Directives, and Other Publications

Air Combat Command Instruction (ACCI) 10-450 Vol 2. *Nuclear Committed Aircraft - Nuclear Planning* (U), 1 December 2006. (Secret/FRD)

Air Force Doctrine Document (AFDD) 1-1. *Leadership and Force Development*, 18 February 2006.

Air Force Doctrine Document (AFDD) 2-1.2. *Strategic Attack,* 30 September 2003.

Air Force Doctrine Document (AFDD) 2-1.5. *Nuclear Operations (DRAFT).*

Air Force Doctrine Document (AFDD) 2-1.8. *Counter-Chemical, Biological, Radiological, and Nuclear Operations*, 26 January 2007.

Air Force Doctrine Documents (AFDD) 2-8. *Command and Control*, 1 June 2007.

Air Force Doctrine Documents (AFDD) 2-10. *Homeland Operations,* 21 March 2006.

Air Force Instruction (AFI) 10-419. *Dual Capable Aircraft Nuclear Training, Planning and Operational Procedures F-15E/F-16, [XONO OPR]* (U), 1 September 2003. (Secret)

Air Force Instruction (AFI) 21-204. *Nuclear Weapons Maintenance Procedures*, 4 May 2007.

Air Force Instruction (AFI) 31-101. *Air Force Installation Security Program*, 1 March 2004.

Air Force Instruction (AFI) 31-407. *Air Force Nuclear Weapons Security Classification Policy (U)*, 1 October 2003. (Secret/FRD)

Air Force Instruction (AFI) 63-103. *Joint Air Force-National Nuclear Security Administration (AF-NNSA) Nuclear Weapons Acquisition, [HQ USAF/A3O-SN OPR] (DRAFT)*, 1 January 2008.

Air Force Instruction (AFI) 63-125. *Nuclear Certification Program*, 15 March 2004.

Air Force Manpower Standard 23M1. *Nuclear Maintenance*, 10 August 1994.

Air Force Manpower Standard 31XX. *Aircraft Crew*, 22 August 1997.

Air Force Manpower Standard 514X. *Additive for Sensitive Duties Program*, 28 September 1994.

Air Force Pamphlet (AFPAM) 38-102. *Headquarters United States Air Force Organization and functions (Chartbook)*, 1 January 2004.

Air Force Program Action Directive (AFPAD) 07-13. *Management Consolidation Transformation*, 5 December 2007.

Department of Defense Directive (DoDD) 3150.8-M, Chapter 2. *Functional Response Tiers and Nuclear Weapon Accident Response Assets and Resources.*

Department of Defense Directive (DoDD) S-3150.7. *Controlling the Use of Nuclear Weapons* (U), 20 June 1994. (Secret)

Department of Defense Directive (DoDD) S-5200.16. *Objective and Minimum Standards for Communication Security Measures Used in Nuclear Command Control and Communications* (U), 22 September 1970. (Secret)

Department of Defense Directive (DoDD) 5210.41-M. *Nuclear Weapon Security Manual*, April 1994.

Department of Defense Directive (DoDD) S-5210.81. *United States Nuclear Weapons Command and Control, Safety, and Security* (U), 8 August 2005. (Secret)

National Security Presidential Directive (NSPD) 10. *US Strategic Nuclear Forces* (U), 21 December 2001. (Secret)

National Security Presidential Directive (NSPD) 28. *United States Nuclear Weapons Command and Control, Safety, and Security* (U), 24 June 2003. (Secret)

National Security Presidential Directive (NSPD) 34. *FY 2004 - 2012 Nuclear Weapons Stockpile Plan* (U), 6 May 2004. (Secret/CNWDI)

National Security Presidential Directive (NSPD) 35. *Nuclear Weapons Deployment Authorization* (U). (Secret)

National Security Presidential Directive (NSPD) 45. *FY 2006-2012 Nuclear Weapons Stockpile Plan* (U). (Secret/CNWDI)

USAF Nuclear Operations (AF/XON) Process Guide. Nuclear Operations Issues Management, 10 December 2002.

USSTRATCOM OPLAN 8044 REV 05 FY 08 Aircraft Force Commit Effective: 01/1600Z October 2007 (U). (Secret/FRD)

Minutes

Minutes. Air Force Nuclear General Officer Steering Group (AFNGOSG) (U), 29 August 2007. (Secret/NF/RD/FRD/MR)

Minutes. Air Force Nuclear General Officer Steering Group (AFNGOSG) (U), 9 April 2007. (Secret/FRD/MR)

Minutes. Air Force Nuclear General Officer Steering Group (AFNGOSG) (U), 18 July 2006. (Secret/FRD/MR)

Minutes. Air Force Nuclear General Officer Steering Group (AFNGOSG) (U), 19 January 2006. (Secret)

Lectures and Addresses

Newton, Maj Gen Richard Y. Press Conference. Washington, DC, 19 October 2007.

Wynne, Michael W. secretary of the Air Force. Remarks. 2007 Air Force Defense Strategy Seminar Series, Washington, DC, 19 March 2007.

Electronic Publications (Alphabetically by Title)

Excel Spreadsheets

A9 Security_Forces Manning.xls. Spreadsheet.

Major [redacted] AFIT EN- Graduate School Nuclear Engineering Degree Recipients.xls. Spreadsheet.

PowerPoint Presentations

"21A & 21M 10-Board Historical Promotion Rates." PowerPoint. AFPC/DPAP, December 2007.

[redacted] Col [redacted] "AFSC 21M/2M0 – Maintaining Nuclear Expertise and Skills." PowerPoint. AFSPC/DA4, 16 July 2007.

AFSPC Senior Leaders Maintenance Course. PowerPoint Presentations 1-17. HQ AFSPC/A4, 9 February 2006.

"Air Force Nuclear Futures Study." PowerPoint. AF/XON, 17 March 1999.
Sams, Lt General, "Air Force Nuclear Surety Human Factors Study Results." PowerPoint. SAF/IG.

[redacted] Col [redacted] "AFSPC Response Task Force Status Update." PowerPoint. AFSPC/DA4, 29 November 2007.

[redacted] Maj [redacted] "B-52 Program Update." PowerPoint. SAF/AQPB, December 2007.

"CSAF Special Interest Item – Nuclear Surety Inspections (NSIs)." PowerPoint. 28 November 2007. (FOUO)

DoD Transformation – Challenges and Opportunities. GAO PowerPoint. Washington DC: Government Accountability Office, November 2007.

"MHU-196/204 Munitions Lift Trailer." PowerPoint. 542 Combat Sustainment Wing, US Air Force.

"Nuclear Response Task Force." PowerPoint.

[redacted] Capt [redacted] "Security Forces Manning." PowerPoint. AF/A9RP, 5 December 2007.

[redacted] Maj [redacted] "SMC SQ/CC Selection." PowerPoint. Air Force Space Command.

"Simulated Electronic Launch Minuteman." PowerPoint. Updated February 1999.

"Spread the Word Briefing." PowerPoint. 13S Assignment Team, Headquarters Air Force Personnel Center, 13 Jun 2007.

"Studies and Analyses Related to the Evolution of Air Force Nuclear Operations Since 1992." PowerPoint. A3O-SN, 21 September 2007.

Reynes, Brig Gen Joseph, "Systemic Inspection Challenges ACC IG Observations." PowerPoint. 3 December 2007.

"USAF Capability Review and Risk Assessment." PowerPoint. Global Defense CONOPS, Nuclear Defense CONOPS, March 2003.

VE08 Selection Demographics.pps. PowerPoint. Air Force Space Command.

VE 07 Website Demographics.ppt. PowerPoint. Air Force Space Command, 2007.

[redacted] Maj [redacted] "Vigilant Eagle 2007 Hotwash." PowerPoint. Air Force Space Command, 7 July 2006.

[redacted] Maj [redacted] "Vigilant Eagle 2007 Board Results." PowerPoint. Air Force Space Command, 26 April 2006.

[redacted] Maj [redacted] "VE06 Demographics Bottom 25." PowerPoint. Air Force Space Command.

VE Demographics 06.ppt. PowerPoint. Air Force Space Command.

"VE04 Board Results 16 –17 Jul 03." PowerPoint. Air Force Space Command, 2003.

"VE04 Demographics." PowerPoint. Air Force Space Command, 2005.

"Vigilant Eagle 2003 Demographics." PowerPoint. Air Force Space Command, 2003.

"Vigilant Eagle (VE) 2002 Operations Squadron Commander Demographics." PowerPoint. Air Force Space Command, 2002.

[redacted] Col [redacted] "Vigilant Eagle (VE) 2001." PowerPoint. Air Force Space Command, 2001.

"Wing I – Malmstrom AFB - Intersite Cabling Connections." PowerPoint. Updated July 1998.

"Wing III – Minot AFB - Intersite Cabling Connections." PowerPoint. Updated December 1998.

"Wing V – F.E. Warren AFB Intersite Cabling Connections." PowerPoint. Updated December 1998.

Other

A-1 Nuclear Blue Ribbon Request.doc. Word Document. 11 December 2007.

Air Force Posture Sustainment. Secretary of the Air Force publication, 2005.

Air Force Publication. *Air Force Priorities – Winning the Global War on Terror / Developing Airmen / Recapitalization and Modernization.*

Air Force Publication. *Air Force Strategic Plan 2006-2008.*

"Airmen Deployment History (A 1 Readiness Input.doc)." November 2007.

Congressional Funding for FY: 2006. A35/A3O-SN.

Air Force Publication. *Fiscal Year (FY) 2008/2009 Budget Estimates,* February 2007.

Secretary of the Air Force. "Goals." Index Card.

[redacted] "Integrated Command and Control Systems (Picture Book)." Schematic drawings. Updated July 1996.

Boeing Defense and Space Group. "Minuteman System Engineering." Website, Updated October 1996

Nuclear Weapons Center. Organization Chart. (FOUO)

Operations, Plans & Requirements. A3/5 Organization Chart, November 2007.
SFW Manning Tables. PDF.

GTE Government Systems Corporation. "WS-133B Integrated Minuteman Command and Control System - System Description." Website, Updated May 1994.

Appendix D – Acronym and Abbreviation List

A1C	Airman First Class
ACC	Air Combat Command
AFB	Air Force Base
AFDD	Air Force Doctrine Document
AFI	Air Force Instruction
AFIA	Air Force Inspection Agency
AFIT	Air Force Institute of Technology
AFMC	Air Force Materiel Command
AFNGOSG	Air Force Nuclear General Officer Steering Group
AFPC	Air Force Personnel Center
AFR	Air Force Regulations
AFSC	Air Force Safety Center (in Appendix F) Air Force Specialty Code (in Appendix C)
AFSO	Air Force Smart Operations
AFSPC	Air Force Space Command
AMC	Air Mobility Command
AOC	Air Operations Center
BRR	Blue Ribbon Review
C^3	Command, Control, and Communication
Capt	Captain
CCP	Command and Control Procedures
CGO	Company Grade Officer
CMSgt	Chief Master Sergeant
COCOM	Combatant Command
Col	Colonel
CRS	Congressional Research Service
CSAF	Chief of Staff of the Air Force
DE	Developmental Education
DIAMONDS	Defense Integration and Management of Nuclear Data Services
DoD	Department of Defense
DOE	Department of Energy
DNSI	Defense Nuclear Surety Inspection
DSB	Defense Science Board
DTRA	Defense Threat Reduction Agency
ERS	Enterprise Resource Solution
FY	Fiscal Year
GAO	Government Accountability Office (formerly General Accounting Office)

GWOT	Global War on Terrorism
HAF	Headquarters Air Force
HHQ	Higher Headquarters
HQ	Headquarters
ICBM	Intercontinental Ballistic Missile
ICE	ICBM Center of Excellence
IG	Inspector General
IMDS	Integrated Maintenance Data System
ISR/SMR	Institutional Support Review/Special Management Review
JAC	Joint Advisory Committee
JCS	Joint Chiefs of Staff
LCOM	Logistics Composite Model
Lt Col	Lieutenant Colonel
Maj	Major
MAJCOM	Major Command
MASO	Munitions Accountable Systems Officer
NAF	Numbered Air Force
NATO	North American Treaty Organization
NCO	Non-commissioned Officer
NMOC	Nuclear Maintenance Officer's Course
NNSA	National Nuclear Security Administration
NOCM	Nuclear Ordnance Commodity Management
NORI	Nuclear Operational Readiness Inspection
NSI	Nuclear Surety Inspection
NTFP	National Technologies Fellowship Program
NWC	Nuclear Weapons Center
OSD	Office of the Secretary of Defense
PBD	Program Budget Decision
PME	Professional Military Education
PNAF	Prime Nuclear Airlift Force
PRP	Personnel Reliability Program
RVA	Remote Visual Assessment
SAC	Strategic Air Command
SALT	Strategic Arms Limitation Treaty (figure 1, pg 16, not defined)
SAF	Secretariat of the Air Force
SECAF	Secretary of the Air Force
SDT	Second Destination Transportation
SMSgt	Senior Master Sergeant
SORT	Strategic Offensive Reduction Treaty (figure 1, pg 16, not defined)
SrA	Senior Airman

SSP	Strategic Systems Programs
SSgt	Staff Sergeant
START	Strategic Arms Reduction Treaty (figure 1, pg 16, not defined)
TATSS	Transportation, Accountability, Tracking, Scheduling, and Security
TSgt	Technical Sergeant
TF	Task Force
US	United States
USAF	United States Air Force
USAFE	United States Air Forces in Europe
USN	United States Navy
USSTRATCOM	United States Strategic Command
VCSAF	Vice Chief of Staff of the Air Force
WSA	Weapons Storage Area
WS3	Weapons Storage and Security System

Appendix E – Distribution List

Secretary of the Air Force	SECAF SAF/CM/IG/LL/PA/XC
Headquarters Air Force	CSAF/VCSAF/CVA HAF/A1/A2/A3/5/A4/7/A8/A9/HO/JA
HAF FOAs and DRUs	Air Force Inspection Agency Air Force Personnel Center Nuclear Weapons Center Air Force Safety Center
MAJCOM Headquarters	Air Combat Command Eighth Air Force Air Education and Training Command Air Force Materiel Command Air Force Special Operations Command Air Force Space Command Twentieth Air Force Air Force Reserve Command Air Mobility Command Air National Guard United States Air Forces Pacific United States Air Forces Europe
Other Organizations	Chief of Naval Operations Strategic Systems Programs United States European Command United States Joint Forces Command United States Northern Command United States Strategic Command Office of the Secretary of Defense Joint Chiefs of Staff Defense Threat Reduction Agency National Nuclear Security Agency

Appendix F – Interview Questions

FOR COMBATANT COMMANDS AND OTHER AGENCIES

Leadership and Relationships

1. Is the experience base of AF senior leadership that has nuclear missions or responsibilities adequate?

2. Are there strengths with the relationship between the Air Force and _____ (the organization being interviewed)?

3. Are there weaknesses with the relationship between the Air Force and _____ (the organization being interviewed)?

4. (COCOMs only) Does the Air Force's skip-echelon command relationship have an impact on mission planning and execution?

Mission Focus

1. Does the AF have the proper focus on its nuclear mission?

Training and Force Development

1. Are you satisfied that Air Force personnel are adequately trained for the nuclear mission?

TATSS

1. Do you believe the Air Force has a disciplined nuclear force?

2. Is nuclear weapons guidance is clearly understood?

3. Are there seams in the Air Force's Accountability and Security of nuclear weapons?

Organization and Resources

1. Within current organizational structures, is your nuclear mission properly supported by and properly supporting all levels of command (e.g., unit, NAF, MAJCOM, etc.)?

2. In terms of mission accomplishment and other requirements, is your organization's nuclear mission given the appropriate priority?

3. Has the Air Force's other mission requirements degraded resource levels devoted to the nuclear mission (e.g., funds, equipment, facilities, manpower, new technology, etc.)?

4. Does the Air Force provide a sufficiently robust experience base to allow placement of the right people in the right jobs to effectively support the nuclear mission?

FOR HIGHER HEADQUARTERS, INCLUDING MAJCOMS & NAFS

Leadership and Relationships

1. Do leaders/supervisors have the requisite knowledge and experience base to make appropriate decisions in the nuclear enterprise?

2. Is nuclear experience a consideration in the selection of leadership positions for units with nuclear missions or responsibilities?

3. Are there organizations/agencies that you have a relationship with that you find to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

4. Are there organizations/agencies that you have a relationship with that you find not to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

5. Do you have a skip-echelon command relationship that impacts the nuclear mission?

Mission Focus

1. Does the Air Force foster a culture where nuclear safety/surety are a priority?

2. Is the intensity and depth to which units are inspected during an NSI appropriate to gauge nuclear readiness?

3. Does the Air Force exercise its nuclear mission frequently/realistically enough to be prepared to execute this mission?

4. Does the Air Force have the proper focus on its nuclear mission?

5. Does a culture of nuclear accountability exist in the Air Force?

Training and Force Development

1. Do you believe Air Force training requirements adequately prepare units to accomplish their nuclear responsibilities?

2. Are you satisfied with the training you/your staff received to prepare you for your leadership role in your nuclear mission?

3. Has the emphasis on nuclear operations training changed in light of evolving and/or additional mission requirements (e.g., OIF, OEF, ILO, in-garrison taskings)?

4. Are there seams in nuclear surety training?

JATSS

1. Is there clear and concise guidance for Transportation/Accountability/Tracking/Scheduling and Security of nuclear weapons, and is it well understood?

2. Are you properly staffed to provide technical assistance when procedures do not adequately address the situation?

3. Are like organizations using the same Transportation/Accountability/Tracking/Scheduling and Security procedures?

4. Are there seams in the Air Force's Accountability and Security of nuclear weapons?

Organization and Resources

1. Within current organizational structures, is your nuclear mission properly supported by and properly supporting all levels of command (e.g., unit, NAF, MAJCOM, etc.)?

2. In terms of mission accomplishment and other requirements, is your organization's nuclear mission given the appropriate priority?

3. Have your organization's other mission requirements degraded resource levels devoted to the nuclear mission (e.g., funds, equipment, facilities, manpower, new technology, etc.)?

4. Is your organization's nuclear steering group an effective forum for airing and resolving impediments to mission accomplishment?

5. Do you have a sufficiently robust experience base to allow placement of the right people in the right jobs to effectively support the nuclear mission?

FOR WINGS AND GROUPS

Leadership and Relationships

1. Do leaders/supervisors have the requisite knowledge and experience base to make appropriate decisions in the nuclear enterprise?

2. Are key decisions involving nuclear weapons made at the appropriate leadership levels?

3. Are there organizations/agencies that you have a relationship with that you find to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

4. Are there organizations/agencies that you have a relationship with that you find not to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

5. Do you have a skip-echelon command relationship that impacts the nuclear mission?

Mission Focus

1. Is there adequate guidance for you to perform your nuclear mission, to include accident/incident response?

2. Are inspection results indicative of unit capability?

3. Does your unit exercise its mission frequently/realistically enough to be prepared to execute its nuclear mission?

4. Do you have adequate time to train, exercise and prepare for your nuclear mission?

5. Does the Air Force have the proper focus on its nuclear mission?

6. Does the Air Force support "the customer" on nuclear mission issues?

Training and Force Development

1. Do you believe Air Force training requirements adequately prepare the members of your unit to accomplish their nuclear responsibilities?

2. Are you satisfied with the training you received to prepare you for your leadership role in your nuclear mission?

3. Does experience in the nuclear mission affect hiring decisions for significant leadership positions?

4. Has the emphasis on nuclear operations training changed in light of evolving and/or additional mission requirements (e.g., OIF, OEF, ILO, in-garrison taskings)?

5. Are there seams in nuclear surety training?

TATSS

1. Are you satisfied with the level of responsibility (seniority) of the individual responsible for nuclear weapons accountability on base?

2. Is there clear and concise guidance for Transportation/Accountability/Tracking/Scheduling and Security of nuclear weapons, and is it well understood?

3. Are verbal command/responses required during nuclear weapons tasks?

4. Are there seams in the Air Force's Accountability and Security of nuclear weapons?

Organization and Resources

1. Within current organizational structures, is your nuclear mission properly supported by and properly supporting all levels of command (e.g., unit, NAF, MAJCOM, etc.)?

2. In terms of mission accomplishment and other requirements, is your organization's nuclear mission given the appropriate priority?

3. Have your organization's other mission requirements degraded resource levels devoted to the nuclear mission (e.g., funds, equipment, facilities, manpower, new technology, etc.)?

4. Is your organization's nuclear steering group an effective forum for airing and resolving impediments to mission accomplishment?

5. Do you have a sufficiently robust experience base to allow placement of the right people in the right jobs to effectively support the nuclear mission?

FOR SQUADRONS

Leadership and Relationships

1. Do leaders/supervisors have the requisite knowledge and experience base to make appropriate decisions in the nuclear enterprise?

2. Are key decisions involving nuclear weapons made at the appropriate leadership levels?

3. Are there organizations/agencies that you have a relationship with that you find to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

4. Are there organizations/agencies that you have a relationship with that you find not to be helpful (i.e., COCOMs, DTRA, NNSA, AFSC, NWC, ALCs, etc)?

Mission Focus

1. Is there adequate guidance for you to perform your nuclear mission, to include accident/incident response?

2. Are inspection results indicative of unit capability?

3. Does your unit exercise its mission frequently/realistically enough to be prepared to execute its nuclear mission?

4. Do you have adequate time to train, exercise and prepare for your nuclear mission?

5. Is their there a culture in your unit that fosters developing nuclear excellence?

6. Does the Air Force support "the customer" on nuclear mission issues?

Training and Force Development

1. Do you believe Air Force training requirements adequately prepare the members of your unit to accomplish their nuclear responsibilities?

2. Are you satisfied with the training you received to prepare you for your role in the nuclear mission?

3. Has the emphasis on nuclear operations training changed in light of evolving and/or additional mission requirements (e.g., OIF, OEF, ILO, in-garrison taskings)?

4. Are there seams in nuclear surety training?

5. Is nuclear weapons related duty a fulfilling career path?

TATSS

1. Are verbal command/responses required during nuclear weapons tasks?

2. Is there a formal process to build and alter maintenance schedules?

3. Is there a culture of discipline in your unit?

Organization and Resources

1. Within current organizational structures, is your nuclear mission properly supported by and properly supporting all levels of command (e.g., unit, NAF, MAJCOM, etc.)?

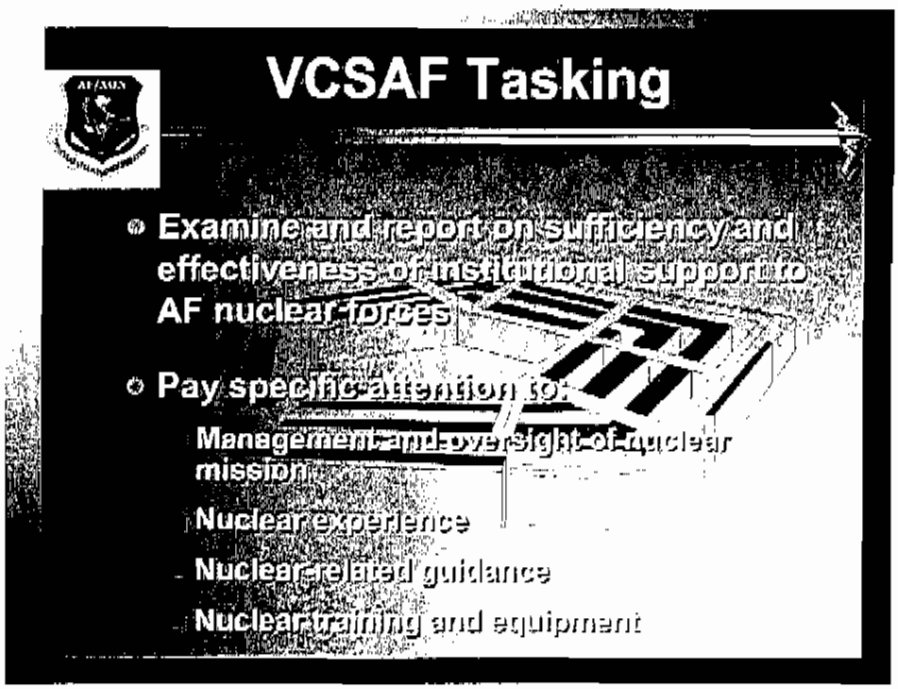
2. In terms of mission accomplishment and other requirements, is your organization's nuclear mission given the appropriate priority?

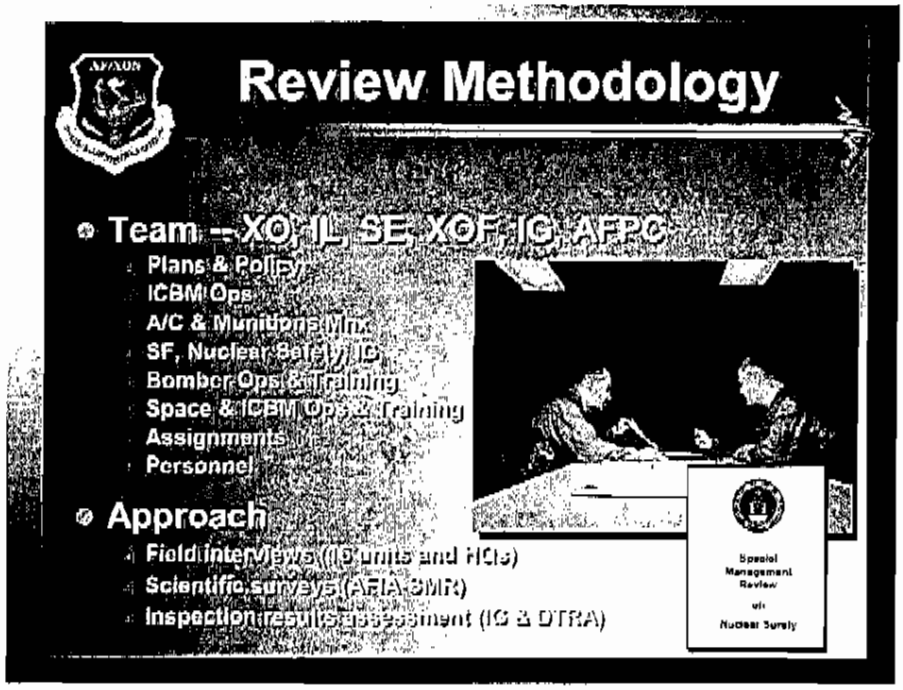
3. Have your organization's other mission requirements degraded resource levels devoted to the nuclear mission (e.g., funds, equipment, facilities, manpower, new technology, etc.)?

4. Is the nuclear steering group/working group an effective forum for airing and resolving impediments to mission accomplishment?

5. Do you have a sufficiently robust experience base to allow placement of the right people in the right jobs to effectively support the nuclear mission?

Appendix G – ISR/SMR Results





What We Found
Nuclear Focus and Leadership

- Field perceives that AF has lost focus on nuclear mission
  - Issues -- nuclear ownership and advocacy
  - MAJCOMs lack clear nuclear focal points
- Competing mission priorities within dual-tasked units
- Career Progression
  - "Backwater" mission

What We Found
Experience

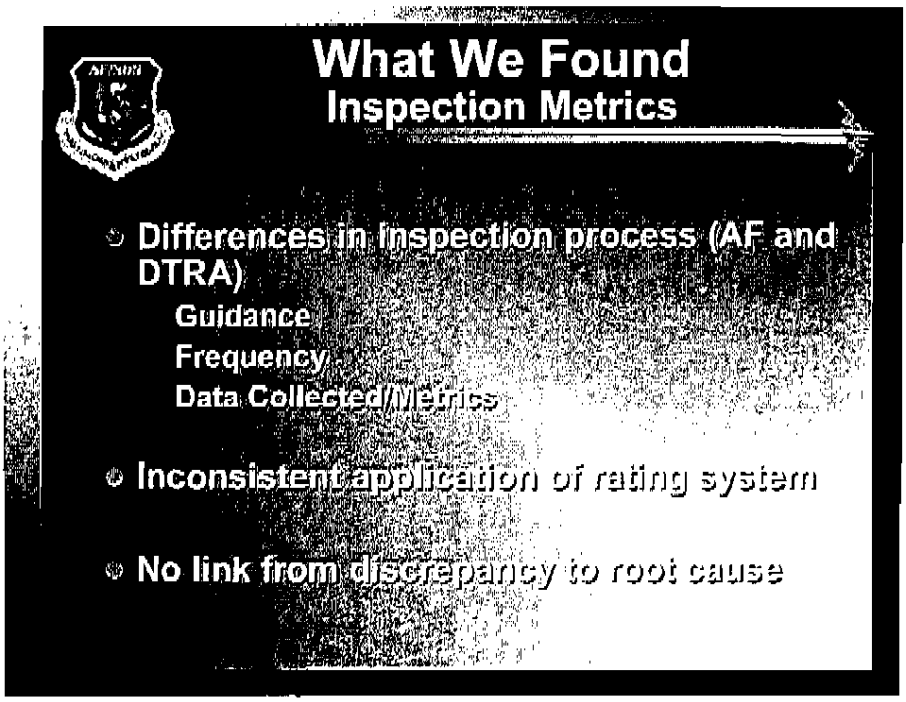
- Personnel system - no discernible experience pool
- Declining experience
  - Fewer opportunities due to downsizing and de-emphasis
  - Transition to "generalists"
- Shortage of knowledgeable personnel
  - Less training - more junior personnel
  - MAJCOM staffs lack experience

What We Found
Resource Shortfalls

- Training
  - Class days/hours
  - Recurring Training (Manning/OPTEMPO)
- Sustainment/modernization of nuclear-unique equipment
- Technical Orders

What We Found
Policy and Guidance Conflicts

- AFR transition created problems
  - Ambiguous guidance
  - Reduced experience
  - Multiple sources
- Inconsistent inspection criteria



Appendix H – Observation/Recommendation Matrix

Observation	Recommendation
Leadership and Relationships	
1. Leadership in the USAF's nuclear enterprise is professional and dedicated, but experience levels continue to decline.	Formalize a career development plan for officers, enlisted, and civilians to provide them with the depth and breadth of experience necessary for them to assume leadership positions in the nuclear enterprise. Provide focused, nuclear-related leadership training, such as the new Nuclear Weapons Center course, for Airmen prior to assuming command or supervisory roles in the USAF nuclear enterprise. Develop a reliable and easily accessible system to track nuclear experience across the USAF. *Observation 4 has the same recommendation.*
2. Nuclear-related aviator experience and expertise is diminishing within the bomber and dual-capable aircraft units.	Assess the frequency and impact of reduction in nuclear training due to demanding conventional requirements in dual-tasked aircraft units.
3. Intercontinental ballistic missile units find it difficult to attract and retain nuclear-experienced Airmen because of the perceived emphasis on and desirability of serving in space operations as opposed to intercontinental ballistic missile-related duties.	Develop a sufficient pool of officers with broad experience in intercontinental ballistic missile-related assignments to serve in key missile leadership positions, to include squadron, group, and wing commands. Expand career broadening opportunities (such as missile maintenance, systems engineering, program management, and policy-related assignments) both to retain officers in missiles and develop them for leadership roles in the intercontinental ballistic missile community.

Observation	Recommendation
4. The diminishing base of nuclear experience in some support specialties makes it difficult to select and prepare leaders for command and supervisory positions.	Formalize a career development plan for officers, enlisted, and civilians to provide them with the depth and breadth of experience necessary for them to assume leadership positions in the nuclear enterprise. Provide focused, nuclear-related leadership training, such as the new Nuclear Weapons Center course, for Airmen prior to assuming command or supervisory roles in the USAF nuclear enterprise. Develop a reliable and easily accessible system to track nuclear experience across the USAF. *Observation 1 has the same recommendation.*
5. USAF relationships with combatant commands for the presentation of forces are sound; however, United States Strategic Command noted some difficulty dealing with the USAF skip-echelon organizational construct.	Streamline the presentation of forces to a combatant commander as apportioned by the Joint Staff.
6. Disagreement over nuclear surety inspection standardization negatively affects the relationship between the USAF and the Defense Threat Reduction Agency.	Strengthen the relationship with the Defense Threat Reduction Agency by closing gaps in nuclear surety inspection methodology and standardization.
7. The USAF relationship with the OSD is strong, but there are concerns regarding USAF nuclear enterprise management.	Restructure Headquarters Air Force operations staff to form a directorate-level office which is singularly focused on nuclear matters. *Observation 8 has the same recommendation.* Evaluate OSD concerns in regard to resourcing and financial management to determine if further changes are warranted.

Observation	Recommendation
8. The USAF nuclear enterprise is large and diverse, so direct comparison with the United States Navy nuclear organization is difficult.	Restructure Headquarters Air Force operations staff to form a directorate-level office which is singularly focused on nuclear matters. *Observation 7 has the same recommendation.* Continue to develop the Nuclear Weapons Center as the USAF's Center of Excellence for acquiring and sustaining USAF nuclear weapons systems and associated handling and security equipment.
Mission Focus and Culture, History, Safety, and Surety	
9. Nuclear surety and security in the USAF are sound, but improvements can and should be made to enhance performance, particularly in light of evolving threats and the opportunities afforded by advanced technology.	Develop and field advanced technology to enhance nuclear surety and security.
10. Focus on the nuclear mission, especially in dual-capable bomber units, has diminished from the robust nuclear culture that existed during the Cold War.	Reinforce the primacy of the nuclear mission within the USAF by addressing organizational constructs, providing more robust training, and appropriately resourcing requirements. Communicate these actions to the force from the top down.
11. Existing forums for integrating USAF nuclear issues exist, but these disparate groups can and should be used more effectively to serve as an enterprise-wide integrating function.	Change the existing Air Force Nuclear General Officer Steering Group (AFNGOSG) charter to empower the group with appropriate authorities to implement Air Force-wide nuclear enterprise reforms. The AFNGOSG should be chaired by a lieutenant general.
12. Nuclear surety inspection criteria are being applied differently by each major command inspection team.	Consolidate responsibilities for conducting nuclear surety inspections (NSI) into a single USAF NSI team and conduct NSIs on a limited- or no-notice basis.
13. Bomber nuclear exercises are not meeting current requirements in frequency or scale.	Evaluate and enforce appropriate exercise guidance in regard to frequency and scale to ensure proficiency.

Observation	Recommendation
14. Doctrine is the cornerstone of military operations and training, but the current manual on USAF nuclear doctrine needs updating.	Publish revised Air Force Doctrine Document 2-1.5 (nuclear operations doctrine) and include the new version in strategic communication messages designed to reinforce the USAF's commitment to nuclear excellence.
15. Recent DoD and USAF guidance positively changed the USAF Personnel Reliability Program, but many commanders and administrators still consider the system to be needlessly cumbersome.	Conduct a USAF -wide Personnel Reliability Program (PRP) survey to identify potential areas for improvements to administrative and training processes while continuing to insist upon strict PRP compliance.
Training and Force Development	
16. Focus on nuclear training has shifted as a result of the increased combatant command requirements for conventional force capabilities.	Conduct a risk assessment of trade-offs between conventional and nuclear taskings and adjust priorities as appropriate.
17. Shortcomings exist in the training for munitions accountable systems officers, particularly on the Defense Integration and Management of Nuclear Data Services system.	Require the Nuclear Maintenance Officer's Course syllabus to place stronger emphasis on munitions accountable systems officer duties and responsibilities. Provide realistic, hands-on Defense Integration and Management of Nuclear Data Services system training to officer and enlisted students attending nuclear munitions courses.
18. Major commands and numbered air forces have created specific nuclear training programs that are external to the formal and institutionalized training curriculum oversight.	Review the various command-sponsored, nuclear-related courses and determine whether they should remain within each major command or be offered on an enterprise-wide basis.
19. The USAF needs to increase opportunities for presence and influence in key nuclear billets, especially in joint and interagency organizations, by filling these positions with highly-qualified individuals.	Develop a comprehensive list of all critical nuclear-related USAF billets, in the Air Force and other agencies, and ensure they are given the highest priority for assigning experienced Airmen.

Observation	Recommendation
20. The curricula of professional military education schools and courses devote at best only minimal time and attention to nuclear-related topics.	Increase the coverage of nuclear policy, technical, and operational issues at all levels of officer, enlisted, and civilian professional military education.
21. The USAF is not consistently leveraging educational opportunities to optimize follow-on assignments or presence in key nuclear billets.	Fill key billets in the nuclear enterprise with National Technologies Fellowship Program and/or Air Force Institute of Technology nuclear engineering program graduates.
Transportation, Accountability, Tracking, Scheduling, and Security	
22. The nuclear force requires clear and detailed direction in instructions and technical orders particularly in light of a less experienced workforce, especially in aircraft units.	Conduct a comprehensive review of all USAF guidance and instructions on nuclear-related operations, maintenance, security, and support to ensure clarity and reduce any potential ambiguity. Ensure strict compliance with published regulations and technical data.
23. Aging transportation and handling equipment is adding to the stress on units with a nuclear mission.	Develop and resource a long-range replacement recapitalization program for aging nuclear support equipment. *Observation 35 has the same recommendation.*
24. Accountability of nuclear weapons in the USAF is sound; however, additional experience and training for munitions accountable systems officers will enhance the current process.	Implement appropriate Air Force instructions to require 12-month experience and completion of the Nuclear Maintenance Officer's Course.
25. Custody and transfer processes of nuclear weapons between bases or commands are consistent; however, transfers of assets within a wing require auditable documentation.	Require signatures to document custody transfers as directed in the new revision of Air Force Instruction 21-204.
26. Advanced technology for accountability and tracking can enhance USAF custody of nuclear assets.	Evaluate and resource programs in use today, such as "MoveRight" and portal monitors, for potential implementation within the USAF.

Observation	Recommendation
27. Tracking location and status of assigned weapons and components is being accomplished using locally generated systems.	Develop and implement standard scheduling and tracking systems which improve the ability to track locations and status of assigned nuclear weapons and components.
28. Potential vulnerabilities in missile field convoy operations continue to be a key concern.	Develop and field a new payload transporter for missile field convoys.
29. Host nation security at overseas nuclear-capable units varies from country to country in terms of personnel, facilities, and equipment.	Investigate potential consolidation of resources to minimize variances and reduce vulnerabilities at overseas locations.
30. Changing and growing requirements have prompted USAF units to request nuclear security waivers.	Develop a long-range enterprise plan to reduce waivers through prioritized funding and resourcing.
31. To mitigate missile field security vulnerabilities, there is a critical need to fully fund a replacement helicopter and to fund the sustainment costs of the remote visual assessment.	Field a replacement helicopter as well as field and fully fund sustainment of the remote visual assessment.
Organization and Resources	
32. Current USAF nuclear organizational construct fragments nuclear weapons advocacy and policy.	Examine current organizational construct and process integration supporting the nuclear mission area and provide potential alternatives for improvement.
33. Manpower requirements in some nuclear-capable aircraft career fields and units may not be commensurate with total workload.	Review logistics composite models to determine if the challenges dual-tasked and prime nuclear airlift force units face in maintaining current mission qualifications and certifications (nuclear and conventional) are adequately reflected in each Air Force manpower standard. Review medical manpower requirements at bases with large Personnel Reliability Program populations to determine if adequate manpower requirements are documented and resourced.

Observation	Recommendation
34. Program budget decision execution may have caused resource allocation weaknesses in field support for the nuclear mission.	Assess nuclear mission career fields to ensure program budget decision reductions were appropriately targeted and left no seams in enterprise support.
35. Systems and equipment supporting the nuclear mission are aging and continue to impact reliability and availability.	Develop and resource a long-range replacement recapitalization program for aging nuclear support equipment. *Observation 23 has the same recommendation.*
36. Funding for second destination transportation to move nuclear weapons is inadequate.	Ensure nuclear weapon movement support systems receive sufficient funding to execute all required stockpile adjustments.