

*Report of the Defense Science Board Permanent Task
Force on Nuclear Weapons Surety*

On

**Nuclear Weapons Inspections for the
Strategic Nuclear Forces**



December 2008

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This report is the product of the Defense Science Board (DSB).

The DSB is a Federal Advisory Committee established to provide independent advice to the Secretary of Defense. Statements, opinions, conclusions, and recommendations in this report do not necessarily represent the official position of the Department of Defense.

This report is UNCLASSIFIED and is RELEASABLE
to the public.

The DSB Permanent Task Force on Nuclear Weapons Surety
completed its information gathering in October 2008.



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DEFENSE SCIENCE
BOARD

2 Dec 2008

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,
TECHNOLOGY, AND LOGISTICS

SUBJECT: Report of the Defense Science Board Permanent Task Force on Nuclear
Weapons Surety

I am pleased to forward the final report of the Defense Science Board Permanent Task Force on Nuclear Weapons Surety entitled "Nuclear Weapons Inspections for the Strategic Nuclear Forces." This task force was asked by the Deputy Assistant to the Secretary of Defense for Nuclear Matters (DATSD/NM) to evaluate the effectiveness of nuclear surety inspection procedures and processes, to include assessments of Service surety and readiness inspections and of Defense Nuclear Surety Inspections conducted by the Defense Threat Reduction Agency (DTRA). This review is especially critical at a time of increased focus on the safety, security, and reliability of our nuclear forces.

The task force members assessed the processes and procedures of Service and DTRA programs, to include specific guidance, directives, and instructions. The task force members have set forth recommendations in the areas of the adequacy of guidance for nuclear operations and inspections, inspection team qualifications, and relationships between different categories of nuclear inspections.

I endorse the task force's recommendations and encourage you to review the report.

William Schneider, Jr.
DSB Chairman

**Permanent Task Force on Nuclear Weapons Surety
Defense Science Board**

October 28, 2008

Dr. William Schneider, Jr.
Chairman, Defense Science Board

SUBJECT: Final Report on Nuclear Weapons Inspections from the Defense
Science Board Permanent Task Force on Nuclear Weapons Surety

Attached is the final report for Phase II of what has become a four-phase effort. Phase I addressed weapons security and was completed in the summer of 2007. Phase III was added as a first priority and assessed the systemic causes of the unauthorized movement of nuclear weapons from Minot AFB to Barksdale AFB. Phase IV will focus on nuclear weapons inspections of non-strategic nuclear forces.



Larry D. Welch, General, USAF (Ret)
Chair, Permanent Task Force

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In July 2007, the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs - ATSD (NCB) - tasked the Permanent Task Force to assess the effectiveness of the nuclear enterprise inspection system. Shortly after embarking on this task, there was an unauthorized movement of nuclear weapons in August 2007. The Task Force was asked to give first priority to assessing any systemic causes of that incident. Following that, the Task Force was asked to look into a second nuclear enterprise issue.

While the intervening incidents further highlighted concerns about the effectiveness of the nuclear weapons inspection system and activity and is referenced in this report, they are not the motivation for this Task Force review.

This report is divided into four central sections – II through V -- beginning in Section II with a set of three overarching issues driving the effectiveness of the inspection system. Sections III and V respectively discuss Nuclear Weapons Technical Inspections (NWTIs) and Operational Readiness Inspections (ORIs).

It was not possible to make a clear distinction between NWTI purposes and activities and Nuclear Surety Inspections (NSI) and Nuclear Operational Readiness Inspections (NORIs) due to overlap. Therefore, this overlap and its consequences are discussed in Section IV.

I. Tasking

- Conduct a review of:
 - Elements of the Nuclear Weapons Technical Inspection (NWTI) system with focus on the:
 - Nuclear Surety Inspection (NSI)
 - Defense Nuclear Surety Inspection (DNSI)
 - Navy Technical Proficiency Inspection (NTPI)
 - Operational Readiness Inspection (ORI)
 - Nuclear Operational Readiness Inspection (NORI) in Air Combat Command
 - Operational Readiness Inspection (ORI) in Air Force Space Command
 - Tactical Readiness Evaluation (TRE) in the Navy
- Evaluate the implementation of guidance by the inspection teams
- Report on the effectiveness of inspection procedures and processes

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The Task Force was originally asked to look at elements of the NWTI system. However, over the years, there have also been a number of credible concerns about the adequacy of Nuclear Operational Readiness Inspections (NORIs). Review of that activity was added to the task.

Specifically, the task is to report on implementation of guidance and the effectiveness of the nuclear inspection procedures and processes.

The report provides specific recommendations on improving the credibility and effectiveness of the inspection system and activities.

The tasking was heavily oriented toward Air Force bomber and ICBM activity and that was the focus of the Task Force. However, the Task Force reviewed the SLBM processes and effectiveness but not as in depth since there has been no indication of dissatisfaction with the results of the Navy inspection system.

Tasking (cont)

- Provide recommendations on improving the credibility and effectiveness of nuclear inspection activities
- While the tasking was heavily oriented toward inspections of bomber and ICBM operations, the Task Force also reviewed the SLBM inspection processes and effectiveness

This Task Force report does not address:

- ***Airlift of nuclear weapons***
- ***Air Force or Navy nuclear weapons logistics support***
- ***Dual capable forces in Europe***

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While an effective inspection system is also important for reliable, safe, and secure operations of airlift operations, logistics support, and dual capable forces in Europe, this report does not address those operations and responsibilities. These will be addressed in a future Task Force assessment and report.

It is important to avoid the assumption that findings and recommendations that are relevant to strategic nuclear forces in the U.S. are necessarily relevant to dual capable forces in Europe. The Task Force has been reviewing specific issues for dual capable forces in Europe for more than 15 years and notes that there are key differences between the strategic forces environment and the dual capable forces environment in Europe, e.g., weapons storage configuration, ownership of security responsibilities for the storage area/storage vaults, inspection responsibilities, operating standards and directives, and continuity of organization. For illustration, the differences are further described in Appendix C.

II. Overarching Issues

- Basic tenets of effective inspection programs
- Adequacy of Air Force Guidance/Direction for Nuclear Operations and Inspections
- Qualification, Training, and Standardization of AF Inspection Teams

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These three overarching issues for the Air Force nuclear enterprise inspection system are discussed on following pages.

Basic Tenets of Effective Inspection Programs

- The purpose of the nuclear inspections system is mission assurance by assessing the readiness of the unit to safely, securely, and reliably perform the assigned nuclear mission
- The fundamental basis for an effective inspection program is the unit Commander's inspection and exercise program
- The unit commander, through the unit nuclear inspection and exercise program and staff assistance visits (to ensure access to needed functional expertise), is expected to have full accountability and the broadest understanding of the readiness of the unit
- Ownership of the inspection functions must reside with the higher echelon commander directly responsible for delivering the operational capability.

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There are three overarching issues that span the full set of nuclear operations inspections.

The first need is to review some basic tenets of effective inspection programs.

An effective inspection program begins with the unit program. No external inspection program can substitute for an effective, unit-level inspection and exercise program that provides the unit commander credible understanding of the status of the unit's readiness.

To augment and enrich the unit commander's ability to deliver the required operational capability, the unit commander and staff will need competent staff assistance from echelons of command above the unit to provide access to the full set of needed functional expertise and to help ensure continued understanding of unit issues and mission focus in relevant headquarters staffs.

Basic Tenets of Effective Inspection Programs (cont)

- If senior commanders depend on inspectors as the primary source of understanding for unit readiness, then the mission assurance system is not working
- The role of the inspectors is not to educate or mentor unit members, it is to verify the readiness of the unit to perform the nuclear mission

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The role of the outside inspection system is to objectively evaluate the unit's capability to perform the assigned mission to either verify or deny the unit commander's assessment of the unit capability.

While the experienced Service non-commissioned officers (NCOs) and officers comprising the inspection teams will have an education role as NCOs and officers, education and mentoring cannot be an assigned role of an effective inspection team. Such a role is likely to be confusing to both the inspector and the unit activity people and can produce inappropriate empathy.

Recommendations on Basic Tenets of Effective Inspection Programs

- ***The Secretary and the Chief of Staff of the Air Force, and the Major Air Commanders should:***
 - ***Provide clear direction on the collective and individual objectives of the set of nuclear inspections***
 - ***Remove any direction or implication that inspection teams have an education or mentoring responsibility during the conduct of an inspection***

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To ensure a clear understanding of these most basic tenets, there needs to be clear direction regarding the purpose of each type inspection and of the collective set of inspections.

As noted on the previous page, inspectors performing as educators and mentors while conducting inspections confuses the purpose of inspections and the role of inspectors.

Adequacy of Air Force Guidance/Direction for Nuclear Operations and Inspections

- In the early 1990s, Air Force Regulations (AFRs) were replaced by Air Force Instructions (AFIs)
 - There are widespread complaints from inspectors and inspected units that, coincident with the change, the trend was for manuals to become less clearly directive and subject to interpretation
- The lack of specific direction has led to extensive, often counterproductive, discussions and disagreements between inspectors and the supervisor of the inspected activity and among inspectors which can adversely affect the credibility of the inspection
 - The apparent philosophy to describe what needs to be done and not how to do it is not appropriate for nuclear weapons operations

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A recurring issue during interviews the Task Force conducted was that coincident with the change from AFRs to AFIs, the trend in directives and manuals on nuclear weapons operations has been to less clarity. It is not obvious what led to the change in clarity, but it has had negative impacts on daily operations and on the credibility of inspections. The perceived reason for the change was to move from “how-to” instructions to just defining what is to be done. This may be a useful approach in many areas, it is not appropriate for an area as unforgiving as nuclear weapons operations.

Findings & *Recommendations* on Adequacy of AF Guidance and Direction

- Current direction for nuclear weapons operations leaves opportunity for different interpretation by individuals
- ***The Secretary of the Air Force should direct formation of a team of NSI, NORI, DNSI inspectors and officers and senior NCOs from bomber units and ICBM units to increase the clarity of direction for nuclear weapons operations***
 - *Expand the technical manuals as needed*
 - *Restore the clear direction formerly embodied in Air Force Regulations on nuclear operations and inspections*

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As discussed on the previous page, current direction leaves too much room for interpretation.

The recommendations shown in italics are self-explanatory.

Qualification, Training, and Standardization of AF Inspection Teams

- There are no formal qualification requirements for assignment to an inspection team
- There is no formal Air Force training for inspectors
- The Defense Threat Reduction Agency (DTRA) course is the only current option – 1st class was April 2008
- Air Force Inspection Agency (AFIA) has hosted only one NSI Process Review Conference in 2 years – stated requirement is each six months
- AFIA standardization for IG Teams has not been developed
- There are significant differences in policies and practices for assignment to inspections teams among the nuclear-capable major air commands

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An effective and authoritative inspection program must be underpinned and executed by highly qualified inspectors. Major Commands, Type Commands, and Services must ensure inspection team members meet the highest standards of experience and proficiency.

Findings & *Recommendations* on Air Force Inspection Team Qualification

- Inspector qualification standards do not ensure uniformly high competence of NSI teams
- ***The Secretary of the Air Force should:***
 - ***Require that Air Combat Command, Air Force Space Command, and US Air Forces in Europe provide a common set of demanding standards that NSI and NORI/ORI inspectors must attain and sustain***
 - ***The requirement for initial assignment should include at least one assignment performing nuclear weapons duties***
 - ***Direct that AFIA produce:***
 - ***A formal training course and assemble training teams to assist major air command inspection teams***
 - ***Standardized checklists for inspections of common areas***
 - ***Direct that the NSI Process Review Conference be held each six months***
 - ***Direct that major air commands have the authority for by name assignment to majcom inspection teams***

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As noted on the previous chart, the Task Force found that there are few prerequisite qualifications specified and enforced for performance as an inspector of nuclear weapon technical operations. Hence, the quality of inspection teams can vary widely between major commands.

III. Nuclear Weapons Technical Inspections

Current DoD Guidance

- DoD Nuclear Weapons Technical Inspection (NWTI) System manual – TP 25-1
- Defines an NWTI as a Service or DTRA inspection of a nuclear-capable unit conducted to examine:
 - Nuclear weapons technical assembly,
 - Maintenance, storage functions,
 - Logistics movement, handling,
 - Safety and security directly associated with these functions.
- Prescribes standard procedures to conduct inspections of all DoD nuclear-capable units

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The current DoD guidance for all NWTI activity emanates from DoD TP 25-1, “DoD Nuclear Weapons Technical Inspection System” manual. The guidance focuses on the four elements shown here. TP 25-1 also contains extensive detail on inspection requirements and is supplemented with Air Force and Navy guidance. DoD technical manual 25-1 is called DTRA TP 25-1, Navy SWOP 25-1, and Air Force T.O. 11N-25-1, depending on the organization.

DoD nuclear-capable units include:

- Bomber, ICBM, and SLBM operational units,
- Dual-capable fighter units,
- SLBM support facilities,
- DoD nuclear storage facilities and activities,
- Logistics activities and,
- Airlift operations.

Subsequent charts provide more detail on guidance as it relates to specific types of nuclear operations.

Current Types of NWTIs for Strategic Nuclear Forces

- Defense Nuclear Surety Inspection (DNSI) conducted by DTRA – currently each 60 months
- Nuclear Surety Inspection (NSI) and Initial Nuclear Surety Inspection (INSI) conducted by the Air Force – each 18 months
- Navy Technical Proficiency Inspection (NTPI) and Nuclear Weapons Acceptance Inspection (NWA) conducted by the Navy – each 18 months
- Joint Nuclear Surety Inspection (JNSI) conducted jointly by DTRA and Service inspection teams

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Current guidance on types and frequency of NWTIs has been in effect since the Cold War.

The 5-year interval for DNSIs produced useful trend data when there were significant numbers of units with similar operational and logistics characteristics. However, the present environment for bombers and ICBMs includes only three bomber wings and three ICBM wings. Hence, the utility of the current guidance for DNSIs for bomber and ICBM units requires examination.

There are significantly more SLBM units of inspection since each crew is such a unit. Hence, the situation for SLBM DNSIs is significantly different.

Responsibilities for NWTI

- DoD Directive 3150.2, *DoD Nuclear Weapon System Safety Program*
 - USD(AT&L) shall ensure that DTRA conduct defense nuclear surety inspections for the Chairman of the Joint Chiefs of Staff
 - The Chairman of the Joint Chiefs of Staff shall establish nuclear weapons technical inspection policy and monitor implementation of the inspection system
 - The Secretaries of the Military Departments shall ensure that nuclear weapons technical inspections are conducted
 - Commanders of the Combatant Commands shall provide assistance to the responsible Military Departments for the conduct of required...inspections of allied forces that will use U.S. nuclear weapons

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DoD Directive and manual 3150.2 assign responsibility for nuclear surety to a specific set of senior DoD leaders. This report will have recommendations on reinvigorating the system that provides the needed information to these senior people to support their assigned responsibilities.

Past NSI Results

- Deficiencies clearly identified following the unauthorized movement of nuclear weapons incident of August 2007 were in areas examined regularly during NSIs
 - Weapons break-out from storage and verification
 - Weapons transport to the flight line and verification
 - Weapons loading and verification
 - Aircrew acceptance
- The nuclear inspection system did not identify key deficiencies in these areas
- As an example, no NSI led to questioning the informal change to weapons-custody practices that had evolved over the years in controlling movement of bomber weapons

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The Task Force found it difficult to distinguish clearly between the expectations for NSIs and NORIs of bomber units. The reasons for this confusion are discussed in Section IV on NSI-ORI/NORI overlap.

Regarding the effectiveness of NSIs, there is compelling evidence that these inspections are not providing timely identification of important issues. For example, the Task Force review of the systemic issues associated with the unauthorized movement incident identified a number of departures from what has long been considered proper process that had become common practice in areas examined in NSIs. The Task Force could find no identification of these practices in NSI reports.

Specifically, at some point, the process of formally accounting for change of custody during weapons movement had been discarded. Instead the practice was based on the assumption that custody had not changed unless the weapon was programmed to leave the base. This, in effect, created single point failure possibilities, a condition long considered unacceptable in the nuclear weapons enterprise.

Post Incident NSI Results

- Of the 21 NSI/LNSI/DNSI, conducted from Sep 07 thru Apr 08 after the unauthorized movement of weapons incident when inspection sensitivity should have been at a peak, 20 were judged satisfactory, 1 unsatisfactory

Type Unit	Satisfactory	Unsatisfactory
Bomb Wing	3	1
Missile Wing	3	0
Fighter Wing	3	0
MUNS	6	0
Other	5	0

- These unusually positive inspection results raise questions about the direction and purpose of the post-incident inspections
- The DNSI team participating in these inspections considered 5 of the units inspected to be unsatisfactory

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As a further indication of the questionable rigor of some NSI results, of the 21 NSIs conducted after the unauthorized movement, when increased sensitivity on the part of the inspection teams should have been expected, only one was rated as unsatisfactory. (The only two ratings given in NSIs are satisfactory or unsatisfactory.)

Twenty satisfactory ratings from 21 inspections would have been considered somewhat incredible even at the height of attention to the nuclear enterprise.

In contrast, the Task Force found significant continuing confusion and questionable practices in bomber units weeks after the unauthorized movement incident.

Further, the DNSI inspectors and their reports, inspectors who participated in the inspections, indicated that they assessed five of the units as unsatisfactory. These DNSI findings were not reflected in the NSI ratings.

This long-standing issue between Service NSI teams and the DTRA DNSI team and proposed solutions are discussed later in this section of the report.

Past NTPI Results

- NTPIs are conducted on 15-month intervals
- The Weapons Inspection Component (WIC) at SWFLANT and the Weapons Inspection Detachment (WID) at SWFPAC inspect a total of 20 crews each 15 months and are regarded as proficient and authoritative
- The inspection criteria and the basis for findings are clearly defined
 - Inspection findings during NTPIs must be supported by a specific reference to a Navy Instruction or manual
- The Task Force has, during this task and previous tasks, found no reason to recommend significant changes in the Navy NTPI system

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The Navy equivalent of the NSI, the NTPI, is conducted on 15-month intervals and there are 20 units inspected.

In Task Force interviews with groups across all ranks from seaman to commanding officers, there was consensus that the NTPI is effective and conducted by well-qualified inspectors.

Findings for Conduct of NTPIs

- The scope of NTPIs is significantly different than NSIs for bomber and ICBM forces
 - The NTPI typically lasts 3 to 4 days and involves 12 to 15 inspectors
 - The typical NSI takes 6 to 8 days and involves 65 to 80 inspectors
- The Task Force found no reason to question the scope of the NTPI
- ***The Task Force has no significant issues generating recommendations. The Task Force does recommend that NTPI significant findings be elevated beyond current practice (see related recommendation, slide 36)***

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The scope of Air Force and Navy NWTIs is significantly different and is dictated by the inspected unit's operating environment with the Navy inspected unit being the submarine crew while the Air Force inspected unit is the bomber wing/base or the ICBM base and deployment field.

Given the nature of the SLBM NWTI, the Task Force found no fault with the scope or conduct of NTPIs.

NTPI results/reports are delivered to:

- SSBN parent Submarine Squadron and Group
- US Fleet Forces N411
- Defense Threat Reduction Agency
- Director, Strategic Systems Programs
- USSTRATCOM J005 (IG) and J7
- JCS J3

The Task Force recommends that the NTPI results be elevated beyond the current practice. Specifically, the Chief of Naval Operations (CNO) should direct that a formal process be initiated to report significant findings from NTPI and TRE activities to the CNO and this Task Force recommendation is found on slide 36 in the discussion on Navy readiness inspections.

NSI-DNSI Relationship

- DNSIs are to provide the CJCS with an independent assessment of significant trends in nuclear unit performance
- DNSIs are conducted concurrently with an NSI with both sets of inspectors inspecting unit operations
- The DNSI results for some major commands have been more critical than the NSI
- The DNSI process has not:
 - Substantially improved NSI team performance
 - Produced useful trend information for the Air Force or the CJCS due to the long interval and limited number of units subject to inspection

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The present practice calls for two variations of the DNSI. One type is a Surveillance DNSI – oversight of the service inspection team. The other is a DNSI of the unit conducted concurrently with an NSI with both NSI and DNSI inspectors evaluating the same activities at the same time.

However, the DNSI findings have been substantially more critical than the NSI findings for some inspections. While the DNSI renders a report at about the same time as the NSI report, it is the NSI report that determines the unit's rating and any subsequent resolution of the differences has no impact on the rating.

This condition has existed for years and there is little likelihood that the current practice can substantially improve NSI quality.

Further, as mentioned earlier, the inspection interval and limited number of units provide trend information only on common areas, e.g., condition of facilities, support equipment, PRP. These are important, but are not sufficient indicators of unit performance in conducting key nuclear weapons operations.

Options for the NSI–DNSI Relationship

1. Continue the current practice of overlapping NSI/DNSI activity but with the DNSI interval at 3 vice 5 years
2. Conduct fully independent DNSIs with the DNSI supported by the NSI team
3. Change the DNSI charter to quality control oversight of each NSI team performance while sustaining the capability for the DNSI team to conduct special inspections for areas identified by the CJCS
4. Combine 2 & 3: DNSI provides quality control oversight of the NSI team performance for each inspection and conducts a DNSI-led inspection, supported by the NSI team each 3 years. The DNSI would restart the 18-month NSI interval clock

Any of these options will require increased DNSI manning

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This chart provides four options for more effective use of DNSI teams. The first option simply reduces the inspection interval from five to three years. This should be done regardless of the option selected.

A second option is to conduct fully independent DNSIs. With a three-year interval, every other NSI would be a DNSI and the 18-month clock would restart. This would give higher assurance of an objective assessment of unit capability, but would do little to improve the quality of the NSI inspections.

The third option employs the DNSI team primarily in the role of quality control of NSI teams and should provide higher assurance of quality NSIs while retaining the ability to respond to special concerns of the Chairman.

The fourth option combines two and three.

While each of these options require increased DNSI resources, the fourth option would require more resources than the other options.

NTPI/DNSI Relationship

- The DTRA DNSI team currently participates in NTPIs with the DNSI and NTPI teams inspecting separate functions as agreed before the inspection
- There is a single report that includes the findings of the DNSI and NTPI team members
- The Task Force found no reason to recommend a change to the NTPI/DNSI relationship

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For NTPIs, the DNSI team participates in each inspection with members of the two teams inspecting different areas as agreed prior to the inspection. There is a single report rendered by the NTPI team that includes the findings of the DNSI members. This system seems to be working well and the Task Force found no reason to recommend a change at this time.

The Oversight Function

- The purpose of oversight is to improve the effectiveness of the inspection process
- Oversight is an assessment of the performance of the inspection team, not of the inspected unit
- The oversight team produces a report to the inspection team's command, service chief, ATSD (NCB), and the CJCS
- The oversight function should include compiling and reporting trends in the effectiveness of inspections and in inspection results

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Since the term, "oversight," can have multiple meanings, this chart defines the context of the Task Force options.

The purpose of oversight is straightforward. However, the past practice for the DNSI has been to conduct parallel inspections of the unit as a means of assessing the effectiveness of the NSI inspection team. As noted earlier, this has not proved effective. Hence, the term "oversight," as used in this report, is direct assessment of the NSI inspection team, not a parallel inspection of the unit.

The added focus on the quality of the process and execution of inspections, reported to senior levels, should help ensure a continuing focus on the purposes and products of the inspection system.

Findings and *Recommendations* for NSIs and DNSIs

- While DNSI teams tend to be more objective, they have had little effect on the NSI team performance or on identifying systemic problems in inspected units
- ***ATSD/NCB should coordinate with DTRA to adopt Option 3***
 - ***Change the DNSI charter to quality control oversight of each NSI team performance while sustaining the capability for the DNSI team to conduct special inspections for areas identified by the CJCS***

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To increase the value added from the DNSI activity, the fundamental purpose of the DTRA activity should change to direct oversight of the NSI inspection team on each inspection.

As to the other roles of the DNSI team, the Task Force preferred the construct in Option 3.

While Option 4 is a viable alternative, there are important issues with that Option, e.g., the service inspection team would be conducting a full inspection only each 36 months with a reduced role in the intervening inspection and, the DNSI team would be performing in an oversight role only half as frequently as in Option 3.

Hence, on balance, the Task Force found that Option 3 brings the highest value added for the investment in the DNSI activity.

Findings and *Recommendations* for NSIs and DNSIs (cont)

- DNSI reports are not reviewed by the senior leadership of the Department of Defense
- ***The Chairman, Joint Chiefs of Staff (CJCS), should direct that:***
 - ***Reports on inspection team effectiveness produced by the DNSI team are provided to the major command, the Service Secretary and Chief, USD/AT&L, and the CJCS***
 - ***The DNSI team structure be capable of fully independent inspections in areas designated by the CJCS***
 - ***The DNSI team compile and provide to the CJCS trends on nuclear forces performance as reflected in inspections***

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While the DoD directive clearly identifies senior-level responsibilities relative to nuclear weapons inspections, the current practice does not report issues to the responsible leadership. Instead reports are reviewed at much lower levels and issues are elevated on an ad hoc basis. This can, and seriously has, compromised the effectiveness of the inspection system.

There is a need to ensure a regular and reliable stream of relevant information to senior people with assigned responsibilities.

IV. NSI-NORI/ORI Overlap

- Air Force Air Combat Command conducts Nuclear Operational Readiness Inspections each 3 years for each of 3 bomber wings
 - Over time, concern over the 36-month interval has led to the addition of NORI-like events to the NSI
- Air Force Space Command conducts Operational Readiness Inspections in conjunction with an NSI
 - There is no significant overlap between ICBM unit NSIs and ORI activity
- Navy type commanders conduct Tactical Readiness Evaluations each 15 months for 20 SSBN crews
 - NTPIs are conducted in accordance with TP 25-1 with only type commander special interest items added for individual inspections

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Air Combat Command Nuclear Operational Readiness Inspections (NORIs) are conducted each three years. The practice before the stand-down of Strategic Air Command in 1992 was conducting a NORI per unit every 18 months. While there was a judgment that the 36-month interval was adequate, that clearly was not universally shared since, over time, NORI events have migrated to the NSIs to provide an 18-month interval in assessing some NORI-like events.

Air Force Space Command conducts Operational Readiness Inspections in conjunction with NSIs, but does not mix ORI events into the NSI. The NSI phase spans 6 to 8 days followed by an ORI lasting 3 to 4 days. The ICBM NSI is limited to the requirements of TP 25-1.

Navy Tactical Readiness Inspections (TREs) are conducted each 15 months, normally starting at the end of the SSBN's patrol.

NORI History and Practice for Bombers

- Prior to 1992:
 - NORIs were conducted each 18 months
 - The NORI measured the units ability to conduct the full range of nuclear operations within prescribed time limits to include:
 - Full unit force generation – fighters or bombers and tankers
 - Launch, refueling, navigation to the target and scored simulated target attack
- From the stand down of Strategic Air Command in 1992 to 1996, there were no NORIs of bomber units
- Currently:
 - NORIs are to be conducted at 36-month intervals
 - Normally, a full squadron is generated
 - Aircrews and certified command post (CP) controllers are tested on nuclear control order procedures
- With the decrease in the frequency of NORI activity, NSIs expanded attention to NORI-type events but without relevant time and capacity pressures

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Turning to operational inspections for bomber units, the practice in conducting NORIs has changed dramatically since the stand-down of Strategic Air Command where end-to-end, full generation and flight evaluation NORIs were conducted each 18 months.

In the four years following the stand-down, there were no NORIs of bomber units. The predecessor organization to the Permanent Task Force identified this condition to the Commander of Air Combat Command in 1995 and NORIs were reinstated in both bomber and fighter units, but with a 36-month interval.

This decrease in NORI activity led to an increase in areas evaluated during NSIs. However, the NSI approach did not require that relevant operations be conducted under operational timelines as required during NORIs.

Migration of NORI Events into NSIs NSI Key Bomber Task Guidance/Practice

TP 25-1 NSI Activities

- Management and Administration
- Technical Operations
- Tools, Test, Tiedown and Handling Equipment
- Condition of the Stockpile
- Storage and Maintenance Facilities
- Security
- Safety
- Supply Support
- Nuclear Weapon PRP
- Logistic Movement

AFI 90-201 ACCSUP Additions to the NSI

- Loading and mating
 - Complete upload from weapons transfer to aircrew acceptance
 - One loading operation for each type of tasked nuclear weapon
- Aircrew and CP Controller Emergency Action testing
- Emergency exercises

The ACCSUP additions to the NSI are also listed in the same AF supplement as performed during the NORI

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This chart further illustrates the expansion of NSI activity into what had been the realm of the NORI.

Those activities shown in the right column are in addition to TP 25-1 direction for NSIs and most are also part of NORI inspection activities. As discussed earlier, the most common perception of the reason for this NORI-like activity is concern that the 36-month interval of NORIs is too long to sustain confidence in the unit's performance in these areas.

The Air Force Instruction (AFI) 90-201, "Inspector General Activities," ACC supplement, Addendum L, dated 4 May 2008, provides expanded guidance regarding Nuclear Surety Inspections for ACC nuclear tasked units. Also, within AFI 90-201, ACC Supplement, Addendum I, provides expanded guidance to ACC inspectors on the conduct of Nuclear Operational Readiness Inspections.

Unintended Consequences of Expanded Focus of NSIs in Bomber Operations

- NWTIs for bomber operations have been expanded to the point that they are significantly more all-inclusive than stated in TP 25-1
- This expansion can dilute the intended NSI focus on administration and technical operations and lead to unrealistic expectations of NSI effectiveness in identifying deficiencies in performance of activities more relevant to the NORI

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The expansion of the NSI to compensate for the longer interval between NORIs has served neither the NSI nor NORI purposes.

Recommendations on NSI-NORI Overlap

- ***The Secretary of the Air Force should direct that Air Combat Command clarify the purposes and expectations of each type inspection for bomber units***
 - ***To validate that people performing the nuclear mission are performing it correctly in both daily and elevated alert conditions***
 - ***To validate that the unit is capable of meeting operational demands across the spectrum of nuclear operations***

V. Operational Readiness Inspections Inspection Intervals – Current and Suggested

Inspection	Current	Suggested
NORI (Bomber)	36 Months	18 Months
ORI (ICBM)	36 Months	18 Months
NSI	18 Months	18 Months
DNSI	60 Months	Oversight Each NSI

- The 36-month NORI interval led to concern about currency of capability assessed during NORI and ORI activity
- Adding NORI-like events to the NSI is counterproductive in that these activities are conducted under rules not consistent with generation requirements
- Returning the NORI/ORI inspection interval to 18 months eliminates need for expanded NSIs and helps ensure a return to the standards of excellence that need to be inherent in the nuclear weapons enterprise

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This chart shows current and recommended inspection intervals for Air Force strategic nuclear force units.

Returning the NORI/ORI inspection interval to 18 months eliminates any need for expanded NSIs and helps ensure a return to the standards of excellence that need to be inherent in the nuclear weapons enterprise.

The suggested inspection intervals will have resource implications. However, given that NSIs are already at the 18-month interval, the impact on the inspection team size and the impact on the unit can be minimized while still providing a significant benefit.

Combined NSI/ORI – ICBMs

Air Force Space Command Plan

Day 1-4 NSI Activity	Transition Day	Day 6-9 ORI Activity	Transition Day	Compliance Inspection
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Days 1-4 are dominated by NSI activities per AFI 90-201 (e.g., Administration, Technical Ops, logistics movements, equipment, security)

Days 6 – 9/14 no significant overlap between NSIs and ORIs in the consecutive inspections, although topic areas appear similar (administration, maintenance, logistics movements, security). Inspected activities measured for different purposes – surety (NSI) vs. operational readiness.

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The bar shows the Task Force’s understanding of the approach used by Air Force Space Command to conduct inspections for ICBMs. Three inspection regimes are included: NSI, ORI, and Compliance Inspections.

NSIs take 3-4 days to complete by 65-70 inspectors (augmented IG). These are conducted every 18 months, but the Task Force was informed that the Command is changing frequency to every 12-15 months.

ORIs take 3-7 days to complete by 75-90 inspectors. These are conducted in conjunction with every other NSI.

Additionally every 12-15 months 20th Air Force conducts Combat Capability Assessments and conducts division/functional-specific staff assistance visits more frequently.

The Task Force heard from the AFSPC IG that there is no overlap between the consecutive inspections. While inspected areas may carry the same title, these areas are inspected from different perspectives with different purposes – i.e., surety (NSI) versus operational readiness (ORIs). If there are compliance-related areas during an NSI, those are “counted” and are not duplicated during the ORI (if applicable) or the Compliance Inspection. There are no nuclear generation/employment readiness activities performed in NSIs.

Combined NSI/NORI – Bombers

Air Combat Command Plan

Day 1-4 Admin/NSI Activity		Day 6-11 NORI Activity	Day 12-14 IG Work & Outbrief
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- Days 3 and 4 are dominated by weapons handling/load events also required for the NORI but with no performance time
- Days 6–8 include multiple demonstrations of the weapons handling/load events evaluated during the NSI phase

Task Force Recommended Evaluation Sequence

NSI Stockpile Assessment	NORI Full Generation	Download & Fly	NSI Tech Ops	IG Work & Outbrief
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- Same events required for both NORI and NSI are evaluated under realistic time and capacity stress by both teams during NORI generation activity
- Additional NSI technical operations are evaluated by the NSI team following the ORI events

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The first bar shows the Task Force’s understanding of the approach to the combined bomber NSI-NORI being considered by Air Combat Command which is similar to that long used in Air Force Space Command. While this is workable, performing a broad set of NSI events before the NORI is likely to lead to duplication – that is, activities observed as part of the NSI that must be repeated during the NORI to generate the force.

The NSI event identified to the Task Force that does need to be performed before NORI activity is to evaluate the condition of the stockpile as it exists before the change from the day-to-day status of the stockpile during generation. Hence, the Task Force recommended NSI-NORI evaluation sequence is represented by the second bar.

During the conduct of the NORI, all events are conducted under realistic time and capacity stresses. The NSI team can observe any or all such operations during the conduct of the NORI. Other NSI events, such as technical operations within the nuclear maintenance complex can be examined after the completion of the NORI.

Findings and *Recommendations* on Combined Air Force NSI-ORI/NORI

- Combining the NSI and NORI in bomber units and continuing the combined NSI/ORI approach in ICBM units and conducting the full combined inspection with DNSI oversight on an 18-month interval, can significantly increase confidence in the assessment of the units capability to perform the nuclear deterrent mission day-to-day and during force generation
- ***The Deputy Secretary of Defense should direct that the DTRA DNSI team be resourced and directed to provide oversight assessments of NSI teams and processes***
- ***The Secretary of the Air Force should direct there be a fully integrated NORI and NSI of each strategic forces nuclear-capable wing with a time interval not to exceed 18 months***

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Providing for DNSI oversight for each NSI will require additional resources but, again, the numbers will be in tens, not hundreds, and the payoff should be well worth the cost. Again, this imposes no additional burden on the inspected unit since the Task Force preferred option sees the DNSI as evaluating the inspection team, not the unit.

Integrating NSIs and NORIs for bomber units as currently conducted for ICBM units will provide significantly increased confidence that the inspection system can fulfill its intended function while minimizing the increased resources needed and impact on the inspected unit.

Consolidated Air Force NSI Teams

- Proposal is some form of consolidation of Air Combat Command, Air Force Materiel Command, and Air Force Space Command NSI capabilities under the AF Inspection Agency (AFIA)
- Objective is more competent, standardized and objective NSIs
- Some cautions – need to:
 - Ensure that the inspection team is conducting the inspection under the authority of the major air commander
 - Conduct NSIs in conjunction with NORIs without duplication of NORI activity for NSI evaluation

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The Task Force was briefed on the proposal to consolidate the responsibility for conducting Air Force NSIs in the Air Force Inspection Agency. The objective is more standardized and more objective inspections.

While the Task Force did not assess the pros and cons of this proposal, there are some important cautions for the approach.

In order for inspections to be effective, they need to be backed by the authority of the major command's commander. This ensures that the inspected unit takes the findings seriously and focuses on correcting deficiencies identified in the inspection team report. It also ensures that the major command staff is engaged with inspection criteria and supporting the unit in sustaining readiness and correcting deficiencies.

Consolidating NSI capabilities does not preclude the changes planned in Air Combat Command nor would it dictate a change in the current Air Force Space Command approach. Neither would it significantly impact the Task Force-recommended combined/integrated NSI-NORI/ORI inspections.

Findings and *Recommendations* for Navy TREs

- As in the case of NWTIs, and for the same reasons, the scope of Navy Tactical Readiness Evaluations (TREs) is much narrower than Air Force NORIs and ORIs of nuclear capable units
- Given the scope of the TRE, the Task Force has no significant findings on the conduct of this inspection activity
- The Task Force did find that the highest level for formal reporting of NTPI and TRE results is the type commander
- ***The Chief of Naval Operations should direct that a formal process be initiated to report significant findings from NTPI and TRE activities to the CNO***

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As in the case of NTPIs, the Task Force believes that the approach to evaluating the readiness of Trident crews serves the SLBM force need.

Currently, TRE reports are delivered to:

- The SSBN, parent Submarine Squadron and Group and other Type Commander
- Director, Strategic Systems Programs
- STRATCOM J005 (IG) and J3
- Trident Training Facility
- Submarine Learning Center

VI. Summary of Recommendations

Overarching Issues

- ***The Secretary and the Chief of Staff of the Air Force, and the Major Air Commanders should:***
 - *Provide clear direction on the collective and individual objectives of the set of nuclear inspections*
 - *Remove any direction or implication that inspection teams have an education or mentoring responsibility during the conduct of an inspection*
- ***The Secretary of the Air Force should direct formation of a team of NSI, NORI, DNSI inspectors and officers and senior NCOs from bomber units and ICBM units to increase the clarity of direction for nuclear weapons operations***
 - *Expand the technical manuals as needed*
 - *Restore the clear direction formerly embodied in Air Force Regulations on nuclear operations and inspections*

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This section provides a summary of the Task Force recommendations.

Summary of Recommendations *Overarching Issues (cont)*

- ***The Secretary of the Air Force should:***
 - ***Require that Air Combat Command, Air Force Space Command, and US Air Forces in Europe provide a common set of demanding standards that NSI and NORI/ORI inspectors must attain and sustain***
 - ***The requirement for initial assignment should include at least one assignment performing nuclear weapons duties***
 - ***Direct that AFIA produce:***
 - ***A formal training course and assemble training teams to assist major air command inspection teams***
 - ***Standardized checklists for inspections of common areas***
 - ***Direct that the NSI Process Review Conference be held each six months***
 - ***Direct that major air commands have the authority for by name assignment to majcom inspection teams***

Summary of Recommendations

Nuclear Weapons Technical Inspections

- ***ATSD/NCB should coordinate with DTRA to adopt Option 3***
 - ***Change the DNSI charter to quality control oversight of each NSI team performance while sustaining the capability for the DNSI team to conduct special inspections for areas identified by the CJCS***

Summary of Recommendations

Nuclear Weapons Technical Inspections (cont)

- ***The Chairman, Joint Chiefs of Staff (CJCS), should direct that:***
 - ***Reports on inspection team effectiveness produced by the DNSI team are provided to the major command, the Service Secretary and Chief, USD/AT&L, and the CJCS***
 - ***The DNSI team structure be capable of fully independent inspections in areas designated by the CJCS***
 - ***The DNSI team compile and provide to the CJCS trends on nuclear forces performance as reflected in inspections***

Summary of Recommendations

NSI-NORI Overlap

- ***The Secretary of the Air Force should direct that Air Combat Command clarify the purposes and expectations of each type inspection for bomber units***
 - ***To validate that people performing the nuclear mission are performing it correctly in both daily and elevated alert conditions***
 - ***To validate that the unit is capable of meeting operational demands across the spectrum of nuclear operations***

Summary of Recommendations

Combined Air Force NSI-ORI/NORI

- ***The Deputy Secretary of Defense should direct that the DTRA DNSI team be resourced and directed to provide oversight assessments of NSI teams and processes***
- ***The Secretary of the Air Force should direct there be a fully integrated NORI and NSI of each strategic forces nuclear-capable wing with a time interval not to exceed 18 months***

Summary of Recommendations

Navy Tactical Readiness Evaluations (TREs)

- ***The Chief of Naval Operations should direct that a formal process be initiated to report significant findings from NTPI and TRE activities to the CNO***

Appendix A: Task Force Members

Task Force Members

General Larry D. Welch, USAF (Ret.), *Institute for Defense Analyses*

Dr. Harold M. Agnew, *Independent Consultant*

Dr. John C. Crawford, *Independent Consultant*

Dr. Ted Gold, *Independent Consultant*

Major General Thomas H. Neary, USAF (Ret.), *SAIC*

Dr. Robert W. Selden, *Independent Consultant*

Rear Admiral Robert H. Wertheim, *USN (Ret.), Independent Consultant*

Executive Secretary

Mr. David B. McDarby, *Defense Threat Reduction Agency*

DSB Secretariat Representative

Mr. Brian Hughes, *OUSD (AT&L)/DSB*

Task Force Support

Ms. Brenda Poole, *SAIC*

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The Permanent Task Force includes people with decades of operational, specific nuclear force operations, nuclear weapons design and sustainment, and operations analysis experience. The forerunner of the Permanent Task Force – the Joint Advisory Committee on Nuclear Weapons Surety -- was formed in 1992 and has, since that time, been frequently engaged in examining specific issues impacting the capability and performance of the nuclear weapons enterprise.

Appendix B: Meetings

- Deputy Assistant to the Secretary of Defense for Nuclear Matters
- USAF, Deputy Director for Global Operations (J-39)
- Deputy Assistant Inspector General for Intelligence Audits
- USAF, Director of Inspections, Office of the Inspector General
- Vice Commander, Air Force Inspection Agency
- USN, Director, Strategic Forces, Nuclear Weapons and Force Protection, Commander Submarine Forces Atlantic
- USN, Nuclear Surety and Force Protection, Navy Strategic Systems Programs
- Chief Nuclear Programs Division, DTRA
- U.S. Nuclear Command & Control System Support Staff (NSS)
- Task Force 204 Commander and staff
- 2nd Bomb Wing organizations
- Air Force Space Command (AFSPC) IG
- Air Combat Command (ACC) IG
- USSTRATCOM Commander and organizations
- U.S. Air forces in Europe (USAFE) A3, IG, and 52nd Wing Commander
- Submarine Group 10
- USS Wyoming and USS Maryland SSBN organizations
- US Air Forces in Europe Headquarters organizations

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This chart shows the organizations that the Task Force heard from and/or visited specifically for this task to ensure the needed current perspective.

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Appendix C Differences Between Environments: Strategic Forces vs. Dual Capable in Europe

Issue	Strategic Forces	Dual Capable in Europe
Weapons Storage Configuration	Central weapons storage and maintenance is a Weapons Storage Area (WSA)	Dispersed storage in Vault Storage Areas with maintenance inside trailers within protective aircraft shelters
Security Responsibility	DoD ownership of security for facilities	Shared responsibility for main operating bases and host nation ownership at munitions maintenance sites
Inspection Responsibilities	U.S. national only	U.S. national and NATO
Operating Standards and Directives	DOD/Service directives	Combination of U.S. national and NATO directives
Continuity of organization	Fundamental Change	Continuity

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This chart displays the differences in environments described with the second chart on tasking (page 4).

