Report No. DODIG-2015-051

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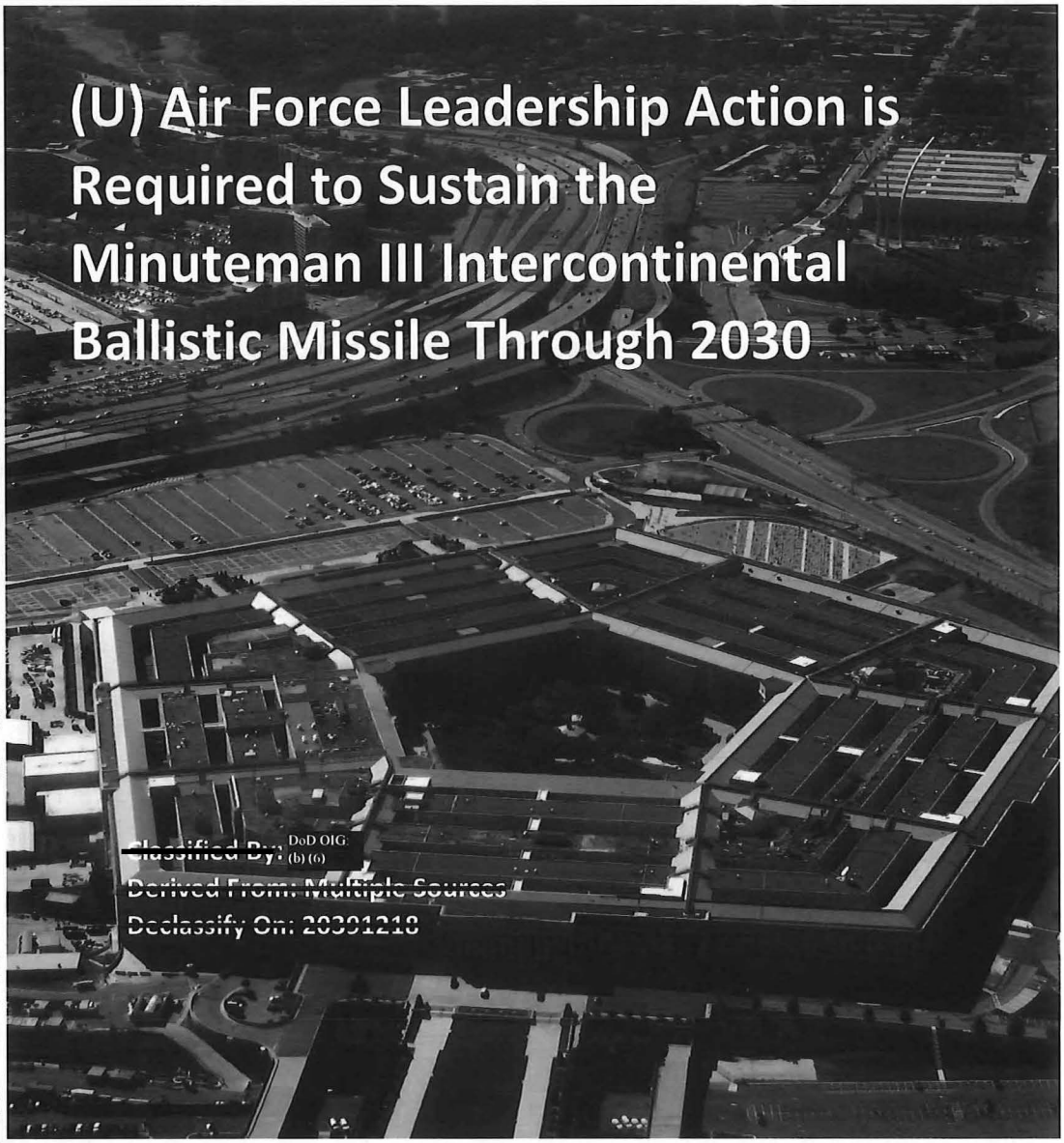
INSPECTOR GENERAL

U.S. Department of Defense

December 17, 2014



(U) Air Force Leadership Action is Required to Sustain the Minuteman III Intercontinental Ballistic Missile Through 2030

~~Classified By: DoD OIG (b) (6)~~
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ODIG-ISPA (ATTN: Project Suggestions)
4800 Mark Center Drive, Suite 10J25-01
Alexandria, VA 22350-1500

(U) Results in Brief

(U) Air Force Leadership Action is Required to Sustain the Minuteman III Intercontinental Ballistic Missile Through 2030

(U) December 17, 2014

(U) Objective

(U) Our objective was to examine the material distribution and asset visibility for Minuteman III (MMIII) Intercontinental Ballistic Missile (ICBM) support equipment. Specifically, we examined the availability of support equipment and supply chain management's responsiveness to meet operational availability and Public Law 109-364, Section 139 direction, to sustain the MMIII through 2030.

(U) What We Found

(U) The MMIII ICBM needs senior leader action to sustain it through 2030, as Public Law 109-364 requires. Parts obsolescence, Diminishing Manufacturing Sources and Material Shortages, budgetary uncertainties, cost variances, and poor demand forecasting have resulted in deferred maintenance and aging, unsupportable equipment.

(U) The Air Force does not manage all MMIII weapon system-specific parts. This results in the inability to effectively monitor requirements causing bifurcated processes and efforts.

(U) Finally, the MMIII Mission Design Series did not include other equipment necessary to support, test, communicate with, or launch an ICBM.

~~(S//FRD)~~ Although not in the project scope, our research identified that the Air Force

[redacted]
PER USSTRATCOM, AND USAF: (b)(1), 1.4(a), 1.4(g); PER DOE: (b)(3), ATOMIC ENERGY ACT (AEA) OF 1954, AS AMENDED

[redacted]

[redacted]

(U) Recommendations

(U) Air Force Materiel Command examine the feasibility of establishing an Aerospace and Maintenance Regeneration Group for the MMIII Weapon System. Air Force Global Strike Command develop a plan to fund the Payload Transport Replacement Program in FY 2016 and Validate 2S0XX manpower requirements and authorizations for munitions and maintenance squadrons.

(U) Defense Logistics Agency evaluate processes used to notify stakeholders prior to re-cataloging parts; collaborate with the Air Force Global Strike Command ICBM General Officer Steering Group to develop standardized material availability metrics; and evaluate quality assurance processes for suitable substitute selections in conjunction with Air Force Global Strike Command. Air Force Global Strike Command ICBM General Officer Steering Group identify weapon-specific, low-demand parts for return to Air Force management. Air Force Sustainment Center and Air Force Nuclear Weapon Center fund authorizations for sustainment engineers and engineering support personnel. Air Force Global Strike Command and Air Force Materiel Command form an integrated process team to continually analyze maintenance and supply information system performance, system interfaces, future requirements, and training.

(U) Air Force Global Strike Command ICBM General Officer Steering Group provide annual updates on Nuclear Support Equipment, Real Property, and Real Property Installed Equipment to the Nuclear Oversight Board.

(U) Management Comments and Our Response

(U) Air Force Materiel Command, Air Force Global Strike Command, and the Defense Logistics Agency agreed with all specifics of the recommendations and no further comments are required. Please see the Recommendations Table on the next page.

(U) Recommendations Table

Management	Recommendations Requiring Comment	No Additional Comments Required
Commander, Air Force Materiel Command		A.1, B.5, and B.6
Commander, Air Force Global Strike Command		A.2, B.3, and B.6
Director, Defense Logistics Agency		B.1, B.2, and B.3
Director, Air Force Global Strike Command Logistics, Installations and Mission Support (A4/7)		B.2, B.4, and C
Director, Air Force Global Strike Command Manpower, Personnel, and Services (A1)		A.3

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

DEC 17 2014

MEMORANDUM FOR DISTRIBUTION

SUBJECT: (U) Report No. DODIG-2015-051 "Air Force Leadership Action is Required to Sustain the Minuteman III Intercontinental Ballistic Missile Through 2030"

~~(S//FRD)~~ We are providing this final report for your information and use. The Minuteman III weapon system is still in operation 30 years after its original design and must be sustained through 2030, as required by Public Law 109-364, Section 139. Even though the missile has had regular modifications, the launch facilities, missile alert facilities, support equipment, and transport vehicles are mostly original, dating to the 1960s. [redacted] PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g) [redacted] PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g); PER DOE: (b) (3), AEA OF 1954, AS AMENDED [redacted] We conducted this evaluation in accordance with the Council of the Inspectors General on Integrity and Efficiency (CGIE) Quality Standards for Inspection and Evaluation.

(U) We considered management comments on the draft of this report. The Director of Logistics, Headquarters Air Force A4, responded for the Commander, Air Force Materiel Command. The Commander generally agreed with the findings and agreed with all of the recommendations. The Commander, Air Force Global Strike Command provided comments to a draft of this report and agreed with all specifics of the recommendations. The Deputy Director of Logistics Operations, Defense Logistics Agency, concurred with Finding B and addressed all specifics of the recommendations. We do not require any further management comments.

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

Anthony C. Thomas
Deputy Inspector General for
Intelligence and Special
Program Assessments

~~Classified by:~~ DoD OIG: (b) (6)
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COMMANDER, AIR FORCE SUSTAINMENT CENTER

(U) Contents

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(U) Introduction

(U) Objective

(U) Our overall objective was to examine the material distribution and asset visibility for Minuteman III (MMIII) Intercontinental Ballistic Missile (ICBM) support equipment. Specifically, we examined the availability of support equipment and supply chain management's responsiveness to meet operational availability and Public Law 109-364, Section 139, requiring the Air Force to sustain the MMIII through 2030. We planned to answer three questions:

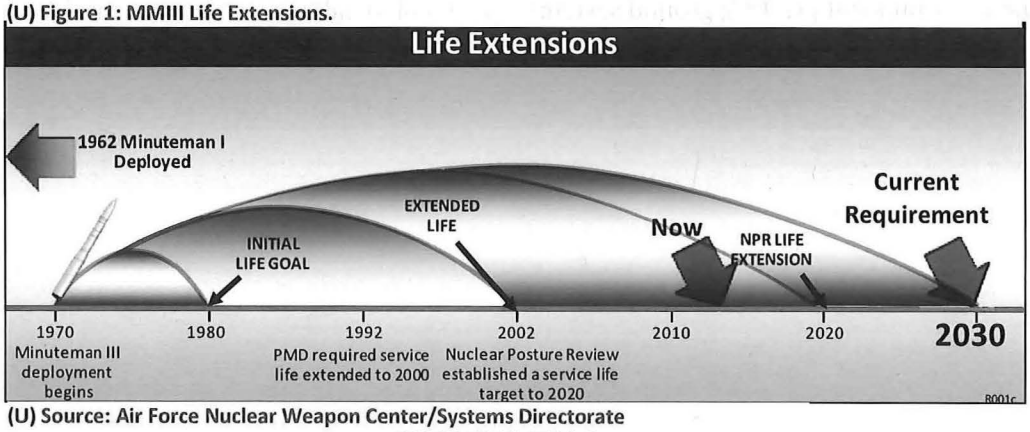
1. (U) Can the ICBM supply chain meet the requirements of Public Law 109-364, Section 139, to sustain MMIII operations through 2030?
2. (U) Does the ICBM supply chain meet the warfighter's needs?
3. (U) Is the ICBM supply chain reliable, responsive, and flexible?

(U) Background

(U) The MMIII ICBM was first deployed in June 1970. Support equipment, including test sets, launch facilities (LF), missile alert facilities (MAF), and communications equipment were developed and installed in the late 1950s and early 1960s. The MMIII is the product of almost 60 years of continuous improvement. Modernization programs have resulted in expanded targeting options, improved accuracy, and improved survivability. However, weapon system production ended in December 1978, and several pieces of critical support equipment are failing because of a lack of funded replacement plans.

(U) Public Law 109-364, Section 139, directs the Department of Defense to sustain the MMIII through 2030. As depicted in Figure 1, this law is the latest in a series of life extensions for the MMIII.

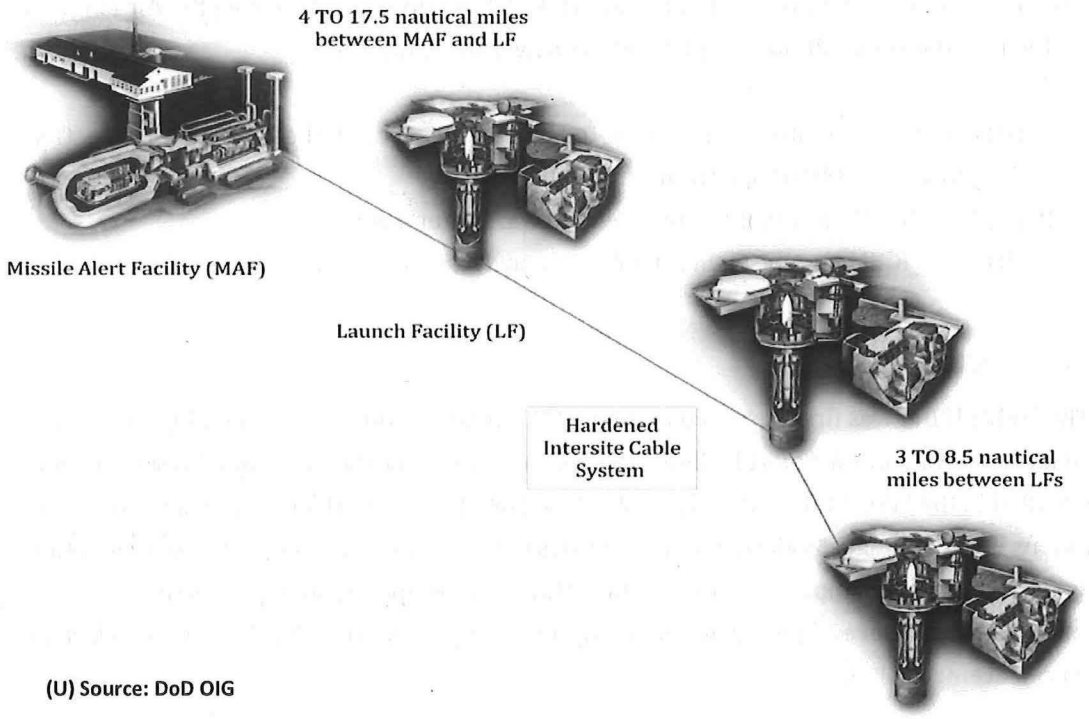
(U) Figure 1: MMIII Life Extensions.



(U) Source: Air Force Nuclear Weapon Center/Systems Directorate

(U) Sustaining the MMIII is extraordinarily complex because the health of the entire ICBM infrastructure is a factor in ICBM availability. Unlike most other weapon systems, degradation of mission capability in any supporting equipment will reduce ICBM availability. Figure 2 depicts the general infrastructure and support equipment necessary for MMIII availability. This representation does not include the thousands of miles of Air Force-maintained roads connecting MAFs and LFs or the nuclear-certified transport vehicles and personnel needed to ensure weapon system availability.

(U) Figure 2: Representation of MMIII Ground Infrastructure



(U) Source: DoD OIG

(U) We did not examine Nuclear Weapon Related Material, propulsion or guidance systems, or the Reentry System/Reentry Vehicle (RS/RV). We focused on support equipment critical to MMIII ICBM operations. In this report, the term "support equipment" refers to test, measurement, and diagnostic equipment (TMDE); ground systems equipment; handling equipment; and vehicles that transport nuclear weapons or missile components.

(U) Finding A

(U) The Minuteman III ICBM May Not Be Sustainable Through 2030 Without Additional Air Force Actions

(U) The Minuteman III ICBM may not be sustainable through 2030, as directed by Public Law 109-364, Section 139, also known as the 2007 John Warner National Defense Authorization Act (NDAA). Parts obsolescence, diminishing manufacturing sources and material shortages (DMSMS), budgetary limitations and cost variances, and the failure to properly forecast demand has resulted in deferred maintenance and aging, unsupportable equipment. Additionally, schedule variances indicate existing and future risk.

(U) Parts Obsolescence and DMSMS are the Two Biggest Factors in the Health of the Legacy MMIII System

(U) Although many components of the MMIII missile and warhead were upgraded recently, we identified support equipment parts dating back to the early 1960s.[1] As the MMIII weapon system ages, more parts are failing for the first time. Many of these parts contain obsolete technologies and cannot be replaced. For example, the environmental control system (ECS) in the payload transporter[2] will be unsustainable as early as 2020 without a viable, funded plan for replacement. There are open back orders on the ECS, no sources of supply, and no A-condition assets left in supply. Additionally, on January 1, 2020, a ban on production and import of the refrigerants hydrochlorofluorocarbon (HCFC) 22 and HCFC-142b[3] takes effect, so that servicing of the ECS must then rely on recycled or stockpiled quantities of refrigerants.

(U) The Air Force faces a second concern in that components of the auxiliary power unit (APU) for the transport erector are no longer available, forcing organizations to replace the entire unit when a single part fails. Compounding this concern is that a limited number of complete APU spares remain, and DoD OIG: (b)(5) [redacted].

[1] (U) Portions of the Transport Erector carriage still in use today were manufactured in the 1960s.
[2] (U) The Payload Transporter is the only method of safe and secure transportation and handling of the Minuteman III Aerospace Vehicle Equipment.
[3] (U) The phase out of HCFC will be carried out in accordance with Title VI of the Clean Air Act, specifically 42 U.S.C. § 7671d, implemented by the Environmental Protection Agency.

(U) A third example of parts obsolescence and DMSMS involves the oxygen regeneration unit in the launch control centers. The unit is unsupportable because numerous parts are no longer manufactured, and the filtration system is operating beyond its established shelf life.

(U) These examples are neither all-inclusive nor exhaustive; they indicate the challenges facing most nuclear support equipment. Several factors have led to parts obsolescence. During the MMIII design phase no one anticipated that the missile would be in service for more than 10 years. As a result, ensuring continued parts availability was not emphasized.

(U) Low-demand parts, although not unique to ICBMs, are problematic for the entire supply chain. We found that some maintenance and supply systems cannot track maintenance trends for more than two years, departmental guidance prohibits excess spares, and metrics such as mean-time between failure-rates cannot be used accurately. Additionally, technology becomes obsolete between deployment of some parts and their eventual replacement.

(U) The aircraft community overcame similar problems when the Army established the 4105th Army Air Force Base Unit to store and manage vast numbers of surplus World War II aircraft. The 4105th was renamed the 309th Aerospace Maintenance and Regeneration Group (AMARG)--a one of a kind specialized facility within the Air Force Materiel Command structure--and now manages an inventory of more than 3,800 aircraft, 40 aerospace vehicles, and 400,000 line items of production tooling. The 309th AMARG's ability to reclaim parts represented a return of more than $1.07 billion on taxpayer investment, or nearly $11 returned for every dollar spent at AMARG.[4] The ICBM supply and production enterprise, also within the Air Force Materiel Command Structure, has centralized management and storage of motors, warheads, and nuclear weapon related material, but may also benefit from centralized storage of excess parts.

(U) Budgetary Uncertainties and Cost and Schedule Variances Have Led to Deferred Maintenance and Aging, Unsupportable Equipment

(U) The Air Force must balance the requirement to sustain the legacy MMIII weapon system through 2030 while preserving a Ground Based Strategic Deterrent (GBSD) through 2075. To do so, the Air Force must make sure investments to sustain the legacy MMIII system can be leveraged into the technologies and infrastructure needed to support the GBSD.

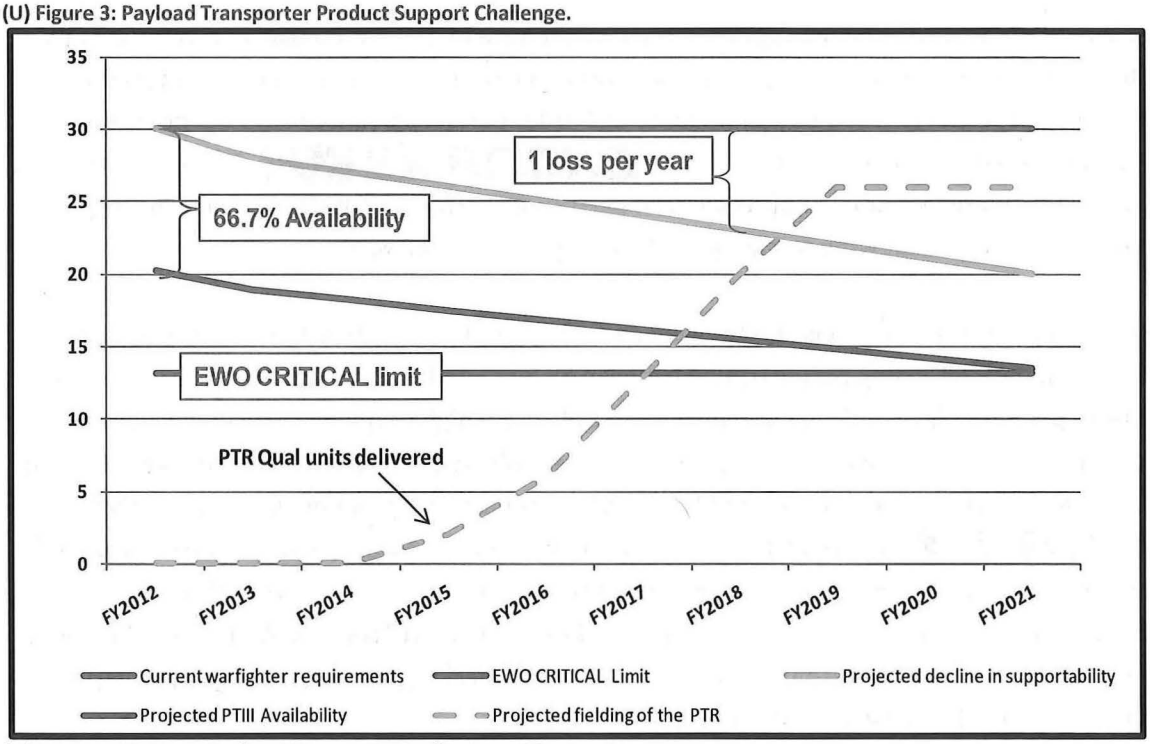
[4] (U) Return on investment reported by the Air Force on May 9, 2007.

(U) Until October 1, 2014, wing commanders used Operations and Maintenance (O&M) funds for maintaining nuclear-support equipment. The unpredictable cost variance of parts, coupled with the inability to proactively schedule maintenance and order parts in advance of system faults caused munitions and maintenance squadrons to be [redacted]. Effective October 1, 2014, AFGSC merged multiple unit-level O&M parts funding into a MAJCOM centrally managed account. This will assist wing commanders in managing cost variances.

(U) In two particular situations, unpredicted cost variances were severe. First, the cost of the flywheel in the Fast-Rising B-Plug tripled between FY 2012 and FY2014 --an increase of more than $50,000 per part. The flywheel mechanism broke at such a high frequency that squadrons were forced to cannibalize from installation kits not yet used, delaying the installation timeline. Second, emergency batteries used to power the Missile Alert Facility (MAF) and the Launch Facility (LF), are failing [redacted]. In 2010, 58 MAF batteries failed and 44 LF batteries failed. Meanwhile, the price of LF and MAF batteries increased 67 percent and 54 percent respectively in 2012, increasing the cost to $12,599 per LF battery and $14,257 per MAF battery. As a result of price increases and diminishing resources, squadrons deferred periodic testing, specifically of legacy batteries, to avoid replacing failed batteries.

(U) Budgetary limitations and strategic tradeoffs have left critical nuclear support programs unfunded. Air Force Global Strike Command offset all funding for the Payload Transporter Replacement Program (PTR). The sustainability of the current Payload Transporter (PT) through 2030 is questionable--even with the efforts of Programmed Depot Maintenance (PDM). The PDM cycles revealed excessive corrosion, environmental flap delamination, heavy cannibalization, and other deficiencies that cannot be repaired within the future budget. This additional cost caused the premature retirement of one asset in FY 2014. If the premature retirements continue at this rate, and if the PTR is not funded in FY 2016, the current PT could fall below the Emergency War Order (EWO) Critical Limit as early as FY 2021.

(U) Figure 3: Payload Transporter Product Support Challenge.



(U) Source: Air Force Nuclear Weapon Center/Systems Directorate

(U) Likewise, we conclude that the Transport Erector (TE) is unsustainable through 2030 if the replacement program is delayed. The TE was fielded in the 1980s, and its past workload has exceeded its design life and parameters by more than 70 years.[5] Maintenance operations were halted 13 times since 2006 because of cracks in the carriage and hoist failures.[6] The Air Force's current efforts are limited in scope with the goal of sustaining the aging fleet until the TE replacement program is fielded.

(U) We also found test equipment, such as the shock isolator test stand, that is one-of-a-kind and a single-point failure, for which sustainment funds are not available. Other test equipment relies on mainframe computers manufactured in the 1970s or on unsupportable operating systems. The Air Force continues to purchase new non-commercial systems but does not purchase spares.

[5] Air Force Global Strike Command Intercontinental Ballistic Missile Master Plan, Fiscal Year 14,Paragraph 2.4.3.2.
[6] (U) Data current as of December 2013.

(U) Current Practices Fail to Properly Signal Demand

(U) A common, yet unauthorized practice in DoD maintenance communities is to hoard parts to ensure systems are mission-ready with minimal delays. Further, maintenance personnel commonly repair systems in the field instead of waiting for the supply chain to produce new parts. These practices impede the supply chain's ability to track and forecast demand. These practices still prevail in the MMIII community.

(U) DoD OIG (b) (5)

Lead times for some parts are not measured in weeks or months, but in years. Similarly, one unit recorded that out of an order of 75 aft section containers, 52 incorrect parts were delivered. Such statistics have forced senior leadership to acknowledge and accept unauthorized practices to ensure the ICBMs are mission-ready. Nevertheless, the organizations that comprise the supply chain cannot improve their responsiveness if operational units continue to circumvent the system. Overall, these practices fail to establish demand in the system, and similar results should be expected until demand patterns are accurate.

(U) These errors have manifested in some cases because of reduced Logistic Readiness Squadron (LRS) personnel at the installation level. The shortage of supply professionals[7] force missile and munitions maintenance teams to become supply-chain experts, in addition to mastering their primary duties.

(U) Air Force Global Strike Command's efforts for addressing the supply-chain training deficiencies are commendable. However, the MMIII community has been forced to accept risk because nuclear weapon maintenance teams are distracted with learning and operating equally complex logistics processes and Information Systems. In short, missile and munitions maintenance teams lack the expertise to successfully navigate the supply system, and Air Force Global Strike Command Directorate of Manpower, Personnel, and Services (AFGSC/A1) has not fully addressed the shortage of supply professionals.

(U) We also found contradicting efforts that are impeding progress in this area. Some levels of command are creating or sustaining billets for supply professionals within munitions and missile maintenance squadrons, yet other levels of commands are removing the billets and returning the manpower to Logistics Readiness Squadrons.

[7] (U) Air Force Specialty Code 2S0XX

(U) Conclusion

(U) Without immediate attention from Air Force leadership, critical MMIII parts and equipment could become unsupportable as early as 2021—despite the fact the Air Force implemented or plans to implement various initiatives to gain efficiencies and improve legacy system sustainment. Additionally, supply chain responsiveness cannot be improved without establishing demand patterns and increasing the number of supply professionals at munitions and missile maintenance squadrons.

(U) Management Comments on the Finding and Our Response

(U) Commander, Air Force Global Strike Command

(U) Air Force Global Strike Command (AFGSC) states it is committed to completing the replacement of the current Payload Transporter fleet with a more secure and sustainable transporter. AFGSC adds that System Program Office oversight with respect to Life Cycle Management of the PTR is critical to ensure sustainability in out years. AFGSC also concurs with the observations on lack of supply expertise in the ICBM maintenance community. AFGSC agrees there needs to be enterprise-level emphasis on filling AFGSC validated 2S0XX manpower billets and identification of variances to ensure adequate support to missile maintenance activities. Munitions Squadron 2S0 requirements were previously validated through implementation of an AF Manpower Study approximately one year ago; this study validated two 2S0 billets in munitions squadrons at each of the three missile wings. Although, the Force Improvement Program (FIP) identified and funded 24 billets across the missile wings, these still need to be validated via a manpower study.

(U) Our Response

(U) We appreciate the efforts Air Force Global Strike Command outlined in its response and the willingness to work collaboratively across the DoD to resolve these challenges.

(U) Commander, Air Force Materiel Command

(U) The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command, agreed with the statement that senior leadership will need to be heavily engaged to meet the emerging challenges. The Commander stated that the Air Force Nuclear Weapon Center and Air Force Global Strike Command established a Supply Chain Integrated Process Team that is addressing the entire range of MMIII-specific supply chain issues. However, establishing projected completion dates for the finding and recommendation are wholly dependent on what funding is received to carry out sustainment initiatives.

(U) Our Response

(U) We acknowledge the budget constraints, especially while sustaining a legacy system and developing a replacement system.

~~(S)~~ Although not required to comment, Headquarters Air Force A10 provided the following comments on the finding, stating that the Minuteman III [redacted] For the full text of their comments, see the Management Comments section of the report.

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation A.1

(U) We recommend that the Commander, Air Force Materiel Command examine the feasibility of an Aerospace and Maintenance Regeneration Group-like entity to manage excess material storage for the Minuteman III Weapon System to minimize the impact of parts obsolescence and Diminishing Manufacturing and Material Shortages.

(U) Commander, Air Force Materiel Command

(U) The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command agreed to examine the concept of additional centralized storage. The estimated completion date for the analysis is November 30, 2015.

(U) Our Response

(U) The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command was responsive to Recommendation A.1 and no further comments are required.

(U) Recommendation A.2

(U) We recommend that the Commander, Air Force Global Strike Command develop a plan to determine how to fund the Payload Transporter Replacement Program in FY 2016.

(U) Commander, Air Force Global Strike Command

(U) The Payload Transporter Replacement (PTR) Program development is funded through May 2015. In the Nuclear Deterrent Operations FY 2016 POM, the PTR program ($103.1M) is funded in the President's Budget (PB) to complete production and delivery. A total of 26 Payload Transporters are programmed for delivery by 2021 with FY 2017 as the first production year.

(U) Our Response

(U) The Commander, Air Force Global Strike Command was responsive to Recommendation A.2 and no further comments are required.

(U) Recommendation A.3

(U) We recommend that the Air Force Global Strike Command Director of Manpower, Personnel, and Services validate 2S0XX manpower requirements to meet Minuteman III Intercontinental Ballistic Missile needs and include changes in the Program Objective Memorandum.

(U) Commander, Air Force Global Strike Command

(U) According to the Air Force Personnel Center, Air Force Global Strike Command expects 8 of the 24 billets to be filled by May 2015 with the remaining being filled in subsequent assignment cycles (2-3 fills per cycle, per base); therefore all 24 missile wing maintenance 2S billets should be filled by summer 2016.

(U) Our Response

(U) The Commander, Air Force Global Strike Command was responsive to Recommendation A.3 and no further comments are required.

(U) Finding B

(U) The Supply Chain for the MMIII Could Be More Responsive and Flexible to Meet the Warfighter's Needs

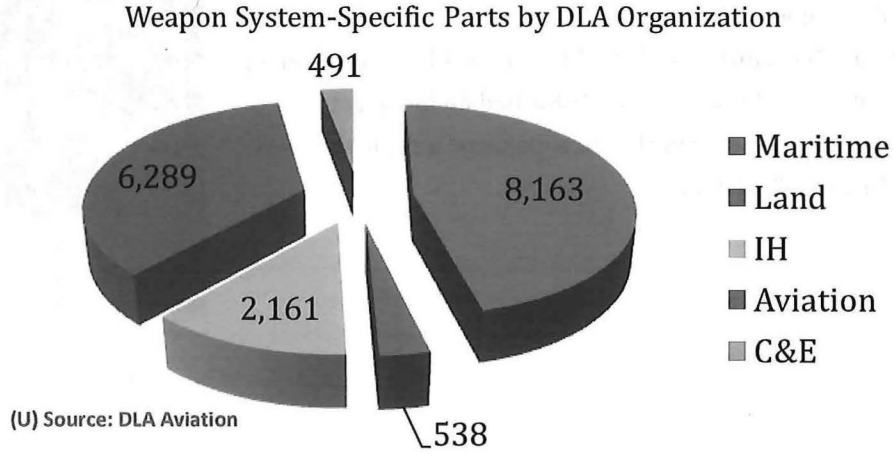
(U) The Air Force does not manage all MMIII weapon system-specific parts, a deliberate result of the 2005 Base Realignment and Closure (BRAC). This lack of management results in the Air Force's inability to effectively monitor requirements, causing bifurcated processes and efforts, slowing the responsiveness of the supply chain. Additionally, maintenance and supply Information Systems (IS) can be improved, and IS training is inadequate.

(U) The Air Force Does Not Manage All Weapon System-Specific Parts

(U) The 2005 BRAC was the impetus for the Air Force's transfer of procurement responsibility for depot-level reparable items to DLA. Additionally, the BRAC resulted in the Air Force's transfer of management of all consumables to DLA. This realignment has not saved money as anticipated. In contrast, the U.S. Government Accountability Office calculated that the realignment incurred a loss instead of savings.[8]

(U) The Defense Logistics Agency manages 38,407 parts for the Minuteman III weapon system, of which 17,642 are unique parts that no other weapon system uses. The five DLA organizations, shown in Figure 4, manage weapon system-specific parts:

(U) Figure 4: Weapon System-Specific Parts by DLA Organization. Source: DLA Aviation



(U) Source: DLA Aviation

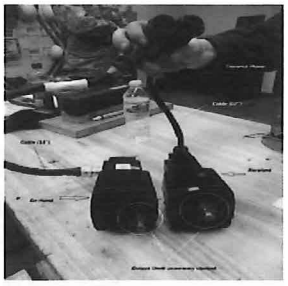
[8] GAO-12-709R Military Base Realignments and Closures: Updated Costs and Savings Estimates from BRAC 2005.

(U) DLA manages the weapon system-specific parts, but the Air Force's Nuclear Weapon Center's Systems Directorate (AFNWC/NI) is responsible for identifying part-specific requirements, that is, Nuclear Hardness Critical Items (HCI). A Nuclear HCI's response to the specified nuclear environments could cause degradation in system survivability unless additional provisions for hardness are included in the item specification, design, manufacture, item selection process, provisioning, and configuration control.[9]

(U) During this assessment, interviews revealed that DLA re-catalogued a portion of the 3,913 HCIs managed by DLA. When these parts were re-cataloged, the HCI requirement was removed. Once the Air Force identified this error, AFNWC/NI directed DLA to freeze orders for the affected parts. AFNWC/NI, 414th Supply Chain Management Squadron (SCMS), 309th Missile Maintenance Group (MMXG), and DLA reviewed cataloguing for all 3,913 parts to ensure non-HCI parts were not used in ICBM maintenance. As a result of the review, 1,688 parts have been cleared to reenter the supply chain. AFNWC/NI anticipates the remaining parts will be evaluated by January 1, 2015. Any part found to be procured but noncompliant with HCI requirements will undergo extensive testing to determine the potential impact. Results of testing and any potential weapon system impact will be classified by AFNWC/SD. Determination of the type of testing and funding is ongoing.

(U) Bifurcated Parts Management Slows Responsiveness

(U) We found several ICBM support equipment assemblies managed by both the Air Force and the DLA, which have caused significant delays when parts were needed for maintenance. For example, the Guided Missile Maintenance Platform (GMMP) lowers into the launch facility silo to allow maintainers to perform work on the missile. The GMMP is managed by the 414th SCMS, but DLA manages the GMMP's traverse motor because the motor is categorized as a consumable item. When the exact part is unavailable, DLA along with Air Force Global Strike Command's Missile Engineer Service selects a suitable substitute. Previously, these suitable substitutes have been unusable. For example, a recent suitable substitute for a traverse motor had an incorrect electrical plug, an incorrectly placed electrical box, and a cable that was too short to plug in. (See Figure 5.)



(U) Figure 5: Incorrect Traverse Motor Suitable Substitute

[9] (U) MIL-STD-100G, DoD Standard Practice for Engineering Drawings, 1997

(U) Because of the length of time it takes to return the traverse motor and wait for the correct part, Air Force maintenance personnel reconfigure the incorrect motors instead of properly using the supply chain. Similar to the effects noted in Finding A, these practices--albeit necessary to maintain operational availability--fail to record deficiencies in the supply system, preventing corrective action for future transactions.

(U) We examined performance metrics from AFGSC, AFMC, and DLA. DLA reports the current parts availability for the MMIII is at 95 percent, well over its established goal of 90 percent. However, these metrics only apply to consumable parts for the ICBM and not for all consumable parts for support equipment, launch facilities, or missile alert facilities.[10] We also believe AFGSC and AFMC metrics DoD OIG (b) (5) do not measure real property or real property installed equipment[11] availability. Overall, each metric does capture some valuable material availability statistics, but the units of measure are not standardized and produce a wide range of results. The Air Force Global Strike Command-led ICBM General Officer Steering Group is a forum where ICBM sustainment issues, such as this, are routinely addressed by steering group representatives. The forum could be better enabled to make programmatic and risk management decisions with improved metrics.

(U) A critical and often overlooked factor of material availability is engineering and material management personnel.[12] Engineers in the ICBM enterprise are responsible for the analysis, testing, maintenance, sustainment, repair, and modernization of the components of the LGM-30G, nuclear support equipment, nuclear-certified transport vehicles, Real Property, and Real Property Installed Equipment. Additionally, engineers revise and rewrite Technical Orders and drawings for the parts and equipment they manage.

(U) The Air Force is short of engineers and engineering support personnel. As of the date of this report, the Air Force Nuclear Weapon Center's ICBM/SD has 23 encumbered unfunded manning authorizations, and 16 vacant unfunded authorizations, while the Air Force Sustainment Center's 414th SCMS has 33 unfunded authorizations. The lack of engineers increases the time needed to reengineer obsolete parts. At the time of this report, timelines to reengineer a part and update the Technical Order can take almost five years.

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[10] (U) Weapon System Designator Code 01F

[11] (U) AFI 32-9005, "Real Property Accountability and Reporting," August 14, 2008 defines Real Property as "Land and improvements to land (i.e., facilities). It includes equipment affixed and built into the facility as an integral part of the facility (such as heating systems), but not moveable equipment (e.g., plant equipment, industrial equipment, buoys." Real Property Installed Equipment is defined as "Those items of government–owned or leased accessory equipment, apparatus and fixtures that are essential to the function of the RP and are permanently attached to, integrated into, or on government-owned or leased property."

[12] (U) For the purposes of this report, material management personnel refers to Item Managers, Equipment Specialists, and Product Support personnel.

(U) ICBM Maintenance and Supply Information Systems can be Improved, and Information System Training is Inadequate

(U) The Integrated Maintenance Data System (IMDS) is a field-level automated system used to provide for maintenance business processes. Munitions and missile maintenance technicians use IMDS to schedule equipment usage, work, and the labor force. IMDS was originally designed without incorporating facets to manage nuclear weapon missile maintenance requirements, but the Air Force mandated its use as the standard system for maintenance information.

(U) Between 2008 and 2011, AFGSC units and the 754 Electronic Security Command developed requirements to incorporate nuclear weapon missile maintenance capabilities into IMDS. However, all nuclear weapon missile maintenance activity information cannot be shared between systems. Case in point, the Air Force Materiel Command's 309 Missile Maintenance Group Programmed Depot Maintenance activities are recorded in a separate database, and there is no mechanism to cross flow data. This inability to share data will become more important because the amount of depot maintenance is projected to increase in the near future.

(U) Munitions and missile maintenance technicians also use the Integrated Logistics System-Supply (ILS-S), which includes the Standard Base Supply System (SBSS), Enterprise Solution-Supply (ES-S), and Air Force Supply Central Database (AFSCDB). The SBSS only retains information for 18 months. Therefore, if base-level personnel do not place an order for a particular part within 18 months, all of the part's associated information, including requirements and National Stock Numbers, is purged from the system. Maintenance personnel stated it takes hours to find the part in the Technical Orders and then find the corresponding National Stock Number. Maintenance personnel admitted they rely more on the commercial search engine, Google, to find information than they do existing government systems. Because part turnover for the MMIII is infrequent, two out of every three orders for ICBM parts are processed as "first time demand" parts, and maintenance personnel are forced to manually find and reenter the part data.

(U) We found no evidence of a formal continuing education and training program for these information systems. Personnel from base-level to command-level voiced frustrations about the difficulties encountered with both maintenance and supply information systems. Furthermore, data managers do not have proper permissions to use all IMDS functions.

(U) Conclusion

(U) The Defense Logistics Agency is responsive to the Air Force MMIII community's needs for common, consumable parts with established demand patterns. However, MMIII-unique parts are problematic for DLA because of the engineering and testing requirements, along with the inability to establish demand patterns. The inability of the Air Force to effectively monitor requirements presents current and future risk to the MMIII. Equally important, the Air Force lacks engineering support to ensure material availability. Both maintenance and supply systems could be improved to be more flexible and responsive to the warfighter. There is no formal continuing training program for maintenance or supply information systems.

(U) Management Comments on the Finding

(U) Commander, Air Force Global Strike Command

(U) AFGSC agrees on the need to develop standardized materiel availability metrics and will establish this as an action item for the ICBM GOSG. Air Force Global Strike Command initiated actions through their Product Support Strategy Team (PSS) who are developing weapon system modeling and forecasting tools to support this effort. Moreover, the PSS ICBM Spare Requirements Review Process will establish the first ever ICBM parts requirement forecast through FY 2017.

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation B.1

(U) We recommend that the Director, Defense Logistics Agency evaluate processes used to notify Minuteman III Intercontinental Ballistic Missile customers before re-cataloging parts.

(U) Defense Logistics Agency

(U) The Deputy Director, DLA Logistics Operations, concurred with comment. DLA has incorporated new DoD Demilitarization guidance to the Military Service's for proper demilitarization coding and to logistically reassign all classified and explosive items back to the original managing Service. To date, 2,222 items (out of 3,913) have been reviewed/updated for demilitarization and Hardness Critical Item requirements and have been unfrozen, authorized to be released, and are ready for procurement. The remaining 1,691 national stock numbers still require Air Force review. The estimated completion date by the Hardness Critical Item working group is December 2015.

(U) Our Response

(U) DLA was responsive to our recommendation and no further comments are required.

(U) Recommendation B.2

(U) We recommend that the Director, Air Force Global Strike Command A4/7, as Chair of the ICBM General Officer Steering Group, in conjunction with the Defense Logistics Agency, develop standardized material availability metrics.

(U) Commander, Air Force Global Strike Command

Air Force Global Strike Command will establish this as an action item for the ICBM General Officer Steering Group. Air Force Global Strike Command initiated actions through their Product Support Strategy Team that is developing weapon system modeling and forecasting tools to support this effort. Additionally, the Product Support Strategy ICBM Spare Requirements Review Process will establish the first ever ICBM parts requirement forecast through FY 2017.

(U) Our Response

(U) The Commander, Air Force Global Strike Command was responsive to our recommendation and no further comment is required.

(U) Defense Logistics Agency

(U) Concur. DLA will support Air Force Global Strike Command to increase scope and heighten the management of any DLA-managed consumables that service the Minuteman III support equipment and Launch Facilities. DLA has demonstrated consistent, focused support for the Minuteman III consumable items, Weapon System Designator Code 01F, with 95% material availability. The target support level is 90%. DLA relies on Air Force Global Strike Command to designate and assign applicable Weapon System Designator Codes for support equipment. To kick start this process, DLA furnished a draft list to Air Force Sustainment Center on October 22, 2014 showing the known DLA-managed components of the supporting equipment. DLA expects the list will require validation and adjustment by the Air Force. DLA defers to the Air Force Global Strike Command to propose the date of completion for this goal.

(U) Our Response

(U) DLA was responsive to our recommendation and no further comment is required.

(U) Recommendation B.3

(U) We recommend that the Commander, Air Force Global Strike Command, and the Director, Defense Logistics Agency, evaluate quality assurance processes for suitable substitute selections.

(U) Commander, Air Force Global Strike Command

(U) AFGSC agrees to the criticality of identifying quality suitable substitutions for MMIII ICBM weapons system. The Command will continue to work hand-in-hand with DLA to identify/mitigate issues with suitable substitution selection and will recommend this as an action item for the ICBM GOSG. Additionally, AFGSC is working with AFMC to develop a Nuclear Supply Chain strategy which will help build enterprise visibility of sustainment issues to include source of supply and suitable substitution selection.

(U) Our Response

(U) The Commander, Air Force Global Strike Command was responsive to our recommendation, and no further comment is required.

(U) Defense Logistics Agency

(U) Concur. AF identifies to DLA the ICBM items requiring nuclear hardness. DLA uses a two-digit Special Procedures Category (SPC) code in its Enterprise Business System to manage and track those items identified by AF. The Technical and Quality Assurance details are controlled by Air Force engineering via their Screening Analysis Worksheet (SAW) and the associated attachments. DLA is required to have a current SAW on-file prior to releasing ICBM SPC coded NSNs for procurement. Technical and Quality Assurance details (e.g. approved sources, part numbers, testing requirements, etc.) documented in the SAW are included in DLA procurements.

(U) Our Response

(U) DLA was responsive to our recommendation and no further comment is required.

(U) Recommendation B.4

(U) We recommend that the Director, Air Force Global Strike Command A4/7, as Chair of the ICBM General Officer Steering Group, develop a plan to identify weapon-specific, low-demand parts managed by the Defense Logistics Agency for return to Air Force management.

(U) Commander, Air Force Global Strike Command

(U) AFGSC and AFMC efforts to identify critical low-demand ICBM parts have been on-going. AFGSC successfully implemented MAJCOM ICBM Parts Centralized funding on October 1, 2014 and AFMC is developing a plan to transition ICBM life cycle sustainment to an AF-level Central Account Manager. Certainly, greater efficiencies and economies of scale can be gained with enterprise reform as it relates to ICBM part management processes/organizational structure. As part of the Nuclear Supply Chain strategy initiative, AFGSC A 4/7 is sponsoring a General Officer-level forum later this year at Tinker AFB to identify a way ahead for AF-level management of all materiel associated with the AF's nuclear mission. One of the outcomes would be the capability to capture ICBM-specific asset availability data. Additionally, centralized management of ICBM piece/parts would ensure enterprise-wide visibility to include the ability to protect on-hand stocks and identify and work long-term sustainment concerns.

(U) Our Response

(U) The Commander, Air Force Global Strike Command was responsive to our recommendation, and no further comment is required.

(U) Recommendation B.5

(U) We recommend that the Commander, Air Force Materiel Command prioritize funding of authorizations for sustainment engineers and engineering support personnel.

(U) Commander, Air Force Materiel Command

(U) Air Force Materiel Command agrees with this recommendation. The shortfall numbers identified in this report need to be updated. Most recently, Air Force Materiel Command has conducted an Acquisition & Sustainment Force Improvement Program and has identified the need for 321 positions in support of ICBM program office and supply chain management efforts at Hill Air Force Base. This total includes sustainment engineers and engineering support personnel. A portion of this manpower requirement will be funded in FY 2016. AFMC will use the FY 2017 POM cycle to advocate for the remaining authorizations. The estimated completion date is October 1, 2016.

(U) Our Response

(U) The Commander, Air Force Materiel Command was responsive to our recommendation, and no further comment is required.

(U) Recommendation B.6

(U) We recommend that Air Force Global Strike Command and Air Force Materiel Command form an information system integrated process team to continually analyze maintenance and supply system performance, system interfaces, future requirements, and training. This integrated process team should report directly to the Air Force Global Strike Command ICBM General Officer Steering Group.

(U) Commander, Air Force Global Strike Command

(U) AFGSC's Force Improvement Plan has resulted in the implementation of several initiatives to advance maintenance and supply data systems performance and training. These initiatives have helped bridge the gaps in capability identified by missile wing maintenance and logistics personnel and increased user data system proficiency. The establishment of the stated IPT would help ensure these proficiencies are maintained, and provide sufficient oversight for future requirements or gaps.

(U) To close Integrated Maintenance Data System (IMDS) performance gaps expressed by field users, AFGSC and AFMC have executed IMDS software modifications that will increase system efficiency and eliminate the need for duplicate status entries and develop a classified data system. This is a substantial increase in capability that will link multiple nuclear munitions component maintenance, planning, and forecasting tools into a standardized and centralized database. As IMDS is the system of record for all AF weapon systems, these changes will effect all missile and aircraft systems.

(U) AFGSC is also partnering with the AF's training professionals at Air Education and Training Command to enhance IMDS and supply formal, continuing education and training programs. Key efforts include the development of an IMDS system trainer, an interactive tool to guide users step-by-step through data system screens and tests proficiency against standard objectives. This interactive guide is currently being developed by an existing integrated process team consisting of field users, system administrators and educational program designers. The system will begin a modular incremental fielding beginning in spring 2015.

(U) Our Response

(U) The Commander, Air Force Global Strike Command, was responsive to our recommendation and no further comment is required.

(U) Air Force Materiel Command

(U) The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command agreed with the recommendation. Air Force Materiel Command will continue to work with Air Force Global Strike Command to refine and measure these processes. Analysis of system performance, system interfaces, and future requirements is underway as part of the logistics information technology modernization effort between Headquarters Air Force A4I and Air Force Materiel Command A4 (and its operational customers). As part of this effort, Air Force Materiel Command is actively mapping out system interfaces, performance expectations, and requirements under the Services Development and Delivery Process with incremental roll-out of Information Technology systems beginning FY 2018 and full implementation in FY 2021.

(U) Our Response

(U) The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command, was responsive to our recommendation and no further comment is required.

(U) Finding C

(U) MMIII Facilities and Support Equipment Lack Centralized Funding

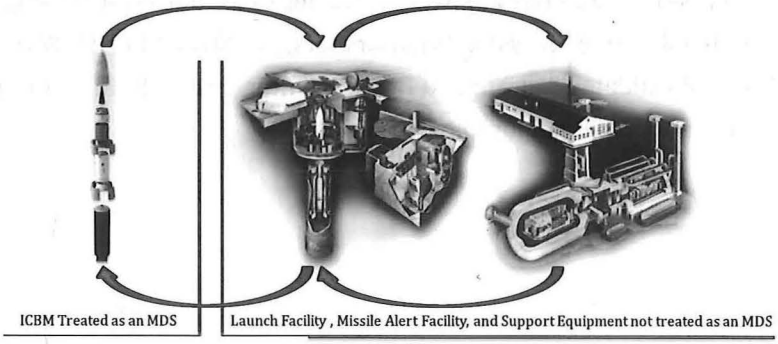
(U) The MMIII ICBM is an aerospace vehicle and is assigned a Mission Design Series (MDS), LGM-30G. The LGM-30G consists of the ICBM's missile propulsion systems (three solid-propellant stages and one liquid-fueled rocket engine), guidance/telemetry systems, and the Reentry System/Reentry Vehicle (RS/RV). The MDS does not include other equipment necessary to support, test, communicate with, or launch an ICBM. Because this equipment is not identified as part of the MDS, wing commanders must sustain a vast array of weapon-system equipment and infrastructure through Operations and Maintenance (O&M) funding. Sustaining missile alert facilities, launch facilities, and support equipment through O&M funding and end-of-year money, when available, is inefficient and unpredictable. If the Air Force continues to rely on these funding processes, sustainment through 2030 is questionable.

(U) System Description

(U) The Minuteman III system definition states that "[t]he system consists of Minuteman III LGM-30G missiles emplaced in the WS 133 A-M ground system facilities."[13] Additionally, technical specifications state the system includes the missile, Aerospace Ground Equipment, and Facilities.[14] However, the Air Force continues to treat the WS 133 A-M ground system facilities, support equipment, and facilities differently than how it treats the ICBM.

(U) The current line of MDS demarcation, as illustrated in Figure 6, is the LGM-30G, even though communications and equipment continuously interface with the Launch Facility and the Launch Control Center.

(U) Figure 6: Minuteman III: Depiction of Current Mission Design Series



(U) Source: DoD OIG

[13] (U) S-133-128C, System Specification for Minuteman III, 15 October, 1996
[14] (U) Ibid.

(U) Launch facilities and launch control centers provide secure shelter, non-nuclear and nuclear environment protection, commercial power control, standby power, and utility service to the missile, operations ground equipment, and aerospace ground equipment. Additionally, the Missile Alert Facility provides survival equipment to the Missile Combat Crew. These facilities, as well as the fleet of nuclear-certified transport vehicles and support equipment are sustained through O&M funding and end-of-year spending. Further, these facilities, which also include the concrete, conduit, wiring, and pipes needed for them to function, vehicles, and all support equipment, will be used for the GBSD--a capability projected to last until 2075.

(U) Aligning the MMIII With Air Force Processes

(U) The Air Force adopted a program to centralize management and execution of logistics sustainment funding under one Air Force process owner. This program, known as Centralized Asset Management (CAM), is designed to improve the Air Force's management of sustainment resources across the enterprise and to reduce overall costs.

(U) Air Force Materiel Command (AFMC), along with lead major commands, centralizes funds using the Working Capital Fund mechanism to enhance cost awareness and requisite flexibility. For this process to succeed, a weapon system's Programmed Depot Maintenance (PDM) must be validated in the Air Force's Aircraft and Missile Requirements (AMR) process.

(U) The Air Force's AMR process is used to develop, validate and approve PDM requirements for all weapon systems. The process applies to all Air Force organizations requiring and providing depot maintenance on Air Force systems. As of the date of this report, the MMIII system does not have a complete PDM and is not part of the AMR process.

(U) Air Force Global Strike Command (AFGSC) and AFMC are leading a service-wide effort called ICBM Normalization. As part of this effort, both commands are examining the current line of MDS demarcation to potentially expand the series to include critical equipment and facilities. After redefining the weapon system's parameters, AFGSC and the Air Force Nuclear Weapon Center will define and validate Programmed Depot Maintenance tasks in accordance with the Air Force's Aircraft and Missile Requirements process.

(U) One problem AFGSC and AFMC face is how to redefine the current line of MDS demarcation. We found a general consensus exists for including Real Property, such as the missile alert facility and launch facility in the MDS, but unintended consequences could develop if AFGSC reclassifies real property as aerospace or operational ground equipment. Of specific concern is the time and resources necessary to develop technical orders, system engineering drawings, and provisioning plans.

(U) Another difficulty AFGSC faces is trying to normalize an abnormal process. The Air Force PDM and AMR processes were developed for systems that accrue flying hours. Developing flying-hour-based maintenance tasks for a weapon that has been on alert status since 1970 is proving difficult.

(U) The Air Force Global Strike Command-led ICBM General Officer Steering Group addresses sustainment challenges, but solutions to some require action by Air Force senior leadership. We reviewed meeting agendas and minutes (when documented) from the Secretary of the Air Force and Chief of Staff of the Air Force co-chaired Nuclear Oversight Board from 2011 to the date of this report. Additionally, we reviewed presentations, meeting agendas, and minutes (when documented) from the three-star level Nuclear Issues Resolution and Integration Board from 2011 to the date of this report. We did not find frequent or regular updates to senior leadership on MMIII support equipment sustainment challenges. Because of this, we cannot assess whether Air Force senior leadership is aware of or accepted the risks of the concerns highlighted in this report.

(U) Conclusion

(U) The Air Force's efforts, particularly those of AFGSC and AFMC, to centralize funding for the entire ICBM mission will likely be successful. However, both legacy system sustainment and GBSD success rely on the immediate advocacy of senior Air Force leaders to ensure that the entire weapon system is included in the MDS.

(U) Management Comments on the Finding and Our Response

(U) Headquarters Air Force A10

(U) Headquarters Air Force A10 correctly identified that the Secretary of the Air Force and Chief of Staff of the Air Force co-chaired Nuclear Oversight Board and the three-star level Nuclear Issues Resolution and Integration Board do address Minuteman III ICBM sustainment challenges.

(U) Our Response

(U) We modified the report to accurately reflect our concern that we did not find evidence of regular or frequent discussions on Minuteman III support equipment, the focus of this report.

(U) Recommendations, Management Comments, and Our Response

(U) As a result of management comments and additional research, we deleted draft recommendation C.1. In addition, we renumbered Recommendation C.2 as Recommendation C.

(U) Recommendation C

(U) We recommend that the Director, Air Force Global Strike Command A4/7, as Chair of the ICBM General Officer Steering Group, provide annual updates on Nuclear Support Equipment, Real Property, and Real Property Installed Equipment to the Nuclear Oversight Board.

(U) Commander, Air Force Global Strike Command

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

(U) AFGSC agrees to the criticality of providing Air Force senior leadership with regular updates on all weapon system sustainment issues. AFGSC will continue to highlight system availability and performance with AFMC during the recurring CSAF Weapon Systems Reviews. Similarly, AFGSC has taken ICBM sustainment challenges—centralized funding, demarcation and PDM—to Air Force Senior Leaders in the Nuclear Issues Resolution and Integration (NIRI) and Nuclear Oversight Boards (NOBs).

(U) Our Response

(U) Commander, Air Force Global Strike Command was responsive to our recommendation, and no further action is required.

(U) Report Conclusion

(U) Overall, the evidence we obtained provides a reasonable basis that without immediate attention, the Air Force may not meet the requirements of Public Law 109-364, Section 139, to sustain ICBM MMIII operations through 2030. Additionally, the ICBM supply chain is not responsive and flexible enough to meet the warfighter's needs.

(U) Appendix A

(U) Strategic Hedge

(U) We did not include the hedging strategy in this project's scope. However, during our research, we identified two areas of concern related to this project's objective. We do not offer formal recommendations for these two areas.

~~(S//FRD)~~ The Air Force [redacted]

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

(U) Hedge Requirements

(U) The Report on Nuclear Employment Strategy of the United States, specified in Title 10 of the United States Code, Section 491 (10 U.S.C. § 491), outlines a deliberate strategy for hedging against risk in our nuclear stockpile. This strategy calls for the Departments of Defense and Energy to develop an approach that will allow the United States to maintain a robust hedge against technical or geopolitical risk with fewer total nuclear weapons. Based on this approach, the guidance states:

- (U) "The United States will maintain a sufficient number of non-deployed weapons to hedge against the technical failure of any single weapon type or delivery system at a time. Where possible, the United States will provide intra-leg hedge options—i.e., uploading another warhead type from within a leg of the Triad in the event that a particular warhead fails. In instances where the current stockpile will not allow intra-leg hedging, the United States will be prepared to hedge adequately using inter-leg hedging – uploading additional warheads on another leg of the Triad to compensate for the failure of a given type of warhead."[15]

[15] (U) 2010 Nuclear Posture Review, Page 7

- (U) "A non-deployed hedge that is sized and ready to address these technical risks will also provide the United States the capability to upload additional weapons in response to geopolitical developments that alter our assessment of United States deployed force requirements."[16]

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

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

~~(S)~~ The Air Force [redacted]

~~(S)~~ USSTRATCOM directed the development of plans in support of hedge guidance. The Planning Order (PLANORD) directed plans to include identifying the required equipment, maintenance and certification requirements, and resources necessary to perform MIRV reconfiguration actions along with limiting factors. [redacted]

(U) USSTRATCOM Requirements

~~(S)~~ The USSTRATCOM J3, Director of Global Operations, disseminated the New START and Nuclear Posture Review Force Structure PLANORD on July 18, 2011. The PLANORD requires plans to [redacted]

~~(S)~~ Hedge Plans [redacted]

~~(S)~~ We reviewed both the AFGSC and AFMC hedge plans [redacted]

[16] (U) Ibid.

(U) Management Comments on Appendix A

(U) Commander, Air Force Global Strike Command

~~(S)~~ Although Hedge Plan support was not formally a part of the current study, AFGSC [redacted]

(U) Commander, Air Force Materiel Command

~~(S)~~ The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command stated that Air Force Materiel Command and Air Force Global Strike Command [redacted]

~~(S)~~ The Director of Logistics, Headquarters Air Force A4, responding for the Commander, Air Force Materiel Command states [redacted]

(U) Appendix B

(U) Scope and Methodology

(U) We conducted this assessment from February 2014 through August 2014 in accordance with the Council of the Inspectors General on Integrity and Efficiency Quality Standards for Inspection and Evaluation. These standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives.

(U) We conducted interviews with representatives from Defense Logistics Agency, Headquarters Air Force Strategic Deterrence and Nuclear Integration, Headquarters Air Force Directorate of Logistics, Air Force Global Strike Command, and Air Force Materiel Command. We also visited and conducted interviews with operational unit personnel, and we toured manufacturing, production, and testing lines.

(U) We reviewed presidential directives, public laws, DoD policy, and Air Force guidance to identify requirements and guidance for Minuteman III Intercontinental Ballistic Missile sustainment. We also reviewed relevant presentations developed for the Secretary of the Air Force and Chief of Staff of the Air Force co-chaired Nuclear Oversight Board and the three-star level Nuclear Issues Resolution and Integration Board. Additionally, we reviewed General Officer Steering Group and Integrated Process Team meeting minutes to identify subject awareness, obstacles, and progress.

(U) Computer-Processed Data

(U) We did not use computer-processed data for this review.

(U) Use of Technical Assistance

(U) We did not use technical assistance in performing this review.

(U) Prior Coverage

(U) No prior audits or evaluations have been conducted in the last five years on the sustainment of Minuteman III Intercontinental Ballistic Missile support equipment.

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(U) Appendix C

(U) Acronyms and Abbreviations

AFCANS	Air Force Comprehensive Assessment of Nuclear Sustainment
AFGSC	Air Force Global Strike Command
AFMC	Air Force Materiel Command
AFNWC	Air Force Nuclear Weapon Center
AFSCDB	Air Force Supply Central Database
AMARG	Aerospace Maintenance and Regeneration Group
AMR	Aircraft and Missile Requirements
APU	Auxiliary Power Unit
BRAC	Base Realignment and Closure
CAM	Central Asset Management
CSAF	Chief of Staff of the Air Force
DLA	Defense Logistics Agency
DMSMS	Diminishing Manufacturing and Material Shortages
ECS	Environmental Control System
ES-S	Enterprise Solution-Supply
EWO	Emergency War Order
GBSD	Ground Based Strategic Deterrent
GMMP	Guided Missile Maintenance Platform
HCFC	Hydrochlorofluorocarbon
HCI	Hardness Critical Item
ICBM	Intercontinental Ballistic Missile
ILS-S	Integrated Logistics System-Supply
IS	Information System
LF	Launch Facility
LRS	Logistics Readiness Squadron
MAF	Missile Alert Facility
MDS	Mission Design Series
MMIII	Minuteman III
MMXG	Missile Maintenance Group
NDAA	National Defense Authorization Act
O&M	Operations and Maintenance

PDM	Programmed Depot Maintenance
PLANORD	Planning Order
PT	Payload Transporter
PTR	Payload Transporter Replacement
RS/RV	Reentry System/Reentry Vehicle
SBSS	Standard Base Supply System
SCMS	Supply Chain Management Squadron
SCOG	Supply Chain Operations Group
START	Strategic Arms Reduction Treaty
TE	Transport Erector
TMDE	Test, Measurement, and Diagnostic Equipment
USSTRATCOM	United States Strategic Command

(U) Management Comments

(U) Commander, Air Force Global Strike Command

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TAB I

Air Force Global Strike Command (AFGSC) Response to DOD IG D2014-DINT02-0124.000

(U) A.2 Develop a plan to fund the Payload Transporter Replacement Program in FY 2016.
(U) AFGSC is committed to completing the replacement of the current Payload Transporter fleet with a more secure and sustainable transporter. The Payload Transporter Replacement (PTR) Program development is funded through May 15. In the Nuclear Deterrent Operations FY16 POM, the PTR program ($103.1M) is funded in the President's Budget (PB) to complete production and delivery. A total of 26 Payload Transporters are programmed for delivery by 2021 with FY 2017 as the first production year. Note, System Program Office oversight with respect to Life Cycle Management of the PTR is critical to ensure sustainability in out years.

(U) A.3. Validate 2S0XX manpower requirements and authorizations for munitions and maintenance squadrons.
(U) AFGSC concurs with the observations on lack of supply expertise in the ICBM maintenance community. Additionally, there needs to be enterprise-level emphasis on filling AFGSC validated 2S0XX manpower billets and the identification of variances to ensure adequate support to missile maintenance activities. Munitions Squadron 2S0 requirements were previously validated through implementation of an AF Manpower Study approximately one year ago; this study validated two 2S0 billets in munitions squadrons at each of our three missile wings. Although, our Force Improvement Program (FIP) identified and funded 24 billets across our missile wings, these still need to be validated via a manpower study. According to AFPC, we expect 8 of the 24 billets to be filled by May 2015 with the remaining being filled in subsequent assignment cycles (2-3 fills per cycle, per base); thus all 24 missile wing maintenance 2S billets should be filled by summer 2016.

(U) B.2. Director, A 4/7, as chair of the ICBM General Officer Steering Group (GOSG), in conjunction with Defense Logistics Agency (DLA), develop standardized materiel availability metrics.
(U) AFGSC agrees on the need to develop standardized materiel availability metrics and will establish this as an action item for the ICBM GOSG. In fact, we've initiated actions to this end via our Product Support Strategy Team (PSS) who are developing weapon system modeling and forecasting tools to support this effort. Moreover, the PSS ICBM Spare Requirements Review Process will establish the first ever ICBM parts requirement forecast through FY 2017.

(U) B.3. Commander, AFGSC and Director, DLA, evaluate quality assurance processes for suitable substitute selections.
(U) AFGSC agrees to the criticality of identifying quality suitable substitutions for MMIII ICBM weapons system. The Command will continue to work hand-in-hand with DLA to identify/mitigate issues with suitable substitution selection and will recommend this as an action item for the ICBM GOSG. Additionally, AFGSC is working with AFMC to develop a Nuclear Supply Chain strategy which will help build enterprise visibility of sustainment issues to include source of supply and suitable substitution selection.

(U) B.4. AFGSC ICBM General Officer Steering Group identify weapon-specific, low demand parts for return to Air Force management.
(U) AFGSC and AFMC efforts to identify critical low-demand ICBM parts have been on-going. AFGSC successfully implemented MAJCOM ICBM Parts Centralized funding on 1 October 2014

(U) Management Comments

(U) Commander, Air Force Global Strike Command

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TAB I

and AFMC is developing a plan to transition ICBM life cycle sustainment to an AF-level Central Account Manager. Certainly, greater efficiencies and economies of scale can be gained with enterprise reform as it relates to ICBM part management processes/organizational structure. As part of our Nuclear Supply Chain strategy initiative, AFGSC A 4/7 is sponsoring a GO-level forum later this year at Tinker AFB to identify a way ahead for AF-level management of all materiel associated with the AF's nuclear mission. One of the outcomes would be the capability to capture ICBM-specific asset availability data. Additionally, centralized management of ICBM piece/parts would ensure enterprise-wide visibility to include the ability to protect on-hand stocks and identify/work long-term sustainment concerns.

(U) B.6. AFGSC and AFMC form an integrated process team (IPT) to continually analyze maintenance and supply information system performance, system interfaces, future requirements, and training.

(U) AFGSC's FIP has resulted in the implementation of several initiatives to advance maintenance and supply data systems performance and training. These initiatives have helped bridge the gaps in capability identified by our Missile Wing maintenance and logistics personnel and increased user data system proficiency. The establishment of the stated IPT would help ensure these proficiencies are maintained, as well as provide sufficient oversight for future requirements or gaps.

(U) To close Integrated Maintenance Data System (IMDS) performance gaps expressed by field users, AFGSC and AFMC have executed IMDS software modifications that will increase system efficiency, eliminate the need for duplicate status entries and develop a classified data system; this is a substantial increase in capability that will link multiple nuclear munitions component maintenance, planning, and forecasting tools into a standardized and centralized database. As IMDS is the system of record for all AF weapon systems, these changes will impact all missile and aircraft systems.

(U) AFGSC is also partnering with the AF's training professionals at Air Education and Training Command (AETC) to enhance IMDS and supply formal, continuing education and training programs. Key efforts include the development of an IMDS system trainer, an interactive tool to guide users step-by-step through data system screens and tests proficiency against standard objectives. This interactive guide is currently being developed by an existing IPT consisting of field users, system administrators and educational program designers. The system will begin a modular incremental fielding beginning in spring 2015.

(U) C.2. AFGSC ICBM General Officer Steering Group provide annual updates on Nuclear Support Equipment, Real Property, and Real Property Installed Equipment to the Nuclear Oversight Board.

~~(S)~~ PER USAF: (b) (1), 1.4(a), 1.4(g)

[redacted]

(U) AFGSC agrees to the criticality of providing Air Force senior leadership regular updates on all weapon system sustainment issues. AFGSC will continue to highlight system availability and performance with AFMC during the recurring CSAF Weapon Systems Reviews. Similarly, AFGSC

(U) Management Comments
(U) Commander, Air Force Global Strike Command

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TAB I

has taken ICBM sustainment challenges—centralized funding, demarcation and PDM—to Air Force Senior Leaders in the Nuclear Issues Resolution and Integration (NIRI) and Nuclear Oversight Boards (NOBs).

(S) Although Hedge Plan support was not formally a part of the current study, AFGSC [redacted] PER USAF AND USSTRATCOM (b) (1), 1.4(a), 1.4(g)

(U) Management Comments
(U) Defense Logistics Agency

DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6221

October 31, 2014

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE INSPECTOR GENERAL

SUBJECT: Response to DoD IG Draft Report, "Air Force Leadership Action is Required to Sustain the Minuteman III Intercontinental Ballistic Missile Through 2030" (Project No. D2014-DINT02-0124.000)

Attached is the Defense Logistics Agency's (DLA) response to the subject Draft Report. We appreciate the opportunity to review and comment on the finding and recommendations.

The point of contact for this engagement is [redacted]

MICHAEL D. SCOTT
Deputy Director
DLA Logistics Operations

Attachment:
As stated

(U) Management Comments
(U) Defense Logistics Agency

DODIG DRAFT REPORT - Air Force Leadership Action is Required to Sustain the Minuteman III Intercontinental Ballistic Missile Through 2030 (D2014-DINT02-0124.000)

Recommendation B.1.

We recommend that the Director, DLA evaluate processes used to notify Minuteman III Intercontinental Ballistic Missile customers before re-cataloging parts.

Response:

Concur with comment. DLA has incorporated new DOD DEMIL guidance to the Military Service's for proper DEMIL Coding and to logistically reassign all classified and explosive items back to the original managing Service. To date, of the 3,913 items, 2,222 have been reviewed/updated for DEMIL and HCI requirements and have been unfrozen and are authorized to be released and are ready for procurement. The remaining 1,691 NSN still require AF review. The estimated completion date by the HCI working group is Dec 2015.

Recommendation B.2.

We recommend that the Director, Air Force Global Strike Command A 4/7, as Chair of the ICBM General Officer Steering Group, in conjunction with the DLA, develop standardized material availability metrics.

Response:

Concur. DLA will support Air Force Global Strike Command to increase scope and heighten the management of any DLA-managed consumables that service the Minuteman III support equipment and Launch Facilities. DLA has demonstrated consistent, focused support for the Minuteman III consumable items, Weapon System Designator Code = 01F, with 95% material availability. The target support level is 90%.

We rely on the Air Force Global Strike Command to designate and assign applicable Weapon System Designator Codes for support equipment. To kick start this process, DLA furnished a draft list to Air Force Sustainment Command October 22, 2014 showing the known DLA-managed components of the supporting equipment. We expect the list will require validation and adjustment by the Air Force.

DLA defers to the Air Force Global Strike Command to propose the date of completion for this goal.

(U) Management Comments
(U) Defense Logistics Agency

Recommendation B.3.

We recommend that the Commander, Air Force Global Strike Command and Director, DLA, evaluate quality assurance processes for suitable substitute selections.

Response:

Concur. AF identifies to DLA the ICBM items requiring nuclear hardness. DLA uses a two- digit Special Procedures Category (SPC) code in its Enterprise Business System to manage and track those items identified by AF. The Technical and Quality Assurance details are controlled by Air Force engineering via their Screening Analysis Worksheet (SAW) and the associated attachments. DLA is required to have a current SAW on-file prior to releasing ICBM SPC coded NSNs for procurement. Technical and Quality Assurance details (e.g. approved sources, part numbers, testing requirements, etc.) documented in the SAW are included in DLA procurements.

(U) Management Comments

(U) Air Force Headquarters A4L

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, UNITED STATES AIR FORCE
WASHINGTON, DC 20330-1030

12 November 2014

MEMORANDUM FOR DODIG

FROM: HQ USAF/A4L
1030 Air Force Pentagon
Washington DC 20330-1030

SUBJECT: Air Force Comments on DODIG Report on Minuteman III Sustainment

Please accept the consolidated Air Force Material Command and AF/A10 comments, dated 12 November 2014 referencing the subject report, to augment the Air Force Global Strike Command comments previously received.

KATHRYN J. JOHNSON, Brig Gen, USAF
Director of Logistics
DCS/Logistics, Installations & Mission Support

(U) Management Comments
(U) Air Force Materiel Command

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Air Force Materiel Command (AFMC) Response to DOD IG D2014-DINT02-0124.000

GENERAL

(U) Overall, we agree with the statement that senior leadership will need to be heavily engaged to meet the emerging challenges. Evidence obtained indicates that continuous attention must be maintained to ensure the requirements of Public Law 109-364, Section 139, to sustain MM III through 2030, are met. Previous processes have extended the ICBM design life of 10 years to over 50 years. To ensure, the ICBM meets warfighter requirements until 2030, the ICBM Supply Chain must continue to adapt through increased flexibility and responsiveness.

(U) This report does indeed point out unique challenges which face the ICBM weapon system and its associated infrastructure. Despite these many challenges the MM III continues to exceed USSTRATCOM availability requirements. AFMC is committed to ensure the warfighter availability requirements continue to be met throughout the lifetime of the ICBM.

RECOMMENDATIONS

(U) **A.1. Examine the feasibility of an Aerospace and Maintenance Regeneration Group-like entity to manage excess materiel storage for Minuteman III Weapon System to minimize the impact of parts obsolescence and Diminishing Manufacturing and Materiel Shortages.**

(U) AFMC agrees with the recommendation to examine the concept of additional centralized storage. Currently, the ICBM supply and production enterprise, within the Air Force Materiel Command Structure, has centralized management and storage of motors and warheads, but may also benefit from centralized storage of parts. Centralized Management of rocket motors is accomplished by 309 MMXG at Hill AFB with storage at Hill and Oasis facilities. Permanently excess motors have been transferred to AFSPC and are stored at an AMARG-like storage at Camp Navajo. Centralized Management and storage of warheads is done at a single classified location. Nuclear Weapons Related Material (NWRM) is also centrally managed and accounted for. The AF has saved additional RS/RV components for future operational needs. Analysis ECD: 30 Nov 15.

(U) **B.5. Fund Authorizations for sustainment engineers and engineering support personnel**

(U) AFMC agrees with this recommendation and has submitted manpower shortfalls in previous budget cycles. The shortfall numbers identified in this report need to be updated. Most recently, AFMC has conducted an Acquisition & Sustainment Force Improvement Program (A&S FIP)

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(U) Management Comments
(U) Air Force Materiel Command

CLASSIFICATION: ~~SECRET//FRD~~

and has identified the need for 321 positions in support of ICBM program office and supply chain management efforts at Hill AFB UT. This total includes sustainment engineers and engineering support personnel. A portion of this manpower requirement will be funded via OSD direction in FY16. AFMC will use the FY17 POM cycle to advocate for the remaining authorizations. ECD: 1 Oct 16.

(U) **B.6. Form an Integrated Process Team to continually analyze maintenance and supply system performance, system interfaces, future requirements, and training.**

(U) AFMC agrees with this recommendation. Many reviews and studies have taken place since 2007 and multiple efforts are in-work by various organizations to improve the ICBM Supply Chain and Support Equipment availability to meet warfighter needs – this work contributes directly to MM III maintaining USSTRATCOM alert rates and necessary weapon system requirements.

(U) Most recently, AFNWC/CC and AFGSC/A4 have established a Supply Chain Integrated Process Team (IPT) that is directly addressing the entire range of MMIII specific supply chain issues. AFSC is a key partner in the effort.

(U) The AFMC and AFGSC logistics communities are currently engaged across several fronts (ICBM Product Support Strategy, ICBM component hardness identification with DLA, Support Equipment service life extension and replacement, technical manpower requirements justification, establishing maintenance and supply metrics, etc.) as a step forward to satisfy this recommendation. Existing and future budget constraints will continue to require prioritization of sustainment requirements for all AF aging weapons systems in a zero sum environment. Establishing 'projected completion dates' for these activities would be wholly dependent on what funding is received to carry out identified sustainment initiatives.

(U) AFMC will continue to work with AFGSC to improve maintenance information systems to develop appropriate metrics to better forecast need. Analysis of system performance, system interfaces, and future requirements is underway as part of the LOG-IT modernization effort between AF/A4I and AFMC/A4 (and its internal and external operational customers). As part of this effort AFMC is actively mapping out system interfaces, performance expectations, and requirements under the Services Development and Delivery Process (SDPP) with incremental roll-out of IT systems beginning FY18 and full implementation in FY21.

(U) Technology has progressed geometrically, and older mechanical and electronic technology in MMIII systems is often no longer commercially available. The high reliability of these older parts has created an environment where manufacturing sources are no longer readily available.

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(U) Management Comments
(U) Air Force Materiel Command

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Consequently, failure periods must be anticipated and replacement options adequately funded before "lifetime buys" run out.

(U) Significant progress has been made on previously identified problem parts/shortfalls. For example: Full sets of RSTS Cables were procured and have been available in the supply system for well over a year. ICBMSD is procuring 2 new test stands for 309 MMXG. One will be placed at Hill AFB and the second will be at Vandenberg AFB. Although other examples exist, AFMC will work closely with AFGSC to improve upon this progress. ECD: Continuous process.

~~(S)~~ Hedge Planning

~~(S//FRD)~~ Although Hedge Planning was not part of the project's scope, PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g)

PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g); PER DOE: (b) (3), AEA OF 1954, AS AMENDED

~~(S//FRD)~~ PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g); PER DOE: (b) (3), AEA OF 1954, AS AMENDED

~~(S//FRD)~~ PER USSTRATCOM, AND USAF: (b) (1), 1.4(a), 1.4(g); PER DOE: (b) (3), AEA OF 1954, AS AMENDED

PER USSTRATCOM: (b) (1), 1.4(a), 1.4(g)

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(U) Management Comments

(U) Air Force Headquarters A10

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TAB 1

Headquarters United States Air Force/Strategic Deterrence and Nuclear Integration (HQ USAF/A10) Response to DOD IG D2014-DINT02-0124.000

(U) C.1. (U) We recommend that the Chief of Staff of the Air Force direct the inclusion of WS 133 A-M ground System Facilities into the Minuteman III Mission Design Series.

(U) HQ USAF/A10 non-concurs with assigning this recommendation to Chief of Staff of the Air Force. Air Force Materiel Command and Air Force Global Strike Command (AFGSC) demarcation/normalization efforts to define Minuteman III weapon system/mission design series (to include WS 133A-M ground system facilities) were already in work prior to date of this report. HQ USAF/A10 recommends rewording "Recommendation C.1." as "We recommend Air Force Intercontinental Ballistic Missile General Officer Steering Group, chaired by AFGSC A4/7, include WS 133 A-M ground system facilities into the minuteman III Mission Design Series." Estimated completion date is summer 2015. Further direction from the Secretary of the Air Force and Chief of Staff of the Air Force is not required.

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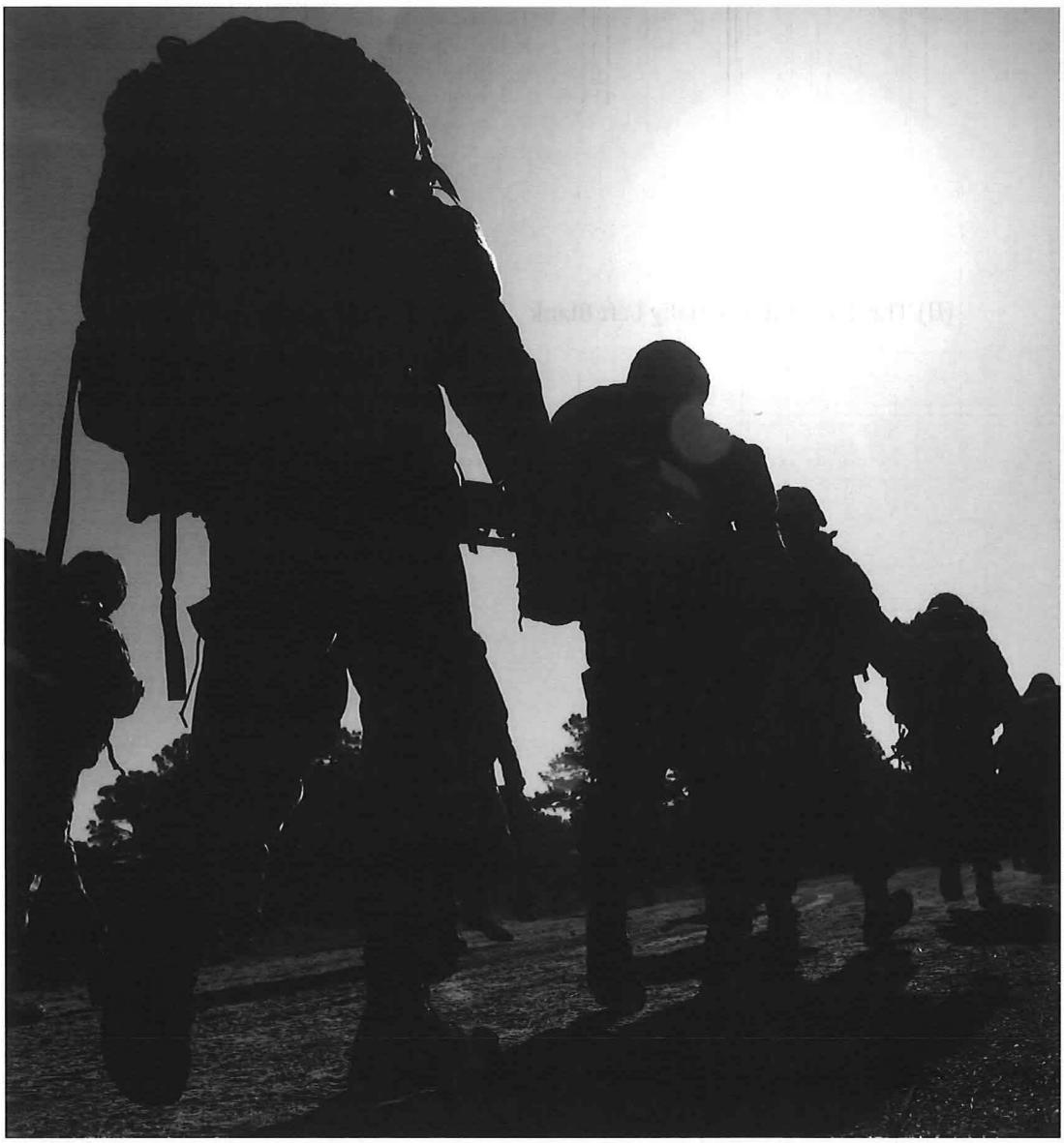

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