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Report to the Honorable
Max Cleland, U.S. Senate

September 2002

FORCE STRUCTURE

Review of B-1B Process Identifies Opportunity to Improve Future Analysis

GAO-02-846

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DOD	Department of Defense
OSD	Office of the Secretary of Defense

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

September 6, 2002

The Honorable Max Cleland
United States Senate

Dear Senator Cleland:

The B-1B began operations in 1986 as a long-range heavy bomber designed primarily to carry nuclear munitions. Although the B-1B's nuclear mission was withdrawn in October 1997,[1] the Air Force continues to rely on the B-1B to support conventional wartime missions. The B-1B, equipped with three weapons bays, has the largest payload of the Air Force's three bombers,[2] and recent modifications have provided the capability to deliver near precision munitions. Future upgrades to the B-1B are expected to provide greater flexibility by enabling it to carry three different types of bombs simultaneously and eliminate some of its long-term survivability and maintainability problems by improving its radar warning systems, jamming ability, and other electronic countermeasure systems.

In May 2001, as part of a broader Department of Defense (DOD) initiative to make funds available to further military transformation, the Office of the Secretary of Defense (OSD) suggested retiring the entire B-1B fleet by October 2001. In June 2001, the Air Force proposed an alternative that reduced the B-1B fleet from 93 to 60 aircraft and consolidated them at 2 active duty locations instead of the 3 active duty and 2 Air National Guard (Guard) locations that housed the aircraft. Congress delayed implementation of the fleet reduction until the Air Force completed a review of bomber force structure and provided a report on alternative missions and basing plans.[3] The report was delivered to Congress on February 6, 2002, and after a 15-day period, the Air Force had the authority to begin implementing the fleet reduction and consolidation. The Air Force began consolidating the fleet in July 2002.

[1] According to the Department of Defense's 2001 *Nuclear Posture Review*, DOD no longer maintains plans to reconstitute the B-1Bs' nuclear capability.

[2] The Air Force's bomber fleet consists of the B-1B, B-2, and B-52.

[3] National Defense Authorization Act for Fiscal Year 2002, Pub. L. No. 107-107, Sec. 1032, 115 Stat. 1012, 1215-16 (2001).

In July 2001, you asked that we review the Air Force decision to reduce and consolidate the B-1B fleet. Subsequent to your request, the Air Force submitted the required report to Congress, and your office asked that we document and analyze the process used to make the reduction and consolidation decision so that the insights gained might assist those who make force structure and basing decisions in the future. As agreed, we determined what types of analysis DOD and the Air Force did of wartime requirements and basing options before deciding on the number of aircraft to retain and where to base them. Additionally, at your request, we compared the missions, flying hour costs,[4] and selected capabilities of the various active and Air National Guard B-1B units.

We reviewed documentation related to the B-1B force restructuring and met with representatives of OSD, the Joint Staff, the Air Force, and the Air National Guard to determine how the Air Force made its decision. We obtained and analyzed data for flying hour costs and mission capable rates for fiscal years 1999, 2000, and 2001 for all of the B-1B units and obtained data on aircrew experience for both Air National Guard and active duty aircrews. Additionally, we visited three of the five B-1B units. We conducted our review from September 2001 through July 2002 in accordance with generally accepted government auditing standards. We discuss our scope and methodology in more detail in appendix I.

Results in Brief

Air Force officials did not conduct a formal analysis to assess how a reduction in B-1B bombers from 93 to 60 would affect DOD's ability to meet wartime requirements. Nor did they complete a comprehensive analysis of potential basing options to know whether they were choosing the most cost-effective alternative. Air Force officials explained that their proposal to reduce the fleet from 93 to 60 was made in response to an Office of the Secretary of Defense suggestion to eliminate the entire B-1B fleet and to address significant funding shortages in the B-1B modification program. Senior Air Force officials further explained that they are comfortable with this decision because, based on their military judgment, a smaller, fully modified B-1B fleet will provide more capability than a larger fleet with no additional modifications. However, the decision was not vetted through established DOD budget processes that normally involve a wider range of participants and generally allow more time for

[4] The Air Force calculates flying hour costs by dividing the cost of fuel and repair parts by the number of hours the aircraft is flown.

analysis of how proposed force structure changes will affect DOD's ability to meet wartime requirements. Furthermore, Air Force headquarters officials appear to have used an inconsistent methodology and incomplete cost estimates when considering options for basing the remaining aircraft. As a result, the Air Force understated the potential savings for some options, and it lacks assurance that the basing option selected, which consolidates the B-1Bs in the active component, is the most cost-effective option available. In the absence of standard guidance for analyzing basing alternatives, similar problems could occur in the future.

Our comparison of active and Guard units' missions, flying hour costs, and capabilities showed that active and Guard units were responsible for substantially the same missions but Guard units had lower flying hour costs and higher mission capable rates[5] than their active duty counterparts. For example, during fiscal years 1999 through 2001, the Guard's B-1B units averaged both lower flying hour costs and higher mission capable rates than the active duty units, although the gap between active and Guard mission capable rates narrowed in fiscal year 2001. Additionally, the Guard's B-1B aircrew members[6] were generally more experienced, in terms of the number of hours flown, than the active duty B-1B aircrews because most Guard aircrew members served on active duty prior to joining the Air National Guard.

To provide an analytical basis for future aircraft realignment decisions, we are recommending that the Secretary of Defense direct the Secretary of the Air Force to develop a methodology for assessing and comparing the costs of active and reserve units when evaluating potential basing options.

In commenting on a draft of this report, DOD disagreed with our recommendation that the Air Force develop a methodology for assessing and comparing costs because the department believes that such a methodology currently exists. However, DOD's written comments did not describe the methodology or provide any evidence that such a methodology exists and Air Force officials told us the Air Force does not have a standard methodology. A detailed discussion of DOD's comments

[5] The Air Force designates a weapon system as mission capable when it can perform at least one of its assigned combat missions. The mission capable rate measures the amount of time an aircraft is available to complete at least one of its assigned missions.

[6] The B-1B requires four aircrew members, including the pilot, the copilot, and the offensive and defensive weapon systems officers.

and our response is included in the Agency Comments section of this report.

Background

In a March 1999 white paper[7] detailing modernization plans for the bomber fleet, the Air Force advised Congress that it needed 93 B-1Bs, including 70 combat-coded aircraft[8] by the end of fiscal year 2004, to meet DOD's strategy of being prepared to win two nearly simultaneous major theater wars. In June 2001, the Air Force proposed reducing the fleet from 93 to 60 aircraft and reducing the number of combat-coded aircraft to 36. Table 1 compares the force structure before and after OSD's June 2001 decision to reduce and consolidate the B-1B fleet.

Table 1: B-1B Force Structure Before and After Consolidation

Base	Before consolidation		After consolidation	
Active duty	**Number**	**Type**	**Number**	**Type**
Dyess Air Force Base, Texas	40 B-1Bs	12 combat 24 training[a] 4 backup[b]	32 B-1Bs	12 combat 16 training 2 test 2 backup
Ellsworth Air Force Base, South Dakota	26 B-1Bs	18 combat 6 training 2 backup	26 B-1Bs	24 combat 2 backup
Mountain Home Air Force Base, Idaho	7 B-1Bs	6 combat 1 backup	0 B-1Bs[c]	
Edwards Air Force Base, California	2 B-1Bs	2 test	2 B-1Bs	2 test
Air National Guard				
McConnell Air Force Base, Kansas	9 B-1Bs	8 combat 1 backup	0 B-1Bs[c]	
Robins Air Force Base, Georgia	9 B-1Bs	8 combat 1 backup	0 B-1Bs[c]	
Total	**93 B-1Bs**		**60 B-1Bs**	

[a]These aircraft are used to train newly qualified pilots as B-1B pilots.

[b]Backup aircraft are located at each unit and are used when a primary aircraft is not available.

[c]Units affected received new missions as discussed below.

Source: Compiled from data provided by the Air Combat Command.

[7] U.S. Air Force, *White Paper on Long Range Bombers* (Washington, D.C., Mar. 1, 1999).

[8] Combat coded means that the aircraft is fully equipped and funded to perform all wartime missions.

Partly in response to concerns expressed by Members of Congress about OSD's June 2001 decision to eliminate the B-1B mission at Mountain Home, McConnell, and Robins Air Force Bases, the Air Force identified and announced new missions for these locations in September 2001. Planning for the new missions is well underway, and the units are expected to transition to their new missions in the fourth quarter of fiscal year 2002. Mountain Home's current F-15E squadron will be increased from 18 to 24 aircraft, and its 7 KC-135 tankers will be relocated to the Air National Guard unit at McConnell Air Force Base. The Air National Guard unit at McConnell will be redesignated as the 184th Air Refueling Wing and will have 10 KC-135R tankers. The Guard unit at Robins Air Force Base will transition to the 116th Air Control Wing and have 19 Joint Surveillance Target Attack Radar System aircraft.

As you know, we have issued numerous reports on the B-1B bomber in response to a variety of congressional concerns. In February 1998, for example, we reported that the Air Force could save millions of dollars without reducing mission capability by assigning more B-1Bs to the reserve component.[9] A list of related GAO products can be found at the end of this report.

Decision to Reduce and Consolidate the B-1Bs Based on Budget Concerns, Military Judgment, and Incomplete Cost Estimates

The decision to reduce the B-1B force was not based on a formal analysis of how a smaller B-1B force would impact DOD's ability to meet wartime requirements. Air Force officials explained that their decision to reduce the fleet from 93 to 60 was made in response to an OSD suggestion to eliminate the entire B-1B fleet and to address significant funding shortages in the B-1B modification program. Furthermore, the decision was not vetted through established DOD budget processes that normally involve a wider range of participants and generally allow more time for analysis of proposed changes. Senior Air Force officials believe, based on their military judgment, that the decision will not adversely affect DOD's ability to implement the national security strategy. With regard to the Air Force's

[9] We presented six options for placing more B-1Bs in Air National Guard units and estimated that implementing our proposed options could produce savings ranging from $87.1 million to $235.3 million in fiscal years 1999-2003. We also recommended that the Secretary of the Air Force prepare a plan to place more B-1Bs in the reserve component. In its response to our report at that time, DOD stated that it had the right mix of B-1Bs in the active and reserve components and that it did not plan to move more B-1Bs to the reserve component at that time. See U.S. General Accounting Office, *Air Force Bombers: Moving More B-1s to the Reserves Could Save Millions without Reducing Mission Capability*, GAO/NSIAD-98-64 (Washington, D.C.: Feb. 26, 1998).

analysis of basing alternatives, a lack of Air Force guidance led Air Force officials in the Office of the Deputy Chief of Staff for Plans and Programs to develop their own methodology to determine where to base the reduced B-1B fleet. These officials did not document their methodology at the time the decision was made and could not replicate the calculations used to make the basing decision. However, our review of documents prepared (at our request) after the decision was made suggests the Air Force used an inconsistent methodology and incomplete costs when estimating the savings generated from the consolidation. As a result, it is not clear whether they chose the most cost-effective alternative.

Decision to Reduce the B-1B Fleet Was Based on Budget Considerations Rather than Requirements Analysis

In May 2001, as it considered changes to the fiscal year 2002 DOD budget previously submitted to Congress by the prior administration, senior OSD officials suggested eliminating the entire B-1B fleet that had experienced long-standing survivability and reliability problems. OSD officials in offices such as the Program Analysis and Evaluation did not undertake any analysis of the impact of the proposed B-1B retirements on the Air Force's ability to meet war-fighting requirements. At that time, the OSD Comptroller estimated that eliminating the B-1B would save approximately $4.5 billion in fiscal years 2002 through 2007. The savings would be achieved by eliminating the B-1Bs from both the active and Guard fleets and canceling the B-1B modernization program, according to an official in the Comptroller's office.

Acknowledging that it lacked sufficient funding to complete planned upgrades to all 93 aircraft, but at the same time believing that some B-1Bs should be retained, the Air Force proposed reducing the size of the fleet from 93 to 60 and reinvesting the savings in upgrades to the remaining 60 aircraft. According to the Secretary of the Air Force and the Chief of Staff of the Air Force, the proposal was budget-driven. The Chief of Staff told us that if the Air Force reduced the number of aircraft to 60, it would have sufficient funds to upgrade the remaining aircraft to make them more usable in combat. The Air Force did no formal analysis of the impact of a smaller B-1B fleet on its ability to meet current and future war-fighting requirements when it proposed this reduction. Senior Air Force leaders told us that they are comfortable with the proposed reduction because they believe that 60 upgraded aircraft will provide significantly more capability in terms of effectiveness, survivability, and maintainability than is available today. The Under Secretary of Defense (Comptroller) included the reduction in the amended 2002 DOD budget request after discussions with the Secretary of Defense and the Deputy Secretary of Defense.

The decision to reduce the number of B-1Bs was not fully vetted through the DOD Planning, Programming, and Budgeting System. Under established DOD procedures, the service sends its budget to the Office of the Under Secretary of Defense (Comptroller) where issue area experts review it. Potential changes in the form of draft program budget decisions are circulated to the services, the Joint Staff, the Director of Program Analysis and Evaluation, and various assistant secretaries of defense who are in a position to evaluate the impact of the potential budget decisions on the national military strategy and the objectives of the Secretary of Defense. Their comments are provided to the Comptroller who considers them, finalizes the program budget decision, and forwards it to the Deputy Secretary of Defense for signature. According to an official in the Comptroller's office, in this instance, the Comptroller approved the program budget decision that reduced and consolidated the B-1B fleet after discussions with the Secretary of Defense and the Deputy Secretary of Defense. A draft program budget decision was not circulated to the Office of the Director, Program Analysis and Evaluation, the Joint Staff, or the Air Force according to representatives of these offices.

Air Force officials told us they were surprised when senior OSD officials decided to implement the B-1B fleet reduction in June 2001. While Air Force officials recommended reducing the fleet, they did not know that the recommendation was to be included in the fiscal year 2002 amended budget until just a few days before OSD officials transmitted the budget to Congress and made it public. These same officials told us that they were also surprised that the consolidation was to be implemented by October 1, 2001. They believed that they needed about 1 year to implement the decision.

As a result of the short time frame between the OSD decision to implement the Air Force's proposal to reduce and consolidate the B-1Bs and the release of the amended fiscal year 2002 budget, Air Force officials told us the Air Force did not have time to

- determine if the Guard units would get new missions and identify those missions or
- meet with Members of Congress from the affected states to explain the decision.

The decision to reduce the fleet and complete the consolidation by October 1, 2001, concerned Members of Congress. As a result, Congress delayed implementation until the Air Force completed a review of bomber force structure and provided information on alternative missions and

basing plans.[10] According to the legislation, the Air Force could begin implementing the fleet reduction and consolidation 15 days after providing the required report to Congress. The report was delivered to Congress in February 2002. Among other things, the report provided a summary of the (1) Air Force's reasons for reducing the B-1B fleet, (2) follow-on missions for the affected units, and (3) details of the B-1B modernization program. The Air Force began relocating and retiring B-1Bs in July 2002.

The Air Force Used Incomplete Cost Data When Deciding Where to Base the Remaining B-1Bs

Air Force officers in the Office of the Deputy Chief of Staff for Plans and Programs said they considered a number of basing options before recommending that the remaining aircraft be consolidated at two active duty bases. However, they did not document the options considered at the time the decision was made and could not provide a comprehensive list of options considered. In early 2002, at our request, they prepared a paper that outlined some of the options they believed were considered. According to the paper, the Air Force considered options that would have consolidated the aircraft at

- two active bases and one Guard base,
- one Guard base and one active base, or
- two active duty bases.

The option selected continues to house B-1Bs at two active duty bases—26 at Ellsworth Air Force Base and 32 at Dyess Air Force Base.[11] According to Air Force officials, they selected this option because they believed it was the most cost-effective option available. Specifically, they believed they would achieve significant economies of scale by consolidating the aircraft at the two largest B-1B bases, which were located in the active component.

Air Force headquarters staff told us they had no written guidance or directives to assist them when they completed the cost analysis for assessing where to locate the aircraft, and the officers at Air Force

[10] National Defense Authorization Act for Fiscal Year 2002, Pub. L. No. 107-107, Sec. 1032, 115 Stat. 1012, 1215-16 (2001).

[11] The remaining two aircraft will be used for developmental testing and will be located at the Air Force's test facility at Edwards Air Force Base. According to Air Force officials, these aircraft will be altered to such a degree that it is unlikely that they will ever be used in a nontest environment.

headquarters responsible for evaluating basing options said they received no guidance from their senior leaders. Consequently, they developed their own approach for determining where the B-1Bs should be retained. The Air Force did not document its methodology at the time the consolidation decision was made but attempted to reconstruct it in early 2002 at our request. At that time, however, Air Force officials were unable to replicate the savings estimates they had developed or provide a complete explanation of the methodology used to make the basing decision.

Our review of the documentation provided to us by Air Force officials in early 2002 suggests the Air Force may have used an inconsistent methodology and incomplete costs when estimating potential savings for various basing options. According to Air Force officials, for options that stationed aircraft at both active and Guard locations, the potential savings estimates were based solely on the anticipated reductions in the cost of flying hours that would result from the smaller B-1B force. Other operations and maintenance costs[12] that would have been saved by reducing the number of B-1Bs or eliminating a B-1B unit were not included in the estimates for these options. Such costs include depot maintenance, travel, and contractor logistics support. However, for options that stationed the aircraft at active bases only and eliminated both Guard units, Air Force officials included the projected flying hour savings from the smaller fleet and the Guard's B-1B nonflying hour operations and maintenance costs in the savings estimates. Air Force officials could not explain why they estimated the cost savings in this manner. However, they noted that while they obtained complete operations and maintenance data for the Guard units, they did not obtain similar data for the active units. Using this methodology, the Air Force estimates for options that included a mix of active and Guard units understated the savings that could result from reducing and consolidating the fleet.

Air Force officials said they considered other factors when they assessed the basing options. One factor was the impact that the consolidation might have on the individual B-1B bases. Air Force officials told us that they realized that they would have to select an option that included Ellsworth Air Force Base because, without the B-1B, Ellsworth would have no

[12] The Air Force's operations and maintenance appropriation provides funds for the day-to-day operations of the Air Force. In addition to funds for fuel and aircraft repair parts, this account pays for items such as travel, office supplies, contractor support, communications, computers, and utilities and provides funds to pay Air Force civilian employees.

mission and the Air Force had no authority to close the base. A second factor was the need to avoid generating requirements for construction of new facilities since this would reduce the potential savings from the consolidation and might require the Air Force to seek construction funds from Congress. Several other factors that could have been considered but were not include: actual flying hour costs, mission capable rates, and aircrew experience levels for the active and Guard units. According to Air Force officials, the Air Force did not consider these factors because they believed the active and Guard units had similar capabilities.

Guard B-1B Units Have Similar Missions, Lower Flying Hour Costs and Are at Least as Capable as Active Units

In comparing their assigned missions, flying hour costs, mission capable rates, aircrew experience, and operational readiness inspections, we found that Guard units (1) were assigned responsibility for substantially the same types of missions as their active duty counterparts, (2) had lower flying hour and higher mission capable rates during fiscal years 1999-2001, and (3) had more experienced crewmembers than the active duty units in terms of hours flown. We also found that active and Guard units received similar scores in their most recent operational readiness inspections.

Guard and Active Duty B-1B Units Have Similar Missions

With the exception of an additional 24 hours to recall and mobilize Guard personnel prior to deployment, the kinds of missions assigned to Guard B-1B units and their active duty counterparts are substantially the same. For example, the Guard and active duty units have similar wartime mission responsibilities, and each of the B-1B units is assigned to support either Central or Pacific theater commanders during wartime. Additionally, during peacetime, both active and Guard B-1B units are scheduled to be available to meet ongoing contingency operation needs for 90 days every 15 months under the Air Force's Aerospace Expeditionary Force concept.[13] In the past, however, the two Guard B-1B units have worked together to support operational requirements during this period so that each unit is responsible for a 45-day period rather than the full 90-day period, which places less strain on volunteer Guardsmen and their employers.

[13] The Air Force's Aerospace Expeditionary Force was designed to help manage commitments to theater commanders and reduce the deployment burden. Active duty and Guard B-1B units usually meet their commitments in on-call status at their home station.

Guard Flying Hour Costs Are Lower

We compared the flying hour costs between active duty and Guard B-1B units for fiscal years 1999-2001 and found that Guard costs averaged about 27 percent lower than active duty costs. The Air Force calculates flying hour costs by dividing the cost of fuel and parts by the number of hours each unit flies the aircraft. Specifically, the Air Force considers the cost of

- aviation fuel, oil, and lubricants;
- depot-level reparables, which are expensive parts that can be fixed and used again, such as hydraulic pumps, navigational computers, engines, and landing gear; and
- consumable supplies, which are inexpensive parts, such as nuts, bolts, and washers, which are used and then discarded.

Table 2 shows the cost per flying hour for active and Air National Guard B-1B units for fiscal years 1999-2001.

Table 2: Comparison of Active Duty and Air National Guard B-1B Flying Hour Costs for Fiscal Years 1999-2001

	FY 1999	FY 2000	FY 2001	3-year average
Active duty	$14,163	$13,426	$15,818	$14,486
Air National Guard	10,194	10,997	10,478	10,530
Difference	$3,969	$2,428	$5,340	$3,956

Note: Numbers may not calculate due to rounding.

Source: GAO's analysis of data provided by the Air Combat Command, the Air National Guard Bureau, and Dyess, Ellsworth, Robins, McConnell, and Mountain Home Air Force Bases.

Our analysis showed that the Guard's lower cost per flying hour was due in large part to its significantly lower costs for depot-level reparables (see table 3). The Guard attributed its lower reparables costs to the higher experience levels of its maintenance personnel. Apprentice mechanics in the Guard averaged over 10 years of military experience compared to slightly more than 2 years of military experience among apprentice active duty mechanics. Officials said that more experienced maintenance personnel are often able to identify a problem part and fix it at the unit, when appropriate, instead of purchasing a replacement part from the Air Force supply system.

Table 3: Comparison of Active Duty and Air National Guard B-1B Depot-Level Reparables Cost per Flying Hour

	FY 1999	FY 2000	FY 2001	3-year average
Active duty	$9,110	$9,219	$9,928	$9,436
Air National Guard	5,704	7,058	5,271	5,992
Difference	$3,406	$2,161	$4,656	$3,444

Note: Numbers may not calculate due to rounding.

Source: GAO's analysis of data provided by the Air Combat Command, the Air National Guard Bureau, and Dyess, Ellsworth, Robins, McConnell, and Mountain Home Air Force Bases.

Our analysis also showed that the lower costs of consumables in the Guard also contributed to the lower flying hour costs[14] (see table 4). Guard officials said that they are able to keep the costs of consumables down because their experienced maintenance crews are often able to isolate, identify, and fix malfunctioning parts without pulling multiple suspect parts off the aircraft. As a result, fewer consumable supplies are used.

Table 4: Comparison of Active Duty and Air National Guard B-1B Consumable Supplies Cost per Flying Hour

	FY 1999	FY 2000	FY 2001	3-year average
Active duty	$1,776	$1,819	$1,998	$1,869
Air National Guard	1,160	1,558	1,324	1,334
Difference	$616	$261	$674	$536

Note: Numbers may not calculate due to rounding.

Source: GAO's analysis of data provided by the Air Combat Command, the Air National Guard Bureau, and Dyess, Ellsworth, Robins, McConnell, and Mountain Home Air Force Bases.

Flying hour costs represent only a portion of the overall costs of operating and maintaining B-1B bombers. Costs such as pilot training, test equipment, and depot maintenance are not included in the flying hour cost. As we noted earlier, the Air Force did not consider these costs or

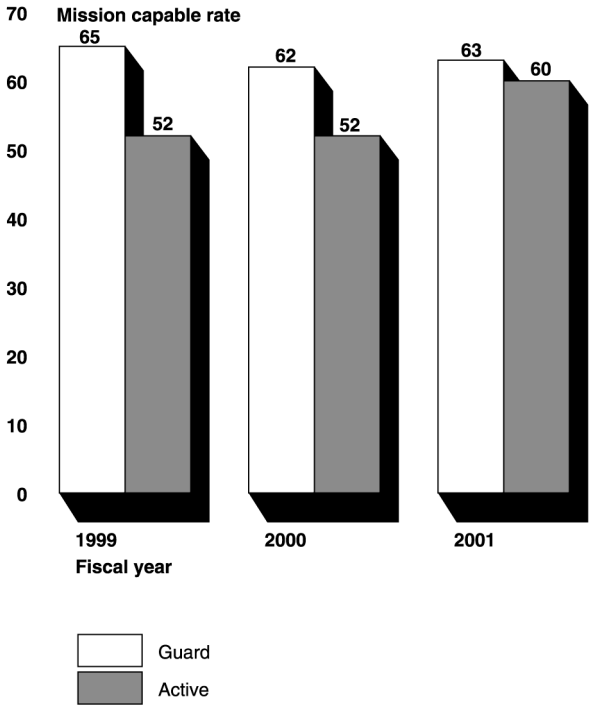
[14] The cost of aviation fuel did not contribute significantly to the difference in cost per flying hour between active duty and Guard B-1B units, as these costs were very similar between the B-1B units. Both active duty and Guard units pay about the same price for aviation fuel, oil, and lubricants.

the historical flying hour costs detailed previously when it made its basing decision.

Guard B-1B Units Report Higher Mission Capable Rates

The Guard's reported mission capable rates were higher than the active duty's reported rates between fiscal year 1999 and 2001. The Air Force designates a weapon system as mission capable when it can perform at least one of its assigned combat missions. The mission capable rate specifically measures the percentage of time a unit's aircraft are available to meet at least one of its missions. On average, the Guard units' B1-B fleet was available between 62 and 65 percent of the time during fiscal years 1999 through 2001. During those same years, the active duty mission capable rate performance averaged between 52 and 60 percent (see fig. 1).

Figure 1: Air National Guard and Active Duty B-1B Mission Capable Rates (Fiscal Years 1999-2001)



Source: GAO's analysis of data provided by the Air Combat Command; the 116th Bomb Wing, Robins Air Force Base; and the 184th Bomb Wing, McConnell Air Force Base.

According to Air Combat Command officials, the active duty units' mission capable rate gain in fiscal year 2001 was primarily due to (1) increased

aircraft availability following completion of an extensive modification program and (2) improvements in the Air Force's inventory of spare parts.

In the 2 years prior to fiscal year 2001, both active and Guard B-1Bs underwent extensive modifications at the depot that improved the aircraft's survivability and equipped the aircraft with more advanced munitions. During this time, large portions of the B-1B fleet were at the depot for extended periods. According to Air Combat Command officials, active duty B-1B units experienced reduced mission capable rates because maintaining a normal operating tempo with fewer aircraft required each aircraft to be flown more frequently and resulted in more wear and tear to each aircraft. However, the Guard units' mission capable rates were less affected. Both Air Combat Command and Guard unit officials agreed that during this time the higher experience levels of Guard maintenance personnel and the Guard's lower operating tempo lessened the impact of having large portions of the fleet at the depot on the Guard units' mission capable rates. The Air Force completed most of these modifications by the end of fiscal year 2000, and the gap between the active and Guard mission capable rates narrowed in fiscal year 2001.

According to Air Combat Command officials, the overall shortage of spare parts experienced by the Air Force during the late 1990s also negatively affected the active duty B-1B units' mission capable rates prior to fiscal year 2001.[15] Although increased funding led to an improvement in the spare parts inventory by fiscal year 1999, it took about 12 to 24 months for the improvements to be reflected in the units' reported mission capable rates according to Air Staff officials. According to Guard officials, Guard B-1B units were less affected by the shortage of spare parts because their more experienced maintainers could sometimes repair rather than replace problematic components.

Guard B-1B Aircrews Are Generally More Experienced Than Their Active Duty Counterparts

The Air National Guard's B-1B pilots and weapon systems officers are generally more experienced than their active duty counterparts. The Air Force designates aircrew members as "experienced" based on the total number of flying hours they have accumulated both overall and in the B-1B.[16] A crewmember's experience level determines the amount of

[15] According to Air Staff officials, the spare parts shortage affected all aircraft during 1991-2000.

[16] The same requirements are applied to both active duty and Guard aircrew members.

training (i.e., flying hours and sorties) he or she is required to complete each year, which, in turn, drives the unit's overall flying hour program. For example, units with a higher number of inexperienced aircrew members would require a higher allocation of flying hours to meet training requirements each year.

In comparing the Guard and active B-1B aircrew experience levels, we found that the majority of Air National Guard pilots were designated as experienced. However, this was not the case for pilots assigned to active operations squadrons at Dyess and Ellsworth. Table 5 shows the percentage of experienced pilots by unit location.

Table 5: Active Duty and Air National Guard B-1B Pilot Experience Levels

Unit location	Number assigned	Number designated experienced	Percent experienced
Active units			
Dyess	56	22	39
Ellsworth	66	30	45
Mountain Home	23	12	52
Air National Guard units			
McConnell	29	25	86
Robins	33	24	73

Note: Data shown are for operations units only; information for training and test units is excluded. The three training and test units each were staffed with 100-percent experienced pilots.

Source: Compiled from data provided by the Air Combat Command, the 184th Bomb Wing, and the116th Bomb Wing.

Many of the Guard pilots also had other flying experience that enhanced their ability to pilot the B-1B. For example, many had prior active duty flying experience or flew other aircraft for the Guard. This experience contributed to the pilots' overall qualifications, thereby permitting them to be designated as experienced more quickly than their active duty counterparts.

The picture was similar for the B-1B's weapon systems officers. For example, more than 80 percent of the Air National Guard's weapons system officers were considered experienced, while in the active Air Force only about 40 percent were considered experienced. Like the Guard pilots, most of the Guard's weapon systems officers also had experience flying other military aircraft that enhanced their ability in the B-1B. Table 6 shows the percentage of experienced weapon systems officers by unit location.

Table 6: Active Duty and Air National Guard B-1B Weapon Systems Officer Experience Levels

Unit location	Number assigned	Number designated experienced	Percent experienced
Active units			
Dyess	54	20	37
Ellsworth	61	25	41
Mountain Home	22	10	45
Air National Guard units			
McConnell	33	29	88
Robins	31	29	94

Note: Data shown are for operations units only; information for training and test units is excluded. The three training and test units each were staffed with 100-percent experienced weapon systems officers.

Source: Compiled from data provided by the Air Force's Air Combat Command, 184th Bomb Wing, and 116th Bomb Wing.

Operational Readiness Inspections Yielded Similar Ratings for Active and Guard B-1B Units

The Air Force conducts periodic inspections of each of its operational units to evaluate the unit's readiness to perform its wartime mission. The readiness inspections, conducted by the Air Combat Command Inspector General staff, are intended to create a realistic environment for evaluating the units' sustained performance and contingency response. The bomb units are evaluated in four major areas: initial response, employment, mission support, and ability to survive and operate in a hostile environment. The Guard B-1B units scored as high or higher than did the active duty units in the most recent readiness inspections. Specifically, the B-1B bomb units at two active locations (Dyess and Ellsworth) and one Guard location (McConnell) each received excellent ratings overall in their most recent inspections. The Inspector General completed an inspection of Robins' initial response capabilities in July 2001 and rated the unit as excellent. However, the Inspector General did not complete its inspection of the three remaining areas since the Air Force had already decided to remove the B-1Bs from Robins. Additionally, the Mountain Home wing,

which includes B-1Bs, had not undergone an operational readiness inspection at the time of our review.

Conclusions

Major decisions involving force structure need to be supported by solid analysis to document that a range of alternatives has been considered and that the decision provides a cost-effective solution consistent with the national defense strategy. DOD's Planning, Programming, and Budgeting process establishes a consultation process for civilian and military leaders to use in reviewing alternatives to the services' current force structure. However, the decision to reduce the B-1B did not fully adhere to this process because key offices such as the Office of Program Analysis and Evaluation and the Joint Staff did not have an opportunity to review and comment on the proposal and conduct analysis before it was approved. Moreover, although Air Force and OSD officials are comfortable with the decision, based on their military judgment, neither the Air Force nor OSD conducted any formal analysis to provide data on how a range of B-1B force size alternatives would impact DOD's ability to meet potential wartime requirements. By following its established budget process more closely in the future and allowing experts from various offices to review and analyze force structure proposals, DOD could provide better assurance to Congress that future force structure decisions are well-supported and are in the nation's long-term interest.

In addition, the lack of an established Air Force methodology for assessing the costs associated with potential basing options led officials to use incomplete costs when estimating the projected savings for some of the basing options considered. By focusing solely on flying hour costs for some basing options, Air Force officials did not consider other operations and maintenance savings that a reduction in the number of aircraft or the number of B-1B units would generate. As a result, the Air Force may have understated the cost savings of the options that retained B-1Bs in both the Air National Guard and the active components. A more structured cost estimating methodology would ensure that that the Air Force considers all appropriate costs in calculating the savings for future aircraft realignments.

Recommendation for Executive Action

To provide an analytical basis for future aircraft realignment decisions, we recommend that the Secretary of Defense direct the Secretary of the Air Force to develop a methodology for assessing and comparing the costs of active and reserve units so that all potential costs are fully considered when evaluating potential basing options and making future basing decisions.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD did not agree with our recommendation that the Air Force develop a methodology for assessing and comparing costs to evaluate basing options because it believes that such a methodology exists. Furthermore, DOD believes that the Air Force used a methodology that considered all costs as well as noncost factors when it made its basing decision and that cost-effectiveness, while an important criterion, should not be the sole consideration in making basing decisions. DOD's comments are included in this report as appendix II.

After we received DOD's comments, we asked the department to provide documentation describing its methodology for comparing active and reserve unit costs. DOD referred us to the instruction that outlines its Planning, Programming and Budgeting System. This instruction describes DOD's process for developing the department's overall plans and budget; however, it does not identify a methodology for assessing and comparing the costs associated with active and reserve units. DOD also noted that the Air Force's Total Ownership Cost database encompasses all cost factors related to active and reserve costs and ensures that any comparison of active and reserve units is done equitably. During our audit work, we assessed whether the Total Ownership Cost database could be used to compare total operations costs for B-1Bs located at Guard and active duty units. We determined, however, that not all indirect costs for B-1B units in the Guard were included in the database, making it impossible to compare the operating costs of Guard and active units equitably. Therefore, we are retaining our recommendation that the Secretary of Defense direct the Secretary of the Air Force to develop a methodology.

In commenting on our presentation of flying hour costs, DOD acknowledged the Guard's lower flying hour costs, but it stated that including additional costs would result in more comparable flying hour costs for Guard and active duty units. DOD suggested using the direct and indirect costs included in the Air Force's Total Ownership Cost database to calculate flying hour costs. In conducting our analysis of flying hour costs, we relied on the Air Force's definition. The Air Force defines flying hour costs as the cost of fuel, depot-level reparables, and consumable parts divided by the number of hours flown. The Air Force does not include other costs such as software maintenance costs, contractor support costs, or military personnel costs when it calculates the cost per flying hour. DOD is correct when it states that there are other costs associated with operating a B-1B and our report recognizes that fact.

In commenting on our analysis of active and Guard mission capable rates, DOD noted that the difference between active and Guard mission capable

rates is not solely attributable to the experience level of Guard personnel. The department also noted that the Guard operates newer model B-1B aircraft while the active duty units operate older model aircraft and identified this as a factor contributing to lower active duty rates. While we recognize that the oldest aircraft in the fleet (1983 and 1984 models) are concentrated in the active units at Dyess Air Force Base, our analysis shows that those aircraft constitute only about one-third (33 percent) of Dyess' fleet and only about one-fifth (or 20 percent) of the active B-1B fleet overall. Active units at Ellsworth and Mountain Home operate newer 1985 and 1986 model aircraft—the same models as those operated by the two Guard units. While aircraft age may have some effect on mission capable rates, we do not believe, based on our analysis, that this effect is significant for the B-1B force.

We are sending copies of this report to the Secretary of Defense, the Secretary of the Air Force, and interested congressional committees. We will also make copies available to others on request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have any questions on this report or wish to discuss these matters further, please call me on 202-512-4300. Key contacts and staff acknowledgments are listed in appendix III.

Sincerely yours,

Henry L. Hinton, Jr.
Managing Director, Defense Capabilities and Management

Appendix I: Scope and Methodology

To determine what types of analyses the Department of Defense (DOD) and the Air Force did of wartime requirements and basing options before deciding on the number of aircraft to retain and where to base them, we obtained and analyzed the only contemporaneous documents that were available from the Air Force—a briefing presented to the Secretary and the Chief of Staff of the Air Force on the fleet reduction and consolidation and a memorandum from the Secretary of the Air Force to the Under Secretary of Defense (Comptroller) outlining the Air Force's proposal to reduce and consolidate the fleet. Additionally, because the Air Force had no documents explaining its methodology for evaluating the various basing options it considered, we asked the Air Force, in early 2002, to document its methodology. The Air Force provided us with a statement explaining the methodology; however, it was unable to provide us with the cost figures used to estimate the savings. As a result, we could not verify the savings estimates that the Air Force attributed to each option.

To supplement our document review, we interviewed several Air Force officials who were located in the Washington, D.C., area to determine what role each may have played in the decision to reduce the fleet and consolidate it at two bases. The officials were the Chief of Staff, U.S. Air Force; the Deputy Chief of Staff, Plans and Programs, U.S. Air Force; the former Director of the Air National Guard; and the Assistant for Operational Readiness, Air National Guard. We also spoke with officials responsible for overseeing the B-1B program in the Office of the Deputy Chief of Staff, Air and Space Operations, U.S. Air Force, Washington, D.C, to determine if any analysis of current and future wartime requirements had been completed prior to the decision. We also had numerous meetings with officials in the Office of the Deputy Chief of Staff, Plans and Programs, who were responsible for developing the basing options and estimating the savings that would result for each option to discuss their methodology and the decision process. We also met with representatives of the Air Combat Command at Langley Air Force Base, Virginia, to determine if they had any role in the decision to either reduce the number of B-1Bs or consolidate them at two active duty bases. Finally, we met with representatives of the Under Secretary of Defense (Comptroller); the Director, Program, Analysis, and Evaluation; and the Joint Staff to determine if they had completed any analysis of the Office of Secretary of Defense suggestion to eliminate the B-1B fleet or the Air Force's proposal to reduce the fleet. In addition, we reviewed the 1999 and 2001 Air Force bomber white papers and the 2001 Quadrennial Defense Review to gather insight on current and future B-1B wartime requirements and copies of congressional testimonies by the Secretary of Defense, the Deputy Secretary of Defense, the Secretary of the Air Force, and the Chief of

Staff of the Air Force to document DOD's rationale for making the B-1B decision.

To compare the flying hour costs and the capabilities of the various active and Air National Guard B-1B units, we collected and analyzed flying hour cost data for fiscal years 1999-2001 from the five B-1B units. To verify the data from these sources, we collected and analyzed cost data for the same years from the Air Combat Command; the Air Force Cost Analysis Agency, Washington, D.C.; and the Directorate of Logistics, Air National Guard, Andrews Air Force Base, Maryland. We also collected and analyzed (1) mission capable rate data for fiscal years 1999-2001 from the Air Combat Command and the two Guard units and (2) collected and analyzed data on aircrew and maintenance crew experience from the Air Combat Command and the Air National Guard Bureau. To determine if there were significant differences in active and Guard units' wartime missions, we reviewed the wartime taskings of all five B-1B units. To compare the units' participation in peacetime activities, we reviewed documents provided by officials at the Air Expeditionary Force Center, Langley Air Force Base, Virginia. We reviewed and compared the operational readiness inspections for the bomb wings located at Dyess, Ellsworth, and McConnell Air Force Bases and the partial operational readiness inspection for the bomb wing at Robins Air Force Base. The Inspector General staff completed an inspection of Robins' initial response capabilities in July 2001 but did not complete its inspection of the three remaining areas since the Air Force had already decided to remove the B-1Bs from Robins. The wing at Mountain Home had not undergone an operational readiness inspection at the time we completed our review. Our work also included visits to three B-1B units to interview officials and obtain documents: 184th Bomb Wing, McConnell Air Force Base, Kansas; 7th Bomb Wing, Dyess Air Force Base, Texas; and 116th Bomb Wing, Robins Air Force Base, Georgia.

Appendix II: Comments from the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

August 20, 2002

Mr. Henry L. Hinton, Jr.
Managing Director, Defense Capabilities Management
U.S. General Accounting Office
Washington DC 20548

Dear Mr. Hinton:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report GAO-02-846, "FORCE STRUCTURE: Analysis Limited in Decision to Reduce and Consolidate B-1B Fleet," dated July 15, 2002 (GAO Code 350117). The Department appreciates the opportunity to comment on the draft report.

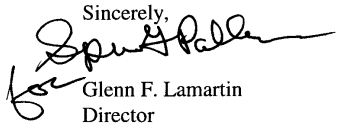
The Department does not concur with the recommendation that the Secretary of Defense direct the Secretary of the Air Force to develop a methodology for assessing and comparing the cost of active and reserve units when evaluating potential basing options, as the Department already has an existing methodology. The Department agrees that standard guidance contributes to finding the most cost-effective option. The Department asserts however, that the Air Force used a methodology that encompasses all costs and factors, not just cost effectiveness, as the sole criterion.

It is true that the Air National Guard's flying hour costs are lower than the active duty force's when solely based on the cost of fuel, depot-level repairables, and consumables. However, flying hour costs are more comparable when the perspective is broadened to include related costs such as contractor support and software maintenance support. The SAF/FMC Air Force Total Ownership Cost database accounts for direct and indirect costs associated with operating the B-1. The database indicates the Guard's flying hour related costs are higher than the active duty costs in the areas of base operating support and military personnel. Additionally, the database reveals the principal difference between their flying hour costs is software maintenance expenses paid exclusively by the active duty force. When these expenses are distributed equitably across the units, the costs per flying hour become virtually equal.

Additionally, the discrepancy between their mission capable rates is not solely attributable to the experience level of the Guard maintenance personnel. The report correctly takes into consideration the Guard's lower operations tempo. Lastly, the Guard has been operating all newer model B-1 aircraft, while the active duty force has been responsible for the older model aircraft.

In the final determination, basing decisions must be made with many factors involved, one of which is cost effectiveness. In this case, the Department is convinced the Air Force weighed all costs and factors appropriately, then made the correct decision. The report should not focus on the importance of flying hour costs, at the exclusion of all other factors.

Sincerely,



Glenn F. Lamartin
Director
Strategic and Tactical Systems

Enclosure

GAO CODE 350117/GAO-02-846

"FORCE STRUCTURE: ANALYSIS LIMITED IN DECISION TO REDUCE AND CONSOLIDATE B-1B FLEET"

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATION

RECOMMENDATION: The GAO recommended that the Secretary of Defense direct the Secretary of the Air Force to develop a methodology for assessing and comparing the costs of active and reserve units so that all potential costs are fully considered when evaluating potential basing options and making future basing decisions. (p. 14/GAO Draft Report)

DoD RESPONSE: Non concur. The Department agrees that standard guidance contributes to finding the most-cost-effective option. It is the Department's assertion however, that cost effectiveness is not the sole criterion for basing options. The report should not focus on the importance of flying hour costs, at the exclusion of all other factors.

Appendix III: GAO Contacts and Staff Acknowledgments

GAO Contacts

Janet St. Laurent (202) 512-4402
Carole Coffey (202) 512-5876

Acknowledgments

In addition to those named above, Sharron Candon, Judith Collins, Penney Harwell, Jane Hunt, Ken Patton, and Carol Schuster made key contributions to this report.

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