

Making It Work a Minuteman

The Air Force's ICBM plan keeps shifting, and the service keeps tinkering with the Minuteman fleet.

By Adam J. Hebert, Executive Editor

The US wants to preserve a powerful, reliable, land-based strategic nuclear deterrent force beyond the year 2020. In a shift, Air Force Space Command has decided that this task won't require development of an all new "Minuteman IV" missile, as was once thought.

Rather, officials explain, the Air Force can make do by modernizing today's Minuteman III ICBMs—again—and keeping them in service until 2040.

Space Command leaders recently came to the conclusion that this plan would constitute the most efficient way to maintain an effective, silo-based ICBM force for the long term, but it is not without controversy.

In the nuclear missile business, much has changed over the past 15 years. (See "Twilight of the Missileers," August 1994, p. 22.) Space Command now oversees a missile fleet that is much smaller than it was in Cold War days and which likely will shrink further in the near future. The ICBM fleet has declined from more than 1,000 launchers in the Reagan years to 500 today.

AIR FORCE Magazine / June 2007

A Minuteman III ICBM takes flight during a test launch from Vandenberg AFB, Calif.

Without n IV

The Air Force now seeks to cut 50 more Minuteman IIIs from the inventory, as directed by last year's Quadrennial Defense Review, carried out by the Pentagon and the services. (See "Aerospace World: ICBM Cut Starts This Year," p. 15.)

Now that USAF has deactivated its 50 Peacekeepers, the day of the mega-warhead ICBMs is over. All of the three-warhead Minuteman IIIs at F.E. Warren AFB, Wyo., have been downloaded to single re-entry vehicles. Others remain in two- and three-warhead configurations. (See "The Future Missile Force," March 2003, p. 64.)

The drawdown has affected more than missiles. Missile alerts recently have been significantly revamped, too. Gone are the famed 24-hour alerts pulled for decades by two-man teams of missileers. They have been replaced by three-person teams serving 72-hour shifts.

The Air Force had planned to keep its current force of Minuteman III ICBMs in service until about 2020, after which time they were to be replaced by a mostly new design, which some dubbed "Minuteman IV."

However, a recent Air Force Space Command analysis of alternatives suggests it would be wiser to keep the older systems around into the 2040s through a series of incremental upgrades. This plan has been approved by the Air Force requirements council, but is not yet final.

Col. Paul Gydesen, chief of Space Command's strike and deterrence division, said in an interview that there are still some interested parties who desire an all-new missile design. However, Gen. Kevin P. Chilton, head of Space

Command, has made it clear that the incremental modernization approach is Space Command's preferred course, Gydesen said.

He said there is still less than 100 percent agreement on the best way to move forward but the parties are moving closer to a consensus on the issue.

Money was a huge factor. Over the years, Space Command officials noted, Minuteman III upgrades have succeeded in attracting political support and funding. Obtaining support for a costly new-start program would have been difficult, Gydesen said, and Space Command believes modernized Minuteman IIIs will meet all mission requirements.

In addition to the propulsion, guidance, and warhead programs currently in progress, several other improvements will be needed to keep the Minuteman III viable beyond 2020, when capabilities will begin to "efface," in the words of missile officials.

The long-term incremental upgrades will begin around 2020 with introduction of new guidance components, said Gydesen. The ongoing Minuteman III

Guidance Replacement Program is improving maintainability and reliability, but does not offer accuracy improvements. Therefore, "Increment I" of the modernization process would provide that accuracy boost and is expected to dramatically improve the guidance system's mean time between failure.

Guidance enhancements would be followed by security and command-control-communications-computer (C4) improvements.

Finally, USAF would undertake booster and re-entry vehicle upgrades, "ultimately leading to [full operational capability] of the completed follow-on capability in the late 2020s," Gydesen said. This, he said, would ensure an effective land-based nuclear deterrent "well into the 2040s and likely beyond."

It was thought for a time that the Minuteman III follow-on would be called Minuteman IV, but "this naming convention was discontinued as the incremental approach evolved," Gydesen said, adding that "we were not sure when the system [would] have changed enough" to justify renaming.

The Air Force regularly conducts Minuteman test launches, such as the one pictured here, to ensure the reliability and accuracy of the ICBM fleet. After determining that 450 missiles would still meet strategic needs, DOD recommended in the 2006 QDR that 50 ICBMs be decommissioned. The components would be used to offset a looming shortage of ICBM test assets.



DOD photo by SSgt. Richard W. Freeland

“We have not spent any time at this point thinking about when, or if, Minuteman III deserves a new name.”

The incremental upgrades constitute “an affordable approach to provide

the needed follow on capabilities,” he said.

The decommissioning of Peacekeeper has yielded some 500 high-performance warheads, many of which are being recycled into the upgraded Minutemen. Some are being added to the Minuteman III fleet through the Safety Enhanced Re-entry Vehicle program. The first SERV Minuteman was fielded last October at Warren, and work on the modifications will continue until achievement, in 2012, of full operational capability for the new warhead setup.

End of the “Odd Squad”

In the Air Force’s effort to cut another 50 Minuteman missiles, as ordered by the QDR, attention fell immediately on the 564th Missile Squadron at Malmstrom AFB, Mont. The Air Force quickly fingered it for the cut because its systems are different from all other Minuteman ICBMs. Federal lawmakers have put a hold on the planned retirements.

Lt. Gen. Frank G. Klotz, vice commander of Space Command, told *Air Force Magazine* in March that USAF sent a required classified report to Congress in mid-March. As soon as Congress grants approval, an environmental assessment is conducted, and a required 30-day waiting period has elapsed, USAF will begin the decommissioning process, he said.

The 564th Missile Squadron, sometimes referred to as the “odd squad,” is the only ICBM squadron with unique General Electric communications and launch control systems.

The proposed Minuteman III reduction will free parts for three annual ICBM test launches. At current rates of three test launches per year, test assets will run out in 2018. With the drawdown, officials estimate there will be enough ICBM components to support testing into the late 2020s.

The new Minuteman reduction would also bring the United States closer to its Moscow Treaty target of fielding no more than 2,200 deployed warheads in 2012.

The biggest cultural change was the rearrangement of the alert system. During the new three-day shifts, one officer remains topside in the missile alert facility while the other two run the secure launch control capsule below the MAF.

Maj. Gen. Thomas F. Deppe, commander of 20th Air Force, approved the alert change in January following

a three-month trial period featuring the participation of one squadron from each USAF missile wing.

Col. Michael G. Vaughn, the operations director for 20th Air Force, said that, because of the change, fewer teams of missileers will have to make the trek across the High Plains, frequently in poor weather, to get to a launch facility.

The change will shave total crew driving distances by some two million miles per year. That’s a reduction of two-thirds, and it will generate considerable savings; fuel and maintenance costs will decline by about \$400,000 per year. Safety also will be improved, as the crews will spend less time on the road.

There may also be manpower savings down the road, but these did not factor in the decision to move forward with the change, said officials.

Vaughn acknowledged that, if you asked the missileers last October what they thought of the 72-hour shifts, they “wouldn’t have been very happy.” Now, however, most are pleased with the greater predictability in scheduling that will result from the alert change.

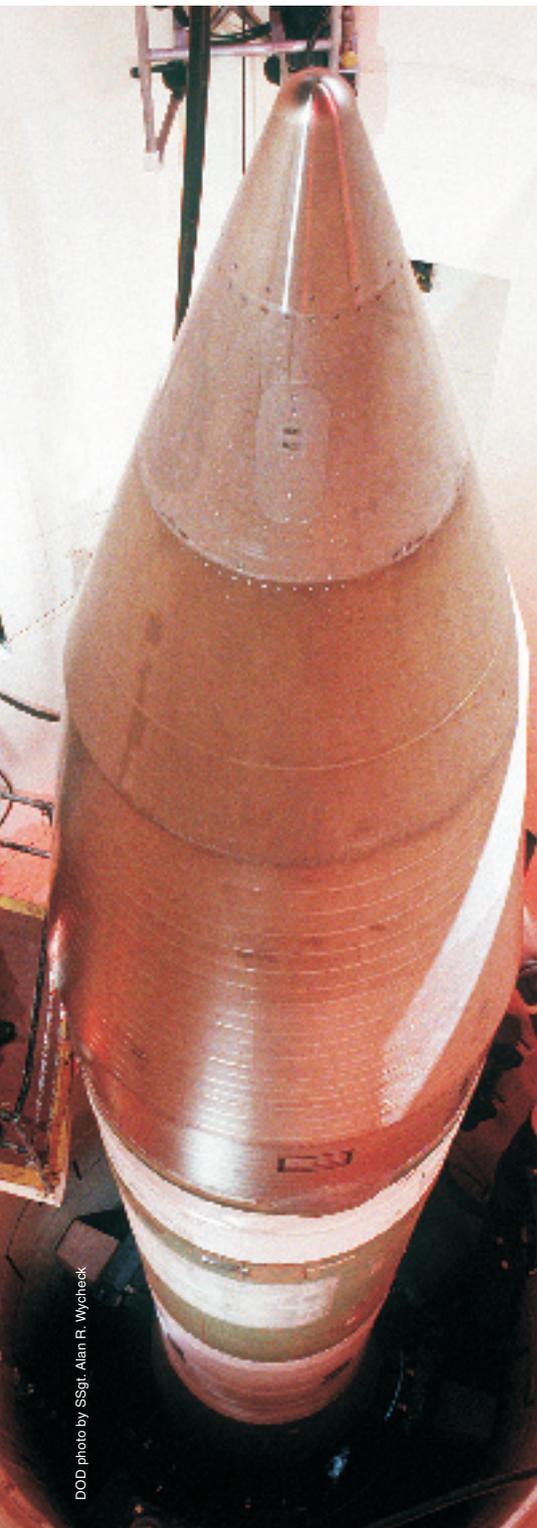
In this new plan, predictability is a key selling point. It is made possible by providing a missileer “protected time off” in the wake of a three-day shift. Plans called for converting all nuclear missile squadrons to the new schedule during the spring.

Moreover, Vaughn said, the change will give young missile officers early leadership opportunities that are currently lacking in the field.

Today, two-person teams remain sequestered in their capsule below the missile alert facility. With the advent of three-person teams, one officer will always be topside, sometimes sleeping but also interacting with the enlisted security forces, facility managers, and cooks at the MAF.

In making the changeover to the new schedule, 20th Air Force abandoned an initial notion to have the alert crews made up of two missile crew commanders and one deputy. The crews are “only going to have one commander,” Vaughn said, along with an “L2” (midlevel position) and a deputy.

Officials are taking steps to ensure the middle position missileers meet all requirements for running the capsule when the crew commander is topside. “I would equate it to an aircraft that has a co-pilot, pilot, and a mission commander,” said Vaughn. ■



DOD photo by SSGT. Alan R. Wychetck

Air Force Space Command officials feel that a new, incremental upgrade program can extend the Minuteman III’s useful service life well into the 2040s. Previous modernization plans would only keep the missile viable until about 2020.