

# Venerable, Val

**The Air Force has big plans for its legacy bombers.**

**O**n the edge of the tarmac at Barksdale AFB, La., on an overcast November morning, Capt. Jonathan Ard pointed out the numbers just to the side of the nose art of a B-52H nicknamed *Deuces Wild*. The -0022 indicated the Air Force placed its order for the bomber in 1960, the year John F. Kennedy was elected President.

Nearly 50 years old, the B-52s at Barksdale's 2nd Bomb Wing are remarkably resilient, capable of flying missions ranging from close air support to dropping nuclear bombs. The bomber can drop or launch the widest array of weapons in the US air inventory, wing officials point out, one of the many reasons the iconic bomber remains on duty for the foreseeable future.

"We are a 'full doc' aircraft, which means we are employed in a range of nuclear and conventional missions," said Ard, a veteran electronic warfare officer in the B-52 and instructor with Barksdale's 11th Bomb Squadron. "We

are obviously focusing on conventional missions at the moment, but we have the ability and the expertise to deploy in the nuclear mission," Ard said. "We just have to maintain it."

The B-52's current state is representative of USAF's overall bomber fleet. The Air Force's venerable B-52s, B-2 stealth bombers, and conventional-only B-1Bs have all performed a variety of missions since coming into the inventory. And all three are expected to continue flying for decades to come.

To maintain these capabilities, USAF will invest a great deal of time and money to modernize the legacy bomber fleet. Improvements include radar programs, command and control tools, and software upgrades for both the B-52 and B-2.

Air Force Global Strike Command boss Lt. Gen. Frank G. Klotz believes the Air Force's newly activated major command must now move forward in three activity areas: developing human capital, solidifying doctrinal guidance for its forces, and securing resources to

modernize USAF's nuclear systems for the long term.

In the current Future Years Defense Program, the Air Force will see a "significant amount" of investment in its nuclear-capable platforms, Klotz said at the Air Force Association's Global Warfare Symposium in Los Angeles in November. Per Presidential direction, the US will invest more than \$100 billion over the next decade to modernize and sustain the nation's nuclear triad. About \$40.5 billion of this total is destined for investment in AFGSC's fleet of nuclear-capable bombers and intercontinental ballistic missiles, he added.

USAF would like to allocate some of those funds to upgrade and modernize components in the legacy bomber fleet that directly affect the nuclear mission. On the wish list are a new 1760 data bus for the bomb bays of the B-52H fleet (to expand the number and types of weapons the BUFF could hold), modernized radar (to improve ground and aerial surveillance capabilities and

*The B-52 bomber can deliver the widest variety of weapons—conventional or nuclear—in the Air Force inventory. Along with the B-2 and B-1, it will remain in service for decades to come.*

# ued Bombers

By Marc V. Schanz, Senior Editor

aid in identifying targets at long range), and additional communications tools.

New radars could assist with low-level flight patterns and reduce maintenance costs, Klotz said, as the fleet's current APQ-166 radars are facing rolling obsolescence issues. USAF plans a radar replacement program for the B-52 by 2013.

The Combat Network Communications Technology (CONNECT) upgrade is another multiyear upgrade under way for the B-52 fleet, AFGSC officials noted. It will improve connectivity with other Air Force communications networks and platforms. BUFFs will be able to receive mission data in flight and retarget weapons.

The CONNECT program is a big step forward, said Maj. Gen. Floyd L. Carpenter, commander of 8th Air Force, but AFGSC wants to emphasize parallel development of command and control tools for the B-52 and B-2 fleets. This would leverage existing communications systems and help the two very different aircraft share infor-

mation ranging from tactical targeting pod data to secure communications in the nuclear role.

"Any future capability has got to be a data-gathering and -sharing platform," Carpenter added, especially as threats such as anti-access and area-denial weapons proliferate. "In our bombers right now, data links are an issue we need to work on. ... If you're not a sharing platform, your utility will be limited."

## Personnel Guidance

The Air Force announced an \$11.9 billion modernization contract in September for the B-52 fleet. Spread out over the next eight years, and based on estimates from current activities and projections for future modernization, the contract will pay Boeing for efforts such as the Evolutionary Data Link, extremely high frequency communications development, and other programs to extend the B-52's life.

The B-2 is also undergoing extensive modernization.

"It's very hard to convince people that the B-2 is not a new airplane," said Maj. Gen. William A. Chambers, head of strategic deterrence and nuclear integration on the Air Staff, during a speech at an AFGSC symposium in Shreveport, La., in November. The B-2 is packed with 1980s-era network gear and software and needs a new "digital backbone," he noted. The stealth bombers need to carry some of the most advanced weapons in USAF's arsenal, such as the Massive Ordnance Penetrator conventional weapon now in operational testing.

Don't make the mistake of thinking that nuclear bomber and missile advocates are fixated on technology, however. Personnel guidance is particularly important in the new command. Klotz said units came to Strike Command from other commands with different practices and priorities.

The integration process is not merely a "cut and paste" effort, as AFGSC has issued more than 200 mission guidance documents since August 2009—particu-



Photo by Dane Collette



**SSgt. Dustin Hyden (l) and SSgt. Doyle Atkinson load weapons onto a B-52. In the next decade, \$40.5 billion will be spent on modernizing and sustaining nuclear-capable bombers and ICBMs, and their infrastructure.**

larly from the inspector general's office, which has conducted rigorous updates for nuclear operational readiness and surety inspection regimes.

Bomber and missile squadrons were relatively "minor stakeholders" in their previous homes at Air Combat Command and Air Force Space Command, Klotz said. A missileer himself, Klotz said he spent lots of time dealing with satellite programs in a previous post as vice commander of AFSPC, while the strategic deterrent Minuteman III mission "kind of got pushed over to the side."

The same could be said for dual-role bombers at ACC, a command

that was until recently responsible for the service's fighter modifications and upgrades, intelligence-surveillance-reconnaissance programs, and nuclear and conventional strike assets. While the B-2 and B-52 were transferred to Global Strike Command, the non-nuclear B-1B remained with ACC.

"I think the big cultural change is we now have a [major command] focused solely on what they do every day," Klotz said of AFGSC's nuclear-capable bomber fleet. "If there's a problem or a question, someone can call headquarters at Barksdale and talk to an expert who can focus [on] and solve the problem."

Initially, Klotz said he wasn't sure he could attract appropriate talent to come to work, as the nuclear and global strike business hadn't had a dedicated home since Strategic Air Command stood down in 1992. "I've been pleased it's been just the opposite," Klotz said during his Los Angeles speech. Eighth Air Force has stepped up to become the "institutional focal point" for global bomber operations and innovations, he said, to organize within and advocate on behalf of the bomber community for operational focus and resources to ensure the force can meet future missions and taskings.

Carpenter, a career B-52 pilot, noted that USAF's fleet of BUFFs is sturdy, but can be difficult to modernize. "The digital world doesn't always necessarily fit with the analog world of the aircraft," Carpenter said. It is one of the reasons why putting a new digital interphone in the B-52 has proved a bit tough.

Historically, crews have worked around these problems on a crew-by-crew basis, in many cases adding communications gear, installing GPS devices, and using light sticks to help pilots use night vision goggles. Capt. Dane Collette, an instructor pilot with Barksdale's 11th BS, notes many B-52 crews network their own laptops with GPS devices in the cockpit, to work around the lack of a modernized data link. "We take advantage of every opportunity we find," he said.

"The first combat mission I ever flew, we had a strapped-in satellite radio," Carpenter said, recalling his B-52 crew's participation in 1996's Operation Desert Strike, a series of air strikes on Iraqi military targets. "Now, it's all part of the infrastructure, but back then, that was all innovation from the crews," he said.

B-2 crews have developed some of the same innovations, but due to the stealth bomber's networked and integrated design, there are limits to what they can do.

Keeping bombers combat ready is also tricky, as both the B-52 and B-2 have their own unique parts issues. SMSgt. William Cromartie, head production superintendent at the 2nd Aircraft Maintenance Squadron at Barksdale, said the B-52's mission capable rate hovers around 75 percent, but as time goes on, parts obsolescence becomes more of an issue.

"We are keeping track of tech orders, because some of [these parts are] not being made anymore," he said, noting



trips to the “Boneyard” in Arizona to get components—such as replacement panes for the bomber’s windows—are fairly common.

For the B-2, supply is a concern due to the small size of the fleet; it is challenging to get vendors to sign on because of small quantities of production, said Carpenter. “To get a contractor to build four of a part—it’s tough,” he said. “Contractors want to build in bulk.”

“Our current fleet is small and aging,” Carpenter bluntly said.

### A Core Mission

Over the past decade, the Air Force’s strategic bomber fleet has been pressed into duty like never before. Just since 9/11, B-52s have performed armed overwatch and close air support combat missions over Afghanistan, while both BUFFs and B-2s have taken turns deploying to Andersen AFB, Guam, since 2004 as part of the US continuous bomber presence in the Pacific. With the standup of Air Force Global Strike Command in August 2009, the B-52s and B-2s have also increasingly exercised and refined their nuclear training.

“Each aircraft has its own set of sustainment and modernization challenges, and demand for their capabilities exceeds our ability to meet the need,” Carpenter said at the conference in Shreveport.

AFGSC has to balance investments and emphasis in conventional and nuclear strike, as there is little excess capability to put toward any one of the missions in isolation, said Brig. Gen. Timothy W. Ray, AFGSC operations director. “We are a much smaller force, and we have

## New START and the Bomber Force

If the Senate ratifies the New START arms control agreement with Russia—far from a sure thing at press time—Air Force Global Strike Command will likely reduce the number of nuclear-capable B-52s from 94 to 60. This is a big change, but not as dramatic as it first sounds.

Lt. Gen. Frank G. Klotz, AFGSC commander, and other Global Strike officials say the command is comfortable with the possible change and is prepared to carry it out. Much as the B-1B was denuclearized in the 1990s, a segment of the B-52 fleet could be modified to perform conventional missions only. The affected aircraft would not be retired or destroyed, as was required under some previous arms control agreements.

“We have studied this very carefully, we have coordinated with the depot and the [system program office], and we think we have an approach which would be very easy to implement and will preserve all of the conventional capabilities on the aircraft,” Klotz said.

Treaty negotiators did their due diligence, Klotz said, and came out to AFGSC bases to talk with B-52 operators and maintainers about the specific provisions under discussion and to develop reasonable “conversion options.”

While possible force structure changes, like New START itself, were still being deliberated in late November, several officials within AFGSC confirmed that the most sensible way to meet targets would be by moving some aircraft into the B-52 formal training unit, Air Force Reserve Command’s 93rd Bomb Squadron and its active associate 11th BS, at Barksdale AFB, La. Crews could continue to use these aircraft to train for nuclear missions, but the aircraft themselves would be strictly conventional only.

The 20-aircraft B-2 stealth bomber fleet will stay in its dual role, Klotz said, due to its small size.

“There are going to be some workarounds,” Maj. Gen. Floyd L. Carpenter admitted, though the treaty language also favors the bomber force in some ways. Under New START, bombers will offer the nation greater strategic flexibility because each aircraft will “count” as only one warhead.

“It is truly a force-multiplier and gives [US Strategic Command] a hedge,” said Carpenter, the commander of 8th Air Force. This is increasing the importance of the bomber in the nuclear role, “even though we come down in numbers.”

to leverage all our capabilities. ... If you get smaller, if you don’t integrate, you won’t be effective.”

The B-52H fleet, as old as it is, is a fairly fit fleet, with most aircraft having 17,000 to 18,000 flight hours, Carpenter

noted in an interview. USAF planners anticipate the bomber will remain in the inventory through 2040.

The younger B-2 will stay in the inventory into the 2040s, according to current USAF projections. Both will serve as a bridge to USAF’s next generation “family of systems” long-range strike concept.

The bomber discussion, focused on defining future requirements, highlights a core mission for USAF some feel was neglected for a number of years: strategic long-range strike operations—specifically, LRS in regional scenarios. The point has often been obscured in nearly 10 years of operating as a tactical force, said retired Lt. Gen. Robert J. Elder Jr., former 8th Air Force commander, at AFA’s LA symposium. The ability to hold a range of targets at risk from long distances—as during the no-fly-zone enforcement period over Iraq, Operation Allied Force in 1999, and in the early days of Operation Enduring Freedom—lies at the heart of USAF’s role as an independent service.



At Whiteman AFB, Mo., 509th Aircraft Maintenance Squadron crew chiefs move away from a B-2. Even 1980s-era B-2s need updated electronics for a “digital backbone.”



***A weapons load team moves JDAMs onto a B-52 at Barksdale AFB, La. One upgrade for the bomber will allow for retargeting of weapons during flight.***

The reinvigoration of nuclear operations at AFGSC has raised long-range strike's importance. "I can tell you, we've had a nuclear exercise every month since January," said Capt. Brian Nickerson, a copilot with Barksdale's 20th Bomb Squadron. "We will practice [checklists], get objectives, and practice them" some more, said Capt. Mike Maginness, an instructor pilot and EWO with the 20th BS. "Sometimes [we try] to make folks fail. ... The breadth of our mission sets us apart. We have to be nuclear experts, all the time, and meet other missions."

With flat budgets and creeping requirements, USAF leadership appears ready to embrace the historical innova-

tion of bomber crews in order to get to its next generation family-of-systems strike concept.

Speaking in Shreveport at the AFGSC symposium, Lt. Gen. Christopher D. Miller, the USAF deputy chief of staff for strategic plans and programs, said any future long-range strike capabilities will have to integrate new and old platforms together in future missions.

### **An Intentional Approach**

"Notice I did not say it must be explicitly capable or that it must be fielded from Day 1 with every capability we can imagine it will need," he added. He pointed to the B-1 and B-52 as examples of innovation in the

bomber force, noting they were both fielded with "substantial but incomplete capabilities" when they entered the force and have since undergone tremendous modification over the years to meet evolving threats. Early B-52 models were modified to become low-level penetrators of Soviet air defenses, Miller noted, and have since received new weapons and avionics.

Noting his own early career experience in fielding the B-1B, Miller said he was stationed at McConnell AFB, Kan., when the base was home to the nuclear-armed "Bone." "I never saw a conventional bomb or a conventional bomb rack on a B-1 at that time," he said. "It was purely focused on the nuclear mission."

Just a few years ago, he saw the same aircraft flying over Afghanistan providing close air support and integrating their Sniper targeting pods to aid ISR efforts—"a mission that we could not have imagined when we first fielded the airplane."

An "intentional approach" to upgrading and maintaining bombers over a long time is an essential part of how the Air Force thinks about a future family of strike systems, Miller added.

Col. John Vitacca, commander of the 2nd Operations Group at Barksdale, was saying aircrews have seen a steadily increasing operations tempo—when he



***Need a window pane for a 50-year-old B-52? It could mean cannibalizing one from a Stratofortress already retired to the Boneyard at Davis-Monthan AFB, Ariz.***





**A B-1B is escorted by a Navy F/A-18 Super Hornet after a close air support mission in Afghanistan. At right, a Barksdale B-52 lands at Andersen AFB, Guam, as part of the continuous bomber presence in the Pacific.**

paused to key his handset so he could speak with an aircrew taking off. "This place is very busy now," he said after clearing the aircraft. Bomber crews are working hard to balance strategic strike requirements with training and scenarios dedicated to real-world missions.

He noted a 36-hour November sortie by two B-52s to and from Jordan. The bombers flew round-trip from Louisiana to participate in a live aerial bombing demonstration with both Joint Direct Attack Munitions and Mk 82 iron bombs on a test range—also using the aircraft's targeting pod in the strike to gather and share information.

Long-range power projection missions are one of the B-52's core roles, he said, and should the President require



USAF photo by SrA. Christopher Bush

it, "we need to be able to spin up, fly out, drop weapons, and come home."

At the same time, crews are balancing nuclear training and deployments to locations such as Guam to practice other mission profiles.

The Guam deployments have "done several things," Ray said. They give bomber crews the chance to focus on flying in the Pacific, both conventional

practiced have great overlap between conventional and nuclear roles.

Away from home, crews can focus on flying without having to think about home station nuclear inspections, for example. "We are trying very hard with PACAF to make this a readiness bounce," Ray said. "You are not flying combat missions, like you would in [US Central Command], which means you can't train. ... Here [on Guam], you can train."

USAF's strategic bombers need to be ready for anything. At the command level, "to a large extent, we've been focused down," looking at establishing a command, "hiring people, establishing expectations, ... and putting our operating style into play," Klotz said. "However, we are the major command in the Air Force that has responsibility for deterrence and global strike operations." Global Strike Command must play its role in the larger corporate Air Force as the advocate for modernization and sustainment of global strike forces.

"We have created this command and focus on day-to-day operations," Klotz said. "Now we need to focus on the larger role, as a center of expertise on strategic deterrence."



**A B-2 undergoes maintenance after flying from Whiteman to Andersen. AFGSC's focus on the nuclear mission has raised long-range strike's profile.**