The RED HORSE Way

By Peter Grier

These USAF engineers are at the leading edge of one of the largest military construction efforts since Vietnam.

The Air Force’s elite corps of rapid deployment civil engineers is working miracles in Afghanistan, Qatar, Kyrgyzstan, and other austere locations that are the scenes of Operation Enduring Freedom and other US actions in the region.

They are the Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer, better known as RED HORSE, units.

These outfits have undertaken huge tasks ranging from the largest aircraft parking ramp project in history to renovation of living quarters at former Taliban bases in Afghanistan. They’ve repaired runways in blackout conditions and, at one forward base, laid enough gravel to build a road that would stretch from the Pentagon to Langley Air Force Base in the Tidewater area of southeastern Virginia.

With an estimated $100 million worth of projects under way at the end of 2002, RED HORSE squadrons are the leading edge of one of the largest military construction programs since Vietnam. “These are awesome accomplishments,” said Col. Fred Wieners, director of Task Force Enduring Look, an Air Force effort to document lessons learned in the war against terrorism. “What other country could go halfway around the world and do that?”

Consider the scale of the ramp project—the biggest single job a RED HORSE unit has ever undertaken.

In this venture, Air Force engineers from the 820th and 823rd RED HORSE units spent five months transforming a scrub-and-sand Gulf desert site into a paved airfield the size of about 20 combined football fields.

Members of the 820th, who deployed from Nellis AFB, Nev., and 823rd, from Hurlburt Field, Fla., and an assortment of other Air Force engineering personnel worked around the clock to finish the project early. The ramp—at al Udeid in Qatar—is some 44,000 square feet larger than the previous record holder’s ramp.
which was built by the 554th RED HORSE in 1967 at Phan Rang Air Base in what was then South Vietnam.

**Record Time**

“They built this thing [at al Udeid] in record time,” noted Maj. Gen. Earnest O. Robbins II, the Air Force civil engineer, at the Pentagon. “Outside contractors estimated it would take months.”

The project called for pouring more than 1,000 cubic yards of concrete every 24 hours. A typical work day saw movement of up to 350 trucks on and off the site.

“They actually had to build up this entire area by about three and a half feet,” said Robbins. “It was a rather incredible construction project.”

Besides the ramp, RED HORSE members built at the same base some 124,000 square feet of covered maintenance space and a new fire station, warehouse, four hangars, and a squadron operations facility. They laid 10,000 feet of conduit and built water-handling facilities for both fire-fighting and personnel consumption

RED HORSE units are the civil engineering SWAT teams of the Air Force. They are 404-person units whose mission is to move quickly to support special operations or contingency deployments worldwide.

They are trained to operate in high-threat environments with little or no contractor support, and they are so self-contained that they can deploy with their own weapons, equipment, and even food service and medical support if need be.

Their specialty is what Air Force officials have called “horizontal capability”—runway and ramp construction, maintenance, and repair. However, they are meant to be extraordinarily flexible, and they can do virtually all civil engineering tasks, from damage assessment to the erection of buildings on previously bare bases.

Some units possess special capabilities. These range from well-drilling to explosive demolition and quarry operations. In Fiscal 2003, plans even call for the addition of air drop capability to some squadrons, allowing them to deliver light equipment and personnel by air drop or other air transport means.

Current doctrine organizes the squadrons into four deployment echelons. The first has 16 persons who are capable of assessment and site preparation and ready to move within 16 hours of notification. The second—with 148 people—can be ready to deploy within 96 hours and adds heavy bomb damage repair and light base development to the capabilities mix. The third element—with 120 personnel—moves six days after notification, and the fourth—with another 120 personnel—moves two days later and brings a RED HORSE unit to full strength.

Four of the Air Force’s seven RED HORSE squadrons are active duty. The remainder are provided by the Air National Guard and Air Force Reserve Command. The latter are split units, with the two halves being located at different bases and
serving under different commanders. For example, the 200th RED HORSE, Port Clinton, Ohio, combines with the 201st RED HORSE, Fort Indiantown Gap, Pa., to form a full unit.

Vietnam Roots

The roots of RED HORSE are in the Vietnam era, when then-Secretary of Defense Robert S. McNamara asked the Air Force to develop an in-house combat construction capability similar to that of the Navy’s Seabees. RED HORSE was the result, with the first units deployed to Phan Rang in 1966.

Since that time, the squadrons—whose emblem is a snorting, armed red horse driving a bulldozer—have played a key role in Air Force contingency operations. In the 1991 Gulf War, for instance, a composite RED HORSE force drawn from a number of squadrons completed more than 25 construction projects at 12 different sites in the Gulf region.

Much of the work was in Saudi Arabia. At al Kharj, just south of Riyadh, RED HORSE personnel supervised the construction of a new air base capable of handling five fighter squadrons. They built berms to protect Patriot missile sites for the Army. RED HORSE was the result, with the first units deployed to Phan Rang in 1966.

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In the war on terrorism, the RED HORSE units have had a chance to really stretch their legs. The work the units have undertaken for Enduring Freedom has been perhaps their biggest challenge ever.

“Certainly in terms of magnitude, the size of the projects, their duration, these are the most sustained RED HORSE operations” since the 1960s, said Robbins.

Since the United States on Oct. 7, 2001, launched its attack on Taliban forces in Afghanistan, RED HORSE units have gone to a total of 26 sites in the region. At 12 of these bases, the units did actual construction. At 14 they did site surveys or other assessment work.

Some 1,400 RED HORSE personnel, from five different squadrons, have cycled through the Enduring Freedom theater of operations. Specialties most in demand have been those associated with runway work, which includes everything from concrete mixing to airfield lighting installers.

RED HORSE work for Operation Enduring Freedom can be essentially divided into two main categories, according to Air Force officials.

The first is the construction of new air capacity in expectation of future requirements. The construction at al Udeid is a good example of this. Air Force personnel have essentially created a giant new forward operating base in months—one that is the equal of facilities in Saudi Arabia.

Bomb and Build

The second is repair work on existing but decrepit facilities. A perfect example of this is Bagram, the main air base in Afghanistan. Built by the Soviets during their ill-fated Afghan occupation of the 1980s, Bagram suffered considerable damage during the brief allied campaign against the Taliban. RED HORSE was then charged with going in and rebuilding what 500-pound Air Force bombs had torn asunder.

US runways typically feature smooth and continuous concrete surfaces. The Soviet style, however, was to build in concrete slabs. In theory, this makes construction easier. In practice, upkeep becomes a nightmare.

“You have all these joints running laterally and horizontally,” said Robbins. “It is a constant maintenance problem to try to keep the airfield smooth.”

Each 11-by-13-foot concrete slab takes an hour or more to repair. RED HORSE teams—in conjunction with other USAF civil engineering units—repaired or replaced more than 2,500 of them.

“Allied forces had done a really good job of destroying that airfield,” said the top Air Force civil engineer.

At one point during this process, US commanders at Bagram decided the security situation was such that some of the repairs should take place at night, with the RED HORSE members using night vision equipment. Partly for this reason—and partly because it was a good training opportunity—the 200th/201st RED HORSE went out and successfully poured concrete in complete darkness, using only night vision equipment.

“That’s the first time we’ve ever done that, to my knowledge,” said Robbins.

The difficulty of this operation was compounded by the fact that the crew was using a deployable pavement repair system. This mobile concrete machine is designed for rapid repairs and thus produces only limited quantities of concrete quickly. It is a high-performance machine that is sensitive to such variables as the size of stone and quality of sand.

Yet RED HORSE used the deployable system for half their Bagram operations.
repairs—running it continuously for three months. In between the slab repairs, the units found time to reconstruct the base Air Force Village, build new showers and laundry facilities, put up several hundred feet of security walls, rewire the air traffic control tower, and pave a basketball court.

Installations from Qatar to Kyrgyzstan have received a similar, full-court-press RED HORSE treatment—all in a region where everything from the climate to the scarcity of local resources makes construction difficult.

“It has been a test unlike any that we have ever experienced,” said Robbins.

**Hard Rock**

In Qatar and other Gulf–side locations, the temperature can hit 120 degrees and humidity about 90 percent. In those conditions, Air Force construction personnel can only work about 30 minutes at a time before they have to take a break, and concrete does not pour well. The ubiquitous sand fouls work and machinery alike.

“Plus,” noted Robbins, “we learned that some of the hardest rock in the world exists over there.”

In the buildup to the 1991 Gulf War, contractor support was plentiful, as the US was operating with Arab allies and staging from some of the wealthiest nations in the Middle East. But Afghanistan and Pakistan are not Saudi Arabia or even Qatar. Much of the challenge to RED HORSE in recent months has come from operating virtually alone.

“In one instance [at an undisclosed location] we found one guy with one dump truck,” recalled Robbins. “He was the sum total of our contractor capability.”

This person performed valiantly in delivering aggregate, added Robbins, and became highly popular with the RED HORSE leadership. Overall, however, this problem represents one of the primary civil engineer lessons learned from the Enduring Freedom operation.

“Assumptions regarding host nation support are not always valid,” said Robbins.

Elsewhere, RED HORSE made extensive use of the Air Force Contract Augmentation Program. AFCAP allowed Air Force planners to go to contractors and simply say they needed a particular piece of equipment at a particular place and time. It was up to the private sector to find the equipment and ship it to the port nearest the location in question.

One reason service logisticians like this approach is that it often results in new, or nearly so, heavy machinery for Air Force use. Most service equivalents are old and in need of replacement.

“This gives us a way ahead,” said Robbins. “More and more we are looking at augmenting Air Force personnel with leased private sector equipment.”

**There Were Others**

The intensive OEF experience has also taught the Air Force that its reserve RED HORSE units are as capable as their active duty equivalents. And it has reconfirmed the fact that RED HORSE squadrons are only one part of the service’s civil engineering equation.

RED HORSE represents an “incredible capability,” said Robbins. It kicks down the door and readies locations for all that follow. Other services, however, have contributed to this effort in Afghanistan—notably the Seabees. And the majority of Air Force civil engineering personnel are not RED HORSE but members of Prime BEEF combat support units.

Prime BEEF, for Base Engineer Emergency Forces, has deployed to Afghanistan and other Middle East sites in the wake of RED HORSE to pick up maintenance and continued construction at key bases.

At Bagram, for instance, Air Force civil engineers drawn from four different units helped RED HORSE repair concrete slabs and installed a lighting system that allowed the field to go from a covert no-visible-light landing status to overt landings.

“Many are deployed for a long time,” said Robbins. “They are carrying a huge part of this load. It’s a total team effort.”

And that effort is invaluable to the war on terrorism as a whole. Task Force Enduring Look—the war on terror lessons-learned project—has listed the ability to provide base operations support early as key to the allied success.

“There is a tendency to want to put iron down first—those weapons we can use to do harm to the enemy,” Wiener told an Air Force News interviewer earlier last year. “But it is important to find that right balance to ensure your people can survive, so that they can operate. It is a difficult challenge, especially at austere basing, as we saw in Central Asia.”