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Photo by Keith Fred

Maj Gen Earnest O. Robbins II

FROM THE TOP

Evolving with the Aerospace Expeditionary Force

The Aerospace Expeditionary Force (AEF) came with a promise of deployments that would be predictable in both timing and duration. Air Force leaders are now trying to preserve that promise while accomplishing our current combination of crisis operations and steady state commitments. While the war on terrorism has caused a wrinkle in the AEF schedule, the system was designed to meet changing world crises and will continue to work as planned.

Our current global war on terrorism has an unknown, unpredictable duration. What does that mean for civil engineers? Prior to 9-11, AF civil engineers supported steady state deployed locations in support of Operations Northern Watch and Southern Watch. Since 9-11, AF civil engineer support to deployed locations has increased nearly twofold, which will continue to tap our resources. Personnel in forward deployed areas (Pacific Air Forces and U.S. Air Forces in Europe) will be rotated within their normal tour lengths. Those deployed in support of Noble Eagle and Enduring Freedom may be extended beyond the normal period of 90 days, depending on availability of personnel.

This is because in some civil engineer functional areas requirements exceed the available AEF forces. Right now we have four career fields that are stressed: power production, fire protection, explosive ordnance disposal and readiness. Some in those fields are staying deployed longer because there are insufficient forces in the particular AEF libraries to support all requirements and maintain future rotations. I am committed to finding solutions to relieve the stress on those fields.

Since requirements across several career fields exceeded the available AEF forces the Air Force implemented Stop-Loss. This bought us time to develop a plan to better match requirements and available forces. The good news is that most civil engineer career fields will be released during the next Stop-Loss review.

For those in the stressed fields, help is on the way in the form of additional airmen who normally don't deploy but will now be placed in an AEF library. The Deputy Chief of Staff for Air and Space Operations has recently revised posturing guidance for building additional Unit Type Codes (UTCs). As in the case of most other career fields, all civil engineer funded military positions will now be postured in deployable UTCs with the appropriate deployment codes, making them available for AEF taskings.

We also continue to address manpower shortfalls in the stressed career fields. Any increase has to be supported by a manpower study, and the Air Force Manpower and Innovation Agency is on a fast-track to identify total requirements for those fields. Increases, however, won't have an immediate impact on the current situation until we can get more accessions and get them properly trained.

Personnel shortages aren't our only challenge. We're also experiencing equipment and material shortages at some locations. The Air Force Contract Augmentation Program (AFCAP) has proven to be an excellent support tool. AFCAP is providing timely support in the form of equipment, supplies and materials for RED HORSE and PRIME BEEF teams.

Our most senior Air Force leaders are working the issues we face. The Chief of Staff has commissioned several studies through a special project office known as the Office of the Special Assistant for Expeditionary Aerospace Force (EAF) Matters. The office has a one-year charter to review current EAF management practices and address the challenges of supporting long-term engagements. Part of this will involve recommendations for aligning Air Force resources to ensure the successful evolution of the EAF.

It may take some fine-tuning as we continue through the AEF rotations, but the construct is solid. In time, we will overcome the challenges faced by our deployed personnel and our base civil engineers who must continue to operate and maintain our bases with a smaller work force.

Features

On the cover ...
Members of the 823rd RED HORSE Squadron level an area for construction of a new aircraft parking ramp while deployed in support of Operation Enduring Freedom. For more on the 823rd's ramp project, see story page10.
(Photo by SSgt Michael Gaddis)

Departments

Please send story ideas, articles, photos, comments and suggestions to **cemag@tyndall.af.mil**

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The Civil Engineer
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During the early weeks of Operation **Enduring Freedom**, the lack of air bases close to Afghanistan required a rapid civil engineer response to bring operators closer to the fight. In this interview with *Air Force Civil Engineer* magazine, we asked Brig Gen Patrick A. Burns, The Air Combat Command Civil Engineer, to discuss CE challenges and successes in bedding down people and aircraft across Central and Southwest Asia.

Supporting Freedom

AFCE: Since there was no build up period with this contingency, compared to the Gulf War and the Kosovo conflict, how prepared were civil engineers when the call came for rapid work in places most had never been before?

Brig Gen Burns: Fortunately, our Aerospace Expeditionary Force (AEF) construct had a portion of civil engineers and other expeditionary combat support pre-identified and poised "in the bucket" for deployment. And the core contingency beddown tasks we train for are universal regardless of where we deploy; it's primarily local conditions that make the tasks harder or easier. Also, we'd recently been able to take advantage of geospatial technology to do advance, remote planning to pin down site challenges before we actually deployed. So I'd say we were as prepared as we logically could have been given the surprising events of Sept. 11 and what our country called upon us to do in response.

Brig Gen Patrick A. Burns, ACC/CE & A-7

AFCE: Did having the AEF construct in place make this deployment different from previous contingencies?

Brig Gen Burns: The AEF construct really helped accelerate our ability at command levels to identify, alert and work with the units that were needed to respond to the contingency. The AEF Center did a superb job of juggling issues with the commands to meet the force sizes needed and match the best available expeditionary combat support.

From my personal experience, it was a marked difference from how we did Operations Desert Shield and Desert Storm. Not that we got forces to the fight faster, but the deploying units were ready to be called upon, so the impact on people and families was not a "bolt out of the blue."

The one capability I wish we had is airborne or air-droppable RED HORSE. There were several times when we would have liked to have had a small team of engineers and heavy equipment air-inserted into Afghanistan locations to make expedient repairs in order to land C-130s and C-17s. We were already studying the idea, but as a result of Sept. 11 we are now pursuing it aggressively.

AFCE: Is this idea based on Airborne Engineer Aviation Battalions in World War II?

Brig Gen Burns: Exactly — this is not a new idea. It's something that, in the past, we've had a requirement for. Historically, the Army has had this capability, although it hasn't been used a lot in the last decade.

The renewed interest stems from General [John P.] Jumper. When he was in Europe during the last contingency, they had a similar remote access requirement that could only be met with engineers inserted by air. When General Jumper came to Air Combat Command (ACC), he asked us to look at developing a "jumping HORSE" capability. We're seeing that exact type of requirement again during this contingency at several locations in theater, especially in Afghanistan and particularly for bombed-out runways. We bombed useable runways there to preclude the enemy's use, then we needed to go back in for military and humanitarian missions and re-establish the country's logistics capability and air transport. To get in we had to go either over land or air insert. We did it, but it was harder than it would have been if we'd had the airborne engineer capability.

AFCE: Has this requirement generated a renewed interest in rapid runway repair?

Brig Gen Burns: Yes, and in a dramatic way. If you look back in our history we haven't done any real rapid runway repair since Vietnam because we've never had the enemy threatening us on our own air bases, except for the Scud missiles during Desert Storm. The capability to do rapid runway repair on captured forward air bases as we occupy them is basically the same technology and the same engineer requirement. We just need to be a little lighter and leaner in how we do it — smaller, more transportable equipment, a smaller crew, and a faster response.

AFCE: How did Afghanistan's location and geography affect beddown efforts?

Brig Gen Burns: Afghanistan wasn't an area we had studied or had experience with geographically for potential contingency support. Since 1990, we had pretty much focused on Southwest Asia (SWA), then later on Eastern Europe. Of course the tragic events of Sept. 11 changed that, and our attention shifted to a new part of the world.

In SWA, we had been dealing with warm, flat deserts, and had developed host nation bases with considerable contract support capability. Suddenly, in Afghanistan and the surrounding countries, we were facing extremes in geography and climate with both deserts and mountain plateaus, hot, dry summers and bitterly cold winters with heavy snow. And the areas were remote, with limited water and other necessities — true bare base conditions in every sense of the word that had to be overcome.

AFCE: Has this contingency presented other types of unique challenges?

Brig Gen Burns: The folks at U.S. Central Command Air Forces (CENTAF), the ACC Crisis Action Team (CAT) and the AEF Center would probably tell you they had as many "unique" challenges as they cared to handle.

The earliest major challenge was the same one we've faced in every modern contingency — the "shooters" arriving before the engineers and the rest of expeditionary support could get there. That's hard to avoid, because the commander-in-chief wants true combat capability as soon as he can get it, and the airlift just isn't there to support moving everything at once. We recognize this shortfall as a service, but there just isn't enough money to solve it in the near term.

The second major challenge wasn't really "unique," it was almost a re-enactment of something we faced in Vietnam where local contracted "heavy construction" capability meant 20 laborers with shovels as their only "equipment."

Probably the truly unique part of this contingency has been the amount of unknown challenges — what "we didn't know that we didn't know" as we responded as rapidly as we could. Everything we can do on better "intel prep of the airfields" for future contingencies via GeoReach and other tools will really pay off.

AFCE: What have been the advantages of having a consolidated ACC/CENTAF Rear CAT?

Brig Gen Burns: CENTAF has a relatively small CE staff that deals mainly with contingency planning and sustainment of Operation Southern Watch. In the early days after Sept. 11, the beddown tasks would have been overwhelming if CENTAF didn't have immediate "reachback" support to respond to its needs.

ACC provided a key advantage in not only standing up the ACC CAT, but functional "backshops" like our CE Contingency Response Center (CRC) and LG's Logistics Readiness Center. This ensured key "experts" were immediately available in areas from aircraft parking plans and chemical and biological protection, to petroleum, oil and lubricants storage and distribution to provide quick-turn response to whatever CENTAF needed.

So I'd say the predominant advantage of our CAT and CRC operation was being able to lift a heavy planning "burden" off our CENTAF counterparts so they could have rapid, decision-quality information and focus on how to execute.

Also, we were able to execute in wartime as we've practiced in peacetime. The ACC/CE staff, through our SWA Delivery Cell, already knew the issues, challenges and current construction status for all initial beddown locations and was able to parlay that situational awareness into immediate, viable and relevant CENTAF support. Because the relationships were already in place, we were able to seamlessly augment, and then expand, the CENTAF CE staff without skipping a beat.

AFCE: What were some of the biggest problems CEs faced at deployed sites?

Brig Gen Burns: That's pretty easy to answer. Our engineers, as well as those of the other services, faced some of the most austere "bare base" environments in the "-stans" we've ever encountered. Things like worn out airfield pavements, no utilities whatsoever, and no sources of equipment or supplies within hundreds of miles. When you couple that with the typical iron flow arriving before the combat support forces as I mentioned earlier, the first 30 days at those sites were challenging to say the least.

For example, at one base we had almost 600 operational forces on the ground sleeping in a hangar for almost a month, with only one toilet that didn't work and whatever food and water they had brought with them. They were very happy when the first engineers and their Harvest assets showed up. They were in a tent city within a few weeks, no longer distracted by discomforting living conditions.

We also encountered runways that were falling apart after only a few aircraft passes, as well as runways we wanted to use but couldn't because we had cratered them

Maj Gen Earnest O. Robbins II, Brig Gen Burns and Maj Tim Fuller during a recent trip to Southwest Asia. ***(Photos courtesy ACC/CE)***

Brig Gen Mike Collings, ACC/LG, and Brig Gen Burns in a Blackhawk over Kuwait.

earlier in the conflict. So we couldn't just land C-17s to bring in heavy equipment to repair them.

My favorite was a location where we finally contracted with a local contractor to bring in 50 gravel loads a day to prepare an area for our tent city, only to find out he had only one truck, which had to be loaded and unloaded with hand shovels because the bed of the truck did not dump.

AFCE: Was it difficult bedding down a diversity of U.S. and coalition aircraft, including unmanned systems?

Brig Gen Burns: The combination of types of aircraft was easily manageable with computerized aircraft parking plan tools that both ACC and Air Mobility Command (AMC) have developed. The primary beddown challenge was really one of real estate availability — the old adage "location, location, location." There just weren't many easy choices for base locations and few with enough ramp space for all the aircraft CENTAF needed to bed down. As a result, our engineers found themselves laying AM-2 matting, carving out dirt parking spots and designing expedient apron additions to meet early beddown needs.

Later on we brought in RED HORSE squadrons to take on large airfield projects, including one ramp that is larger than any we did in Vietnam. The latter ramp was the size of 18 football fields. We used enough concrete and asphalt building that ramp to lay a sidewalk all the way from Langley Air Force Base to the Pentagon!

The other key part of the "location" challenge was the airfields we had bombed, as I mentioned earlier, that were mined from this and previous conflicts. Bringing them back to a usable condition involved not only U.S. Air Force civil engineers, but those from other services and coalition partners as well. At several locations you could find a Norwegian or Jordanian explosive ordnance disposal team clearing mines, an Army squad clearing debris, and RED HORSE working the actual crater.

Another aircraft beddown challenge was the lack of engineer relationships outside our normal area of responsibility. For example, Air Force civil engineers from Guam, Europe and the U.S. were dealing with French and British engineers not in Europe but in Afghanistan, which was a whole new ballgame. Coalition forces were acting outside the normal theater in which they've engaged before. The Army solved this problem in the Balkans by coming up with a combined engineer organization. For this contingency, we're not as integrated yet. This is something we need to do better as we're going to work more as a coalition force in the future around the world.

Brig Gen Burns signed this B-1 bomb on behalf of Air Force civil engineers during a recent trip to Southwest Asia.

AFCE: How are CEs on ACC bases adapting to the demands of Operation Noble Eagle, considering the current large-scale deployment of CE expertise and equipment?

Brig Gen Burns: We set up a process at ACC early on to attempt to track deployment impacts at every base by Air Force specialty code. Other commands probably did the same. We have enough experience as an Air Force to know that large-scale deployments aren't totally "painless." We thought the key was to identify where the impacts and risks are and try to work options to mitigate them.

For example, firefighters are a heavily tasked, low-manned career field. Early on we engaged the Guard and Reserve to backfill deployed fire protection teams. Similarly, we had a great response from individual mobilization augmentees who were able to provide key leadership and supervisory expertise at the bases, as well as expand our ACC/CE CRC to a 24/7 operation.

For the CE squadrons themselves, our guidance was to curtail large-scale work during the period they were "in the bucket" for AEF deployment, then surge the work

for the 8–10 months after their AEF taskings. We're just now getting the first units that deployed back to their home bases, so we'll see if that strategy works.

AFCE: How is GeoReach being used during ENDURING FREEDOM? Are there additional capabilities you would like to see GeoReach have for CE's purposes?

Brig Gen Burns: GeoReach really proved its worth early on. A couple days after Sept. 11, we were tasked to provide GeoReach planners to the Pentagon and assist Checkmate in remote assessment of potential beddown locations. The team we sent was able to do in 3–4 days what had taken 3–4 weeks to assess for prior Bosnia and Kosovo planning.

As CENTAF was given political options for bedding down aircraft, we relied on GeoReach analysis to tell us if those political options could be turned into viable physical beddowns. The ability to quickly evaluate potential personnel beddown and aircraft parking capacities and associated force protection options made GeoReach CENTAF's number one site viability planning tool.

I know of one specific case in which GeoReach analysis saved us from setting out on a basing option that might otherwise have been attempted and later aborted, had we not had the benefit of pre-commitment analysis. Don't get me wrong, there were other engineering and logistics planning tools used, but the ability to fuse the data and display it visually for commanders made GeoReach a real asset.

What we need to do with GeoReach next is populate it to U.S. Air Forces in Europe and AMC, then integrate other databases that can provide a more complete picture for beddown planning. We also need to think through a solution set for each of the theaters for the future so that we're not reacting to what's happened, but preplanning where we might be. With GeoReach "airfield intelligence" pre-positioned at, say, a 60–80 percent solution, we could pull that information up in 5 minutes rather than 3–5 days.

AFCE: What has been your personal philosophy in guiding your ACC/CE staff while they handle the dual challenges of both this contingency and their normal CE business?

Brig Gen Burns: My staff will tell you that I've tried to stimulate them every day to focus on the same three things I've felt for years are really important for individuals in an organization to understand for the long term.

The first is "*Attitude*"…your attitude not only affects how you feel about yourself, but it also influences the people you come in contact with. So I encourage everyone to do an attitude check twice a day — once when you start your workday with your coworkers, and a second time when you head home to your family. We all can be a lot more effective if we capture a positive attitude to guide us and the people we touch in our daily lives.

The second is "*Direction*"…by that I mean knowing where your boss and your organization is headed and how you personally fit in. That takes frequent communication so that your personal "course corrections" are in line with the corporate "vector" that your organization is launched on. It also means have a direction for your personal life and talk with your family to be sure you're on course with them as well.

The third is "*Teamwork*"…none of us got as far as we have by ourselves! We are more successful because we were able to accomplish as a team what no one individual could do alone. The same holds true for what a family holds important and pulls together to accomplish.

I appreciate this opportunity to discuss our civil engineers "supporting freedom." I just returned from two back-to-back 10-day trips to the ENDURING FREEDOM area of operations. I can tell you that all the airmen I came in contact with knew why they were there and were superbly proud to serve! I had the rare privilege during one base visit of signing a B-1 bomb — it was delivered that very night with the inscription: "Take This…From All Our Deployed Civil Engineers!"

CENTAF re-establishes CE function

On Feb. 15, 2002, U.S. Central Command Air Forces (CENTAF) stood up a civil engineer (CE) staff function separate from the logistics (LG/A4) office. Col Tom Ryburn, chief, Readiness Division, Directorate of The Civil Engineer, Headquarters Air Combat Command, Langley Air Force Base, VA, deployed to Prince Sultan Air Base in Southwest Asia to stand up CENTAF Forward "A7 Installations," dual-hatted as the Combined Forces Air Component Command A7.

According to Brig Gen Burns, this action was in response to the growing installation beddown challenges in the CENTAF area of responsibility, coupled with a massive increase in potential construction efforts, and is a repeat of how CENTAF Forward was organized in September 1990 when Col Karsten Rothenberg deployed as the CENTAF CE. The organization now mirrors how Fifth Air Force in Japan and Seventh Air Force in Korea are configured.

A COMBAT Fix

Combat Controllers, RED HORSE join forces to open Mazar-e-Sharif airfield

by TSgt Ginger Schreitmueller
AFSOC Public Affairs

When U.S. and Northern Alliance forces secured the area around Mazar-e-Sharif in late November, it signaled a victory for Operation ENDURING FREEDOM.

The move into the city meant access to one of three main airfields in Afghanistan. Despite securing Mazar-e-Sharif, the ability to begin flying operations out of the airfield would present its own challenges.

With massive bomb craters on the runway, an inoperable control tower, land mines and booby traps, the task would have seemed unconquerable for many. But, Air Force combat controllers and RED HORSE engineers turned a battle-ridden airstrip into a forward operating platform in a matter of days.

According to MSgt Bart Decker, a senior combat controller at the site, he and his team of fellow controllers arrived in the city after moving up the Balkh Valley with the Northern Alliance. Once the city was in Northern Alliance control, they turned their attention to opening the airfield.

"Our first obstacle was the fact the Taliban had placed booby traps all around the airfield," said Sergeant Decker. "Explosive ordnance disposal teams swept the entire area for munitions and booby traps. They spent days just blowing up all the unexploded ordnance and bombs left in and around the area. They also found a pipe bomb inside the control tower, which they said was the biggest they had ever seen."

Even with the pipe bomb removed, the tower was shattered and battered.

"The glass was blown out of the tower and the inside was stripped of every piece of equipment," said Sergeant Decker. "Even if we had all the spare parts and building materials readily available to repair the tower, it would have taken too long. We needed to get the system up and running to bring in U.S. forces immediately."

The controller determined the safest route was to establish tower operations from a remote setup. Using vehicles and portable radio systems, as well as portable lighting systems, the controller could conduct air traffic control duties.

Combat controllers are certified air traffic controllers who specialize in unconventional missions. They are uniquely qualified to set up small radar and communication sites anywhere in the world to guide aircraft for landing on makeshift runways without the benefit of a tower or large communications systems. Controllers provide command and control, intelligence gathering, surveying capabilities, limited weather observations and are qualified in demolition to clear obstructions and hazards from potential runways and landing zones.

But before Sergeant Decker could begin vectoring in aircraft he had to have a place to land them. Since the main runway was pitted with massive craters, the combat controller examined an alternate site.

"It was an old Soviet dirt strip, but after we conducted initial survey and assessment on the soil we determined it was not strong enough to withstand the weight of heavier aircraft," he said.

With the dirt strip below safety standards, Sergeant Decker had to find a way to get the pitted runway operational.

"At the start of the air campaign, U.S. and coalition forces had conducted a heavy

(Left)* MSgt Ron Westerfield measures a typical spall in front of one of the craters on the runway during the team's initial evaluation in November. *(Above)* MSgt David Cook *(in crater)* and MSgt Westerfield examine a typical runway crater. *(Photos courtesy 823rd RHS)

Afghan workers clear debris near a massive crater on the runway at Mazar-e-Sharif. Under the supervision of RED HORSE, the workers patched eight large craters on the runway.

The team was able to get a deployable pavement repair system on site in January. Pictured is SrA Cleofies White using a front-end loader to backfill the excavated crater.

bombing run on the airfield. The end of the runway had massive damage; about 4,000 feet was destroyed beyond repair," he said. "Fortunately, we still had more than 7,000 feet of runway we could use. However, that 7,000 feet included eight bomb craters that would need to be repaired."

The call came in for the Airfield Pavements Evaluation Team from the Air Force Civil Engineer Support Agency to evaluate the airfield and for the 823rd RED HORSE Squadron to assist in assessing the damage and then complete the repairs.

Without concrete or asphalt readily available in country, the controller wasn't sure how the engineers would make it happen.

"The coalition forces did a great job of denying the Taliban use of the airfield," said MSgt Ron Westerfield, 823rd RHS, Hurlburt Field, FL. "The runway was perfectly bombed, with craters spread out across the airfield."

The APE Team completed its initial evaluation of the runway Nov. 16, 2001, while the RED HORSE team did an initial assessment to determine how wide and deep each crater was, as well as what material and how much of it was needed.

According to Sergeant Westerfield, a 17-year RED HORSE veteran, repairing this runway was a Catch-22.

"With the runway damaged beyond use, there was no way to fly in the needed supplies to fix the runway. Additionally, the land bridge between Uzbekistan and Afghanistan was not open yet, so we could not bring it in by land," he said. "The best material to repair the craters would be asphalt, concrete and crushed stones."

Turning to local sources for the material and equipment also posed a problem.

"Afghanistan has been involved in war and conflict for years. The asphalt and concrete plants had long been destroyed," he said. "The stones were river-washed rocks, meaning they were rounded and, even when crushed, would move around in the crater like marbles under your feet — definitely not the material you want to land aircraft on."

Sergeant Westerfield spent a few days mulling over possibilities, then was approached by a local contractor who said he could fix the craters with local supplies.

"I was a bit hesitant at first," said the sergeant. "They had no heavy equipment and proposed doing all the work using local materials. I was not sure it would work, but we had to try something. (Sergeant Decker) needed 4,000 feet of usable runway to get the airflow in, and we were going to make it happen."

The process, though primitive, worked.

"It was amazing to watch," said Sergeant Westerfield. "They shoveled rocks into the back of small pickup trucks and drove out to the craters. Then they shoveled 2 inches of rock into a crater and pounded it down with hand tools."

In the meantime, 55-gallon drums of crude tar sat atop fires alongside the runway. As the tar boiled, crews took small pails and filled them with the boiled tar. They carried the mixture to the craters and poured it over the crushed rocks. The process was repeated until the craters were filled.

"When you think about the modern technology we use, [watching] as they did this all by hand, it was unbelievable. This process is more than 100 years old, and it worked," said Sergeant Westerfield. "It was like fixing it with bubble gum and Skittles."

The primitive process was a combat fix that would endure the weight of the aircraft — but not for long.

Continued on Page 11

'Ramping Up' an Air Base

RED HORSE builds MILCON project in Qatar

by SrA Matt Donegan
366th AEW Public Affairs

Two hundred and twenty thousand tons of rock, 1.4 million gallons of water and almost four months of labor have gone into the 823rd Expeditionary RED HORSE Squadron's military construction (MILCON) funded ramp project at Al Udeid Air Base, Qatar, and the main portion of it — the concrete laying — was complete at the end of March.

The $9.1 million project marks the first time airmen have been used to execute a major MILCON project since the Vietnam Era.

Equivalent in size to nearly 18 football fields, the ramp is the largest concrete construction project in 823rd ERH history and required more material than the squadron has ever used on a single concrete job, according to Capt Heath Duncan, officer in charge of the project.

It's also RED HORSE's first time using a slip-form paver, a piece of machinery that allows the team to put concrete down without having to use forms. The slip-form paver continuously extrudes concrete that is stiffer than conventional concrete and has a very low slump ratio. The machine also put in 69,000 tie bars that hold the slabs together. Without it, the job would have required twice as many people and taken 30 days longer than the month and a half already spent on the concrete portion of the construction effort, Duncan said.

During April the squadron, from Hurlburt Field, FL, wrapped up other tasks associated with the project, including laying asphalt, painting stripes for the taxiways and installing thousands of feet of lighting. The ramp was scheduled to open April 24 — a week ahead of schedule.

SrA Justin Soule, 823rd RHS, finishes the edge of a new 1,240-foot long concrete lane March 24 at Al Udeid.

SSgt Chuck Risinger, 823rd RHS, operates a slip form paver March 24. SSgt Wayne Skocelas makes sure the surface of the concrete has enough moisture to obtain the proper finish. On the ground, MSgt Bizzle Davis keeps steering sensors clear from debris. *(Photos by SrA Danielle Upton)*

Once the concrete was in place, a few of the dozens of shift workers could go home — some after spending more than 150 days deployed. Among the first group to leave was SrA Tim Buckley, who, like most of the crew, had been deployed since late October.

This is Buckley's seventh or so TDY since being assigned to RED HORSE — they've been so busy he's lost track of the actual number. However, he said he's never been a part of anything of this magnitude. He was involved in building a mile and a half of fence at Prince Sultan Air Base, Saudi Arabia, in 2000, but said the ramp project is more satisfying because of the size and the overall effect it will have.

"The Air Force mission is flying. We've built something that will be a vital part of that mission for years and

years to come," said Buckley. "There's a lot of pride involved knowing the impact this will have in the war on terrorism."

Long hours and minor setbacks, like machine failures, were some of the hardships SSgt Eric Sexton and the team faced during their time working on the ramp. Sexton summarized his feelings in a few words. "I'm glad to be wrapping it up," he said.

A1C Garfield Turner graduated from technical training in February 2001, then departed Hurlburt Field in October for his first deployment. He said he's learned a lot here, including the intricacies of the saw-cutter position he's filling now.

"I've had a lot of stick time on the equipment," he said.

Turner predicts he'll be here until May when the ramp is completed, but said it felt good to get the concrete done.

The RED HORSE team has laid more than 1,000 cubic yards of concrete per day since it began. There was a time when 350 trucks a day full of rock cycled through the area and front gate so the team could build up the entire 20 acre area by 3.5 feet.

There are many tasks involved in successfully building an aircraft ramp. From the guys who drive trucks back and forth from the two concrete batch plants (also built by RED HORSE), to the guys who smooth the finished product, fill holes or put in dowels, the team OIC said he thinks without a doubt that the RED HORSE ramp team includes some of the hardest working people at Al Udeid.

"I don't think anyone else even comes close," said Duncan. "Most of the guys on the crew are new and inexperienced. They've used new construction techniques, they're ahead of schedule and they've done an awesome job. The job needed to be done quickly, so Air Combat Command and U.S. Central Command Air Forces brought us in. The ramp looks great and it will be used to support operations for a long time."

A Combat Fix

Continued from Page 9

"Because of the type of rocks that were available, the process did not hold long," said Sergeant Westerfield. "After about two days of takeoffs and landings, the craters would begin to rut."

That didn't stop RED HORSE or the airflow. Sergeant Westerfield and his local runway repair team simply moved from crater to crater, filling and repairing the holes to make a stretch of runway usable.

The team completes the second and final pour on one of the craters and finishes the concrete. At center, above, is the Deployable Pavement Repair System (DPRS) with members refilling the material bins.

"They would fill in a crater and we would move all the portable equipment to that area and open air traffic," said Sergeant Decker. "In the meantime, the RED HORSE guys were fixing another section. When one area started to rut, they moved to the next area."

"It was not perfect; it was a Band-Aid on a bad wound," said the controller. "But, in the same breath, we kept the airflow coming in and ensured all the people and supplies needed to sustain the force made it in to Mazar-e-Sharif."

Making it all happen seemed improbable at the onset, but the controllers and RED HORSE did it in 10 days. With a makeshift tower and portable navigational and communication systems in place, Sergeant Decker brought the first plane into Mazar-e-Sharif.

Over the next few months, Sergeant Decker remained in Mazar-e-Sharif to support air traffic control operations. He and his fellow controllers also began the process of fixing and repairing the control tower so it could be turned over to host-nation controllers.

Meanwhile, Sergeant Westerfield and other horsemen from the 823rd shifted around the theater providing their combat engineering expertise to other runways, base camps and operating locations.

Editor's note: On Jan. 14, 2002, the 823rd RHS was able to get a deployable pavement repair system on site and perform more permanent repairs on the damaged runway, thus enabling a steady stream of C-17s to accomplish their mission in the area.

Explosives Site Planning — A Team Effort

Maj Gen Timothy A. Peppe
Air Force Safety Center

One of the goals of our Air Force Explosives Safety Program is to use the process of explosives site planning to ensure the safety of our personnel, the public and Air Force assets and facilities. Why? Because failure to do so could result in the inability of commanders to perform their missions.

Successful explosives site planning requires an active team effort between the weapons safety manager (WSM), wing civil engineering personnel and the user (e.g. munitions, logistics and others). I'd like to take this opportunity to highlight some areas in which civil engineering and safety can work to each other's benefit.

You may have noticed an increase in the number of explosives site plans being developed by your WSM over the past year. In addition to developing site plans to accommodate new construction and changes in mission requirements, your WSM is also generating new site plans for existing facilities and missions. This is driven by two looming Air Force-wide deadlines. The Department of Defense Explosives Safety Board (DDESB), which approves all violation-free explosives site plans, has mandated that the new requirements for Hazard Class Division 1.2.x explosives be incorporated into existing site plans by the end of FY03. In addition, the Air Force has agreed to re-site all the old "baseline," or grandfathered, site plans by the end of FY05.

Maj Gen Timothy A. Peppe

As you can imagine, we're talking about a lot of site plans being developed in the next several years — more than 5,700, in fact. We usually generate only about 400 a year Air Force-wide. In an attempt to help meet the site planning deadlines, we are in the process of implementing an automated explosives site planning software program at the majority of our installations. This new software is called ASHS, the Assessment System for Hazard Surveys.

ASHS uses a digital map and facility database as inputs, performs the quantity-distance calculations required based on the map and database information, and generates an explosives site plan map and an AF Form 943 (the site plan data form). These two outputs are the key elements of an explosives site plan.

Alas, as with any software program, the old adage applies – garbage in, garbage out. This is where you come in. As we implement ASHS at your base we need your assistance to ensure the map and database are accurate. In fact, we need to have an accurate map and database even for situations where we're doing site planning the old-fashioned "stubby pencil" way. Implementation of the GeoBase program will certainly help the situation where GeoBase and ASHS implementation are occurring simultaneously.

The safety community recognizes that there has been a revolution of sorts in the way the Air Force contracts for new facility construction. The emphasis these days is on providing contractors with performance measurements versus detailed contractual design requirements; and, there's always an incentive to get the money on contract as early as possible — use it or lose it. Unfortunately, these two imperatives have the potential to cause big problems if your resident WSM is not brought into the contracting process early enough.

A proactive WSM can help you ensure any design requirements necessary for explosives safety (such as lightning protection systems and blast-resistant windows) are incorporated into the initial contract. It's always cheaper to write the contract correctly the first time than to modify it. Another concern with new construction is the placement of the facility to ensure quantity-distance separations requirements are met. These requirements apply not only to explosives storage or operating facilities, but to *any* facility placed inside an existing quantity-distance arc.

AFMAN 91-201, Explosives Safety Standards, allows for a two-stage explosives site planning process for new construction. A "preliminary" site plan can be submitted just to ensure the proposed facility location will meet quantity-distance requirements. The "final" site plan can then be submitted once the design has matured sufficiently to provide the necessary facility drawings to show compliance with explosives safety requirements.

In case you're not aware of the requirements, DDESB approval of the final site plan is required before construction can begin. However, Secretary of the Air Force approval is required for all new construction that violates quantity-distance requirements.

So work with your WSM to start the explosives site planning process early enough to avoid any delays in your construction schedule. Now, here's a footstomper — if you have to make changes to the facility location or design,

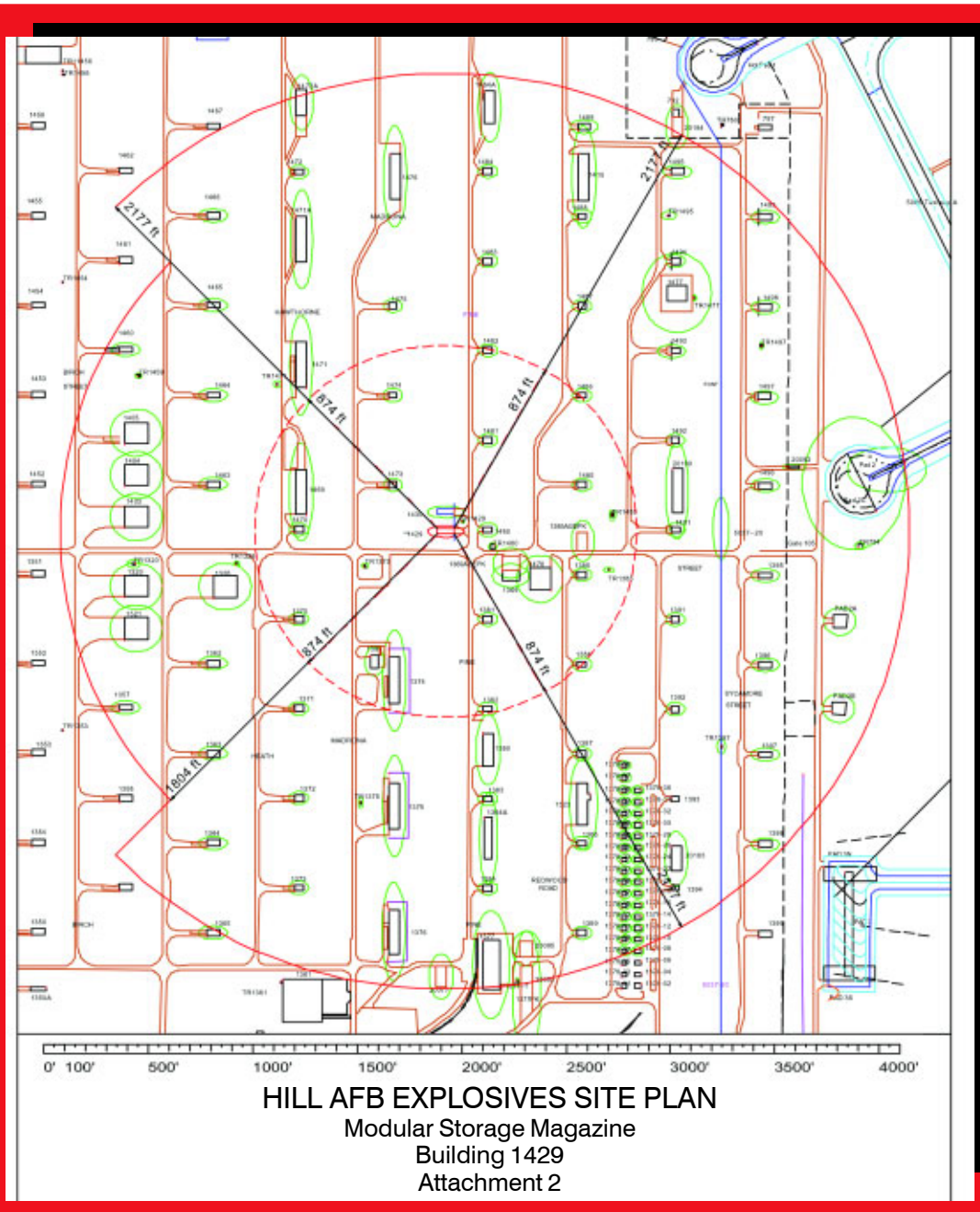
make certain they're coordinated with the WSM.

A final word on construction — if possible, for explosives facilities use a facility design that has already been approved by the DDESB. This will not only reduce the amount of paperwork required for the explosives site plan, but will also speed up the site plan review process. There is a list of DDESB-approved designs in their Technical Paper 15, Approved Protective Construction. You can get a copy of this paper through your local WSM.

One word of caution — deviating from the DDESB-approved design will invalidate their approval. The impact may be limited to submitting the necessary drawings and analysis to gain their approval, but it might also result in an inability to apply reduced quantity-distance criteria approved for the original design.

Again, explosives site planning, and the overall explosives safety program, is a team effort. Working together will ensure a smooth explosives site planning process, save money on construction contracts and, most importantly, ensure our commanders have the people and assets there when they need them to accomplish the mission.

Maj Gen Timothy A. Peppe was the Air Force Chief of Safety and commander of the Air Force Safety Center, Kirtland AFB, NM. He is now the special assistant to the vice chief of staff for the Air Expeditionary Forces, Headquarters U.S. Air Force, Pentagon.



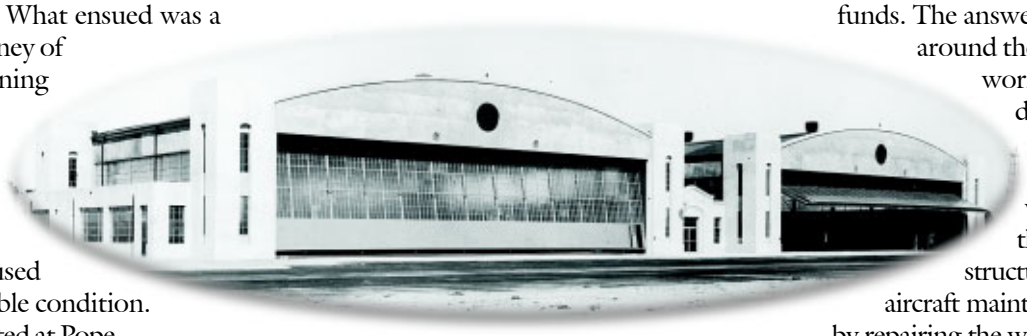
The explosives site plan map is used to graphically show relationships between the facility being sited and surrounding exposures. *(Courtesy AFSC)*

Broken Parts = Hangar Space

Funding the repair of an abandoned hangar

by Capt David L. Peeler, Jr.
23rd FG

Hangar 5, an historic landmark, sat dilapidated and unavailable for its functional purpose at Pope Air Force Base, N.C., for years awaiting someone to recognize its potential contribution to the mission. Then, last year, someone did. Pope's 23rd Fighter Group seized upon an idea to transform supply credits into much needed indoor hangar space. What ensued was a two-year journey of learning, planning and positioning. Ultimately, a contract was awarded to repair the unused hangar to usable condition.



The double hangar at Pope Field, circa 1934. Hangar 5 is in the foreground with door closed. *(Photos courtesy 23 FG)*

Constructed at Pope Field–Fort Bragg in 1933, Hangars 4 and 5 were a double hangar project. They were completed by a contractor at a cost of $175,590 and contained 45,476 square feet of floor space. Subsequent modifications added heat in 1957; and limited structural renovations over the years brought the square footage to its current 53,000.

The history of the two hangars diverged in 1975, when the Army decided to operate helicopters at Pope (the Army owns Pope AFB). Hangar 5 was converted to office space for helicopter mission personnel by anchoring modular sections within its bay.

The helicopter mission remained only three years, but the office space stood unused afterward. Between 1975 and the present, Hangar 4 remained operational for aircraft maintenance, while Hangar 5 stood unavailable. No appreciable real property maintenance had been performed inside Hangar 5 for more than 25 years, leaving it unfit for aircraft maintenance and in very poor condition.

Learning, planning and positioning

In 1997, Pope AFB control transferred from Air Combat Command to Air Mobility Command. The plan was to leave the 23rd FG, the Air Force's largest active duty group of A-10s, located at Pope temporarily as an ACC tenant on an AMC installation. However, in 2000 its location was made permanent. Once this determination was made, the 23rd FG began seeking ways to add to its six existing indoor maintenance bays. Hangar 5 was proposed to the host civil engineer squadron as a possibility to gain maintenance spaces and consolidate dispersed maintenance functions. CE responded that there were no other plans for the facility, and that use by the 23rd FG would be possible; however, no funds were available to design the facility's repair.

At this point the 23rd FG commander invited his comptroller to get involved and seek funds to repair Hangar 5. Thus began the education process. The immediate funding question dealt with the type of funds required; the proverbial "color of money" question. Both the design and repair work had to use the same "color" funds. The answer revolved around the type of work to be done. The objective was to return the existing structure to usable aircraft maintenance space by repairing the walls, doors, floors, hoists, offices, grounding and electrical components. Ultimately, the project included HVAC and, due to applicable code requirements for such repairs, fire suppression. Consultation between the comptroller and the CES programs chief, while referencing the applicable Air Force Instructions, determined that this project fell under the heading of repair. AFI 32-1032 states, "*Repair* means to restore real property and real property systems or components to such a condition that they may effectively be used for their designated functional purposes." Decidedly, the proposed project was repair; now, to definitely determine the proper appropriation. Again referencing AFI 32-1032, "Repair of facilities, or functional areas of multipurpose facilities, using O&M funds is authorized by 10 U.S.C. §2811. There is no limitation on the amount of O&M funds that may be used for repair, but there are approval and notification requirements, depending on the amount being spent." Approval and notification requirements are required on projects where the cumulative total exceeds $5 million — a total far beyond aspirations for this hangar.

CE estimated that an Architecture and Engineering (A&E) firm would charge $200,000 to design the needed repairs; so the 23rd FG set out to find funding sources. One immediate source was their own Repair Enhancement Program (a.k.a. Gold Flag) credits, generated by local repair of unserviceable parts. The 23rd FG com-

The "Hangar 5 team" consisted of Capt David Peeler and CMSgt Luis Burgos, 23rd FG; Mr. Karl Miller and Ms. Mary Linehan, 43rd CES; and Mr. John Howard and TSgt Patrick Boyd, 43rd CONS.

mander and comptroller devised a plan to split the design bill four ways with its parent units using Headquarters Ninth Air Force Commander Reserve Funds, Headquarters ACC matching funds, and 347th Wing contributions (the 23rd FG was re-aligned to the 4th Fighter Wing in June 2000). To the surprise of many, this resourceful plan came together and a design contract was awarded within four months. The funding plan was conceived in May; funds arrived from external sources in July; and the design contract award occurred in August 2000.

The design progressed throughout the fall, but stalled in February due to a pending headquarters decision on switching fire suppression systems from Aqueous Film Forming Foam (AFFF) to High Expansion Foam (HEF). HEF was decided upon in April. We awaited the decision because the HEF system cost $500,000 less than the AFFF. However, the delay ultimately prevented the project's inclusion on Pope's straddle bid submission, as it wasn't 100 percent designed and ready to advertise by the required April date.

In the meantime, the 23rd FG's Gold Flag program was amassing credits, providing a fall-back plan to the straddle bid process. At the end of the first quarter of fiscal year 2001, the Gold Flag shop had generated more than $800,000 in cost savings. By February 2001, the group had almost enough to fund half the repair project, which was then estimated at $2.3 million.

With the availability of Gold Flag credits for more than half the estimated project cost, the comptroller proposed a two-front funding strategy: fund one-half the Hangar 5 repair project using unit funding as leverage to get the other half funded via a major command (MAJCOM) split; and have the A&E firm design the project into phases. The latter being an inefficient method to accomplish the needed repairs, but a quicker route to returning the facility to usable hangar space rather than waiting for future, programmed funding.

No appreciable real property maintenance had been performed inside Hangar 5 for more than 25 years, leaving it unfit for aircraft maintenance and in very poor condition. Photos show eroded doorframe and wall damage inside Hangar 5.

Hangar 5's floor was converted to office space for helicopter mission personnel in 1975 by anchoring modular sections within its bay.

While both MAJCOM CE representatives were skeptical about the possibility of executing the contract with an estimated design delivery date of July 26, 2001, the team continued to do the advance work necessary to fund and award the contract.

When the 90 percent design review was accomplished in late June, the A&E design approach and the change from AFFF to HEF fire suppression had reduced the repair estimate from $2.3 to $1.6 million. Based on this, the 23rd FG quickly reassessed the viability of the two funding strategies employed, viewing the new, lower estimated cost as an opportunity to *either* fund the project outright with Gold Flag credits, if it came to that, *or* retain a portion of their Gold Flag credits to fund other mission requirements, provided the MAJCOMs were forthcoming with a fair share.

Bid solicitation closed August 29; previous performance checks were accomplished; and the legal review completed for a contract award on September 12. By priming the process, contracting completed the solicitation and award process — from receipt of design, funding already committed, to award acceptance — in only 35 business days.

Then more good news — ACC and AMC provided an equal sharing of $600,000 as a "rebate" for a portion of the $1.62 million in Gold Flag credits being obligated on the contract award, providing $600,000 for equipment needs previously deferred in the interest of increasing 23rd FG hangar space.

Something ventured, something gained

Mission gains that will be achieved by repairing Hangar 5: a 40 percent increase in the tenant group's indoor maintenance space; a 16 percent increase in overall Pope AFB indoor maintenance space; a 15 percent reduction in the 23rd Maintenance Squadron commander's span of control, consolidating his entire Operations Flight into a single location; and the potential to increase 23rd FG aircraft availability by three aircraft per month.

The 16-month adventure had come to fruition — returning an abandoned hangar and historic landmark to its status as a productive contributor to mission accomplishment.

Capt David L. Peeler, Jr. is the 23rd Fighter Group Comptroller, Pope AFB, NC.

A New Era For Small Arms Ranges

Lead contamination becomes a target

by Dennis W. Kirsch, P.E.
HQ AETC

Since portable firearms were invented, projectiles made from lead have been fired from them. Lead makes an ideal bullet — cheap, dense and easily worked. Only the bullet's accuracy and lethality mattered until recently.

The U.S. Environmental Protection Agency estimates that in the United States alone, more than 80,000 tons of lead is used each year to manufacture small arms ammunition. Much of this mass enters the environment at small arms ranges, raising concern about their long-term viability.

Many ranges now in use were constructed decades ago and were not designed to limit or contain the migration of lead into the environment and sub-surface groundwater aquifers. An estimated 2,000 military and civilian ranges have been closed because of lead-related environmental or health problems, or from fear of litigation over such problems. Control of lead hazards has become essential for continued range use, especially for law enforcement and military ranges that must protect their firearms training mission.

"The AETC range situation was a perfect example of 'spin-the-bottle' management," said Col Rusty Gilbert, the Air Education and Training Command Civil Engineer. "No group wanted to take responsibility for solving these problems because they were seen as someone else's. Meanwhile, the user, security forces, was left holding the bag because the base engineers were waiting for money — anyone's. We had to fix this goat rope."

Air Force personnel train at the small arms range at Randolph AFB, TX. Lead used to manufacture ammunition enters the environment at both military and civilian small arms ranges, raising concern about their environmental viability.
(Photos courtesy HQ AETC/CEV)

AETC formed a tiger team, including civil engineers, bioenvironmental engineers and security forces, to identify root causes of small arms range environmental contamination and health risks and formulate corrective and preventive actions. The team conducted interviews of range personnel in conjunction with on-site surveys of all ranges within the Command. The team also provided on-the-spot recommendations and guidance for correcting problems identified during their surveys. Following is a summary of the findings and recommendations of the AETC team.

Range Design

No two Air Force ranges are exactly alike. This design diversity makes elimination of existing range health and environmental problems difficult. Range designers formerly gave little consideration to environmental and health protection issues. In fact, the designs of some existing ranges contributed to health and environmental problems. Design of new ranges or upgrades to existing ranges should consider the following recommendations to ensure future mission achievement:

Ventilation: Many ranges have inadequate ventilation, possibly contributing to the exposure of shooters and range staff to airborne lead. Proper ventilation must be incorporated into the original design, as it is difficult and expensive to correct an inadequate ventilation system after the range has been built. The services of designers who specialize in the unique problems of range ventilation should be used during the design phase.

Drainage: If a range is exposed to storm water, lead and soluble lead compounds from fired projectiles can be flushed into the surrounding area, polluting soil and ground and surface waters. Therefore, runoff control and soil amendment must be incorporated into range design. Proper site grading, retention ponds and runoff filter beds can control lead transport. Ranges must never be located or designed to drain directly into natural surface water bodies. Acidic soils, especially if used for constructing earth berm bullet backstops, can cause corrosion of metallic lead, producing soluble lead compounds. Amendment of range soils with crushed limestone or other materials to achieve a pH of 7 to 8, and lead precipitants, such as phosphates, will eliminate the spread of lead corrosion products. Indoor range floors should not be provided with floor drains that will allow contaminated floor-washing wastewater to escape. HEPA vacuuming, damp mopping, or use of a floor-washing machine are preferred for range floor cleaning, using approved procedures.

Sound Control: Weapons firing in enclosed or partially enclosed ranges can produce excessive noise levels that threaten hearing, even if ear protection is used. Unpainted range walls made of ordinary concrete blocks absorb sound well, and there are special acoustic concrete blocks manufactured for this purpose. Bare block walls should not be painted, as this destroys their sound absorbing properties.

Floors: Pea gravel range floors are common but undesirable. Bullets can ricochet at high angles from gravel, creating a safety problem. Also, gravel can become contaminated with lead particles. This makes cleaning impossible and also makes eventual disposal of gravel costly as a regulated waste.

The new Air Conveyor System (ACS) currently being tested at Randolph AFB. The ACS replaces bullet trap receptacles with a vacuum system that removes bullet residue to a sealed drum as it is produced.

Smooth, sealed concrete floors are preferred, as they are easily cleaned and do not produce high-angle ricochets.

Maintenance: Ranges should be designed to facilitate maintenance. If a steel bullet trap is to be used, generous access space behind it should be provided. Ranges also should be designed to allow entry of heavy maintenance equipment, as appropriate.

Exposure Control: Electric-powered target carriers should be provided as they greatly reduce personnel exposure to lead-contaminated downrange surfaces and also eliminate the time wasted in walking back and forth from the firing line to check or replace targets.

Bullet Traps

Steel Traps: Many Air Force ranges use steel bullet traps. Impact with a steel trap bursts the bullet, generating lead dust and fragments that contaminate the area around the trap. Cleaning of steel traps requires periodic emptying of bullet capture receptacles, possibly exposing range personnel to lead dust. A new Air Conveyor System (ACS) is currently being tested at Randolph Air Force Base, TX. The ACS replaces these receptacles with a vacuum system that removes bullet residue to a sealed drum as it is produced. This reduces trap cleaning cost and frequency and decreases personnel exposure to lead.

A roof extending at least 5 feet in front of the trap should cover steel bullet traps located outdoors. The roof helps prevent storm water contact with the high concentration of lead dust on the floor.

Earth Berms: Earth berm backstops are environmentally acceptable if properly designed, constructed and maintained. Fired bullets can accumulate excessively in the berm, causing ricochets. When this occurs, the backstop soil should be excavated, screened of bullets and replaced. This is consistent with EPA range guidance, and does not require a permit if the recovered bullets are recycled for metals recovery. Adding covering soil when a berm is overloaded with fired bullets is expedient but not recommended, as it will create future range maintenance and environmental problems. Certain polymer soil additives and some plants are effective in reducing berm erosion. A roof covering the berm can limit storm water exposure and erosion, as well as ricochets.

Other Traps: There are many other bullet traps now on the market, the most popular being a rubber media trap. This is essentially a berm made of chopped rubber tires. Reports on the suitability of this trap tend to be negative in high-usage environments.

Lead-free ammunition (LFA) in 5.56mm and 9mm calibers is now used for training at over seven Air Force ranges. The bullets are made of nylon filled with copper and tungsten. The 5.56mm bullets are jacketed and 9mm bullets are unjacketed.

The U.S. Army has experimented extensively with shock-absorbing concrete (SAC) as a bullet trap. SAC is a soft concrete capable of absorbing multiple bullet impacts, and it can be recycled when it has reached its holding limit. Evaluation of this technology is incomplete. The environmental and health advantages proposed for these traps include better bullet capture while minimizing lead corrosion and dust generation.

Getting the Lead Out

If lead is eliminated from ammunition, lead-related health and environmental problems vanish regardless of range design. Non-toxic Lead-Free Ammunition (LFA) in 9mm and 5.56mm calibers from commercial manufacturers is now used for training at over seven Air Force base ranges, with more to be added soon.

These bullets are made of nylon filled with copper and tungsten. For training, LFA functions in unmodified weapons exactly as ball ammunition does. LFA is more expensive than ball ammunition, but reduction in personnel exposure to lead, plus cost savings from reduced range cleaning, largely compensates for its increased cost.

LFA technology is advancing rapidly due to demands from military services and civilian law enforcement agencies. Future use of less-expensive materials and larger-scale production will lower LFA ammunition cost substantially.

The Air Force is moving rapidly toward broader adoption of LFA, while developing new range design guidance to address current environmental and health concerns from the use of conventional ammunition. This combined approach will force a re-evaluation of range design and operations to better manage lead hazards.

Dennis W. Kirsch is an environmental engineer in the Environmental Quality Branch of the Environmental Division, HQ AETC Directorate of The Civil Engineer, Randolph AFB, TX.

Steamed-Up About Savings

Decentralization results in a model M&V plan

by Lt Col Carl J. Wouden, PhD
HQ AMC

Fairchild Air Force Base, WA, has teamed with Honeywell Energy Services under the Energy Savings Performance Contract (ESPC) umbrella and signed a performance-based contract that will save the government more than $34 million over the next 20 years. The plan is to replace Fairchild's old centralized steam plant with high-efficiency, low-maintenance, localized boilers that have fewer operating expenses and allow less energy loss.

Additionally, the measurement and verification (M&V) plan developed for this project could likely set the standard for such efforts in the future.

Making the Switch

Seventy-nine buildings will be disconnected from Fairchild's aging central steam plant and 110 high-efficiency, natural gas, low-pressure, steam and hot water boilers installed (5 large, 93 medium and 12 small). The switch will capture and divert energy and operational savings from the old, high-maintenance, high-pressure steam plant and its associated supply and condensate return lines. The new boilers are guaranteed to collectively have post-installation thermal efficiencies equal to an average of 85 percent or better throughout the 20-year life of the contract.

The energy team at the Air Force Civil Engineer Support Agency, Tyndall AFB, FL, was instrumental in determining natural gas utility rates to be used throughout the term of the contract. In the short term, these rates are known due to existing contracts. Annual rates thereafter were estimated using National Institute of Standards and Technology escalation projections. Utility rates were specified as "firm" for savings calculations throughout the term of the contract.

Measuring & Verifying

The plan to reliably and economically measure and validate savings was a challenge. Since savings fund the project, which includes M&V expenses over the life of the contract, M&V expenses should be kept as low as possible. If the cost of the M&V plan is a significant percentage of the contract, then the plan limits the infrastructure improvement opportunities available from the savings.

Normally these calculations are the most difficult part of a performance-based savings contract. AFCESA addressed this issue by proactively establishing a contract with Texas A&M University to provide third party M&V expertise. Agreement on a workable solution for this project came quickly — the result of planning M&V considerations early in the contract process along with AFCESA guidance and expert consulting support from Texas A&M. The template that evolved could likely set the standard for decentralized retrofits.

The Measurement & Verification Plan

An M&V plan is essential to verifying that all guaranteed energy savings actually exist. The development team for the Fairchild project came up with a four-step M&V plan that provides an effective model for decentralizing central heat systems at minimum overhead expense.

Step 1: Establish the current spending baseline. The baseline year was established by using year 2000 boiler plant data. A linear regression fit of the year 2000 data was used to compare multiple past years, which confirmed that the year 2000 was a representative baseline.

Step 2: Install new equipment and establish a boiler efficiency "baseline." Natural gas meters will be installed for each facility. Prior to commissioning acceptance, all newly installed boiler thermal efficiencies will be measured, summarized and documented to ensure they are working as expected. Boiler efficiency measurements will be per American Society of Mechanical Engineers (ASME) Power Test Code 4.1 (PTC 4.1) requirements. All meters will be read at the beginning of year one, establishing the "start point" or "zero point" from which all successive meter readings will be taken.

A bird's eye view of steam plant building 2175 at Fairchild AFB. A central steam plant has only an 84 percent thermal efficiency (lots of heat energy goes up the smokestack). By the time steam reaches distant buildings, its thermal efficiency drops to around 55 percent. ***(Photo courtesy 92nd Civil Engineer Squadron)***

Teaming Up for Savings

Contract signing occurred in December 2001 and construction is underway. The project was truly a collaborative effort, which included Fairchild AFB (engineering, operations, contracting, energy management), AFCESA, Headquarters Air Mobility Command and Honeywell. Special thanks go to TSgt Mike Gilbert, contracting officer; Tom Sullivan, PE, contracting specialist; SMSgt Jerry Barnes, HQ AMC; Bill Turner, PE, Fairchild energy manager; Mike Cross, PE, AFCESA engineer; Dr. Charles Culp, PE, Texas A&M University project consultant; the Honeywell Energy Services Development Team led by Mike Paesani and Sylvia Berry-Lewis, Honeywell M&V specialist.

All parties involved feel the satisfaction of a win-win conclusion to a successful project development. Now the work begins. The savings will be significant.

Lt Col Wouden is the command energy manager for HQ Air Mobility Command, Scott AFB, IL, and was a team member on this project.

ESPC Help Line

The AFCESA energy team conducts monthly "call me" conference calls to discuss concerns and solutions for bases interested in Energy Savings Performance Contracts. This service is provided for Air Force contracting, civil engineer, legal and financial management personnel.

ESPC satellite training classes are also being offered this year. The next class is scheduled for Aug. 20, and the sign-up deadline is July 15. More information is available on the ESPC page on AFCESA's web site (www.afcesa.af.mil) or by calling DSN 523-6236, or commercial (850) 283-6236.

Step 3: Determine compliance at the end of 12 months. During year one, the individual gas meters for all 79 buildings will be read each month. At the end of 12 months, consumption will be totaled and weather-normalized. Baseline data will also be adjusted if square footage associated with the 79 buildings has increased or decreased. Compliance with the first year guarantee will be determined by subtracting post-installation, weather-normalized gas consumption from baseline weather-normalized gas consumption. Annual savings will be multiplied by the "firm" unit cost of natural gas to determine annual dollar savings.

Step 4: Establish the representative set for future compliance. Given that year one savings have been met, a baseline efficiency measure will be established for a representative set (sample set) of boilers. Efficiency measurements will be taken from the sample set, which will consist of all five large steam boilers, 10 medium-sized boilers and one small boiler chosen by Fairchild AFB.

Results from the 16 boiler efficiency measurements will be used to calculate a British Thermal Unit (BTU) overall Weighted Average Efficiency (WAE). The BTU WAE value for year one will then become the baseline efficiency. In each subsequent year throughout the term of the contract, a 16-boiler sample set selected by Fairchild AFB must meet or exceed this baseline efficiency in order to meet the savings guarantee.

The yearly guarantee will be satisfied if the sample set WAE equals or exceeds year one WAE, assuming year one metered results satisfy the energy savings guarantee. If the guaranteed savings are not met, the contractor's annual payment is adjusted to compensate for the shortage.

WAE is calculated as follows:

Determine the BTU weighted efficiency of each measured boiler by multiplying the measured efficiency (ME) by the boiler BTU capacity divided by the sum of the BTU capacities for all same size category boilers in the sample set.

Determine the Average Efficiency (Al, Am, As) for each category by summing all weighted efficiencies for all measured boilers in each size category.

Determine the overall BTU WAE by summing the Average Efficiency of each category multiplied by the total BTU capacity of all boilers in each category divided by the total BTU capacity of boilers in all categories.

Summary examples:

Al = sum of: ME * measured boiler BTU capacity/total large sample set BTU capacity.

Am = sum of: ME * measured boiler BTU capacity/total medium sample set BTU capacity.

As = sum of: ME * measured boiler BTU capacity/total small sample set BTU capacity.

WAE = Al * total BTU capacity of large boilers/total BTU capacity of all categories +

Am * total BTU capacity of medium boilers/total BTU capacity of all categories +

As * total BTU capacity of small boilers/total BTU capacity of all categories.

Note: The data from the commissioning set of efficiency tests will be retained and included with the annual sample set boiler efficiency calculation. In general, either Fairchild AFB or Honeywell Energy Services, the Air Force Region 5 Energy Savings Contractor responsible for ESPC development at Fairchild, retains the right to request additional boiler efficiency tests at the requestor's expense. The base will select the additional boilers to be tested. All instrument calibrations will be verified prior to taking measurements.

This plan promises to be an excellent means of assuring the savings guarantee with minimal measurements and worry about weather and floor space normalization. Baseline adjustments will only be made for performance year one where metered data is being used to determine if the guarantee has been met. M&V costs are less than one percent of contract investment costs — substantially under the costs allowed in the International Performance Measurement and Verification Protocol (IPMVP-2001) from the Department of Energy.

Splitting Channels

A new mandate calls for narrowbanding civil engineer radio systems

by Fred Nehrings and Dave Mathews
HQ AFCESA

Air Force civil engineers across the continental United States are facing the fiscal and technological challenge of upgrading or replacing most of their current base radio systems over the next three to five years. This replacement program will bring Air Force civil engineer radio assets into compliance with federal narrowband requirements, which will provide more frequency channels for new and emerging wireless technologies.

The Radio Spectrum

Wireless radio-based systems transmit and/or receive voice or data signals across the radio frequency spectrum. The radio spectrum is that portion of the electromagnetic spectrum that can effectively transmit and receive radio waves.

Unlike oil, natural gas and coal, the electromagnetic spectrum is a renewable natural resource. If every radio user were to stop transmitting, the entire spectrum would be instantly available for other users. On the other hand, when the number of transmissions exceeds the capacity of the frequency band, interference occurs. This interference reduces the amount of useful information transmitted and received.

In developed areas of the world, there is constant pressure to regulate the radio spectrum to make room for additional users. Not only are there more users seeking existing services, but there are also new services that require additional radio spectrum. These new and different services are placing a heavy demand on radio spectrum — greater than previously envisioned.

In the United States, two federal government agencies are responsible for spectrum allocation (i.e., frequency channel assignments) and system specifications. The Federal Communications Commission (FCC) regulates radio spectrum for all non-federal government use, including aeronautical and maritime mobile services. The National Telecommunications & Information Administration (NTIA) regulates spectrum used by agencies of the federal government, including the Department of Defense.

Nearly all civil engineer radio-based systems, such as the Monaco Enterprises BT2-3 fire alarm transceiver radio unit being examined by A1C Lance Carson, 325th CES, Tyndall AFB, FL, above, will be impacted by the NTIA narrowband mandate. *(Photos by Dave Mathews)*

The History of Channel Splitting (i.e., narrowbanding)

Back in the 1940s, frequency channels were spaced every 120 kilohertz (kHz). Advances in radio technology and the limited number of available frequency channels resulted in the first split of 120 kHz channel spacing to 60 kHz. As technology continued to advance and the type and number of radio-based systems increased, channel spacing was again split in half to 20–30 kHz depending on the frequency band that was overly congested. This allowed four or more additional usable frequency channels to be placed in the same 120 kHz that previously accommodated one. Four times as many users could be handled, thus dramatically increasing radio spectrum utilization. This phenomenon is called channel splitting and has been used extensively to support wireless radio-based technology growth.

In parts of Europe, channel spacing has been further reduced to 12.5 kHz. This narrowing of channels has required a number of transmitter and receiver technology enhancements in order to prevent interference with adjacent frequency channel users.

The Narrowband Mandate

The United States is following Europe's lead. In order to increase the number of frequency channels available to new and existing users within the United States and its possessions (US&P), the NTIA has mandated the decrease of channel spacing from 25 kHz to 12.5 kHz. The NTIA narrowband mandate also decreases the maximum occupied bandwidth that a signal can have from 16 to 11 kHz. By decreasing channel spacing and occupied bandwidth, the number of frequency channels that can be assigned to radio frequency users doubles.

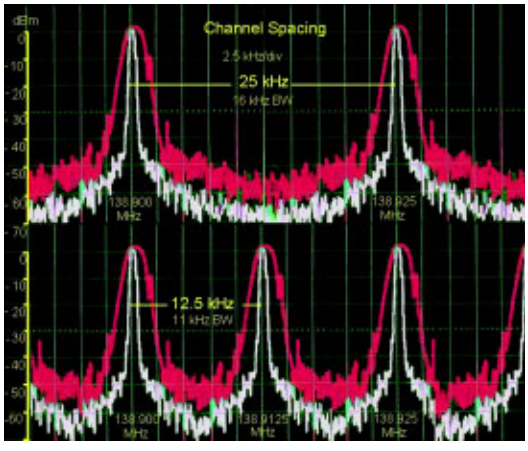
The NTIA narrowband mandate requires all federal users of the radio spectrum to convert to narrowband technology by the following deadlines: (Again, this NTIA narrowband mandate applies only to federal users of the radio spectrum within the US&P. Installations outside the US&P must comply with host nation frequency regulations.)

- 162-174 MHz VHF Band — Legacy systems must be converted by Jan. 1, 2005
- 138-150.8 MHz VHF Band — Legacy systems must be converted by Jan. 1, 2008
- 406.1-420 MHz UHF Band — Legacy systems must be converted by Jan. 1, 2008

The only exceptions are military radio systems used for tactical and/or training operations and existing command destruct systems in the 406.1–420 MHz band. These systems are exempt from the NTIA narrowband mandate. *There are no other provisions for waivers, deviations or delayed implementation.*

CE Systems Affected

Nearly all active duty, Air National Guard and Air Force Reserve wireless radio-based systems used for sustaining base operations on a daily basis are impacted by the NTIA narrowband mandate. Some of these systems may include, but are not limited to: fire and security alarms, land mobile radios, HVAC systems, industrial controls, remote barrier controls, refrigeration systems, bird aircraft strike hazard systems, utilities (EMCS — energy monitoring and control systems and SCADA — supervisory control and data acquisition), giant voice public address systems, runway ice detection, irrigation systems, load management switches, emergency generators and command destruct systems.



This graph represents 25 kHz and 12.5 kHz channel spacing. ***(Courtesy HQ AFCESA)***

Other functional areas that may feel the impact include unique wireless radio-based systems used by hazardous materials, wildlife preservation, natural resources and readiness personnel. As you can see, civil engineer radios encompass a wide range of technologies beyond land mobile radios and "bricks" (portable two-way radios).

Help is Available

The Air Force Civil Engineer Support Agency at Tyndall Air Force Base, FL, established a Narrowband Compliance Help Desk Oct. 1, 2001, to assist major commands with and provide Air Force-wide oversight for converting civil engineer owned, operated and maintained wireless radio-based equipment to narrowband technology.

Help Desk personnel are providing technical and programmatic assistance to major command and base civil engineers in order to meet the NTIA mandate. The Help Desk operates from 8 a.m.–4 p.m. CST and will be the focal point for most radio-based systems and solutions. Help Desk personnel will contact the major manufacturers of civil engineer equipment for narrowband compliance information, replacement parts, upgrade kits, approximate costs, etc. and disseminate the information to major command headquarters and installations.

The Help Desk has also implemented two automated tools for major command and base civil engineer use: an on-line registration page for narrowband points-of-contact and an on-line database for capturing all radio-based equipment owned, operated and maintained by Air Force civil engineers. In addition to these useful tools, numerous hyperlinks to reference material are available for viewing and downloading. These tools can be accessed on AFCESA's secure web site at: https://wwwmil.afcesa.af.mil/Directorate/CES/Mechanical/NarrowBand/default.htm.

Fred Nehrings and Dave Mathews are project engineers at HQ AFCESA, Tyndall AFB, FL, and members of the Narrowband Compliance Help Desk team.

819th RED HORSE

Flocks to Sheppard

by Capt Ryan J. Novotny
819th RHS

Time and training stop for no one. Especially at Sheppard Air Force Base, TX, where T-37s and T-38s fill the runway and the sky training the next generation of Air Force pilots. Training is inherently dangerous, and when mishaps occur the 82nd Civil Engineer Squadron fire department screams onto the runway to save the day. Unfortunately, if an incident occurred on the outer apron or northeast edge of the runway, their crash response vehicles might not reach pilots in jeopardy fast enough.

The Air Force standard for crash response is under 3 minutes to any part of an airfield for unannounced emergencies. At Sheppard, fire trucks leaving from the main fire station next to the control tower took almost 6 minutes to reach the outer apron and northeast edge of the runway. In an attempt to meet the Air Force requirement, fire trucks would patrol access roads from an alert area near the center of the airfield. Practice crash responses averaged 5:42 to the outer runway and 5:15 to the parking apron at the second busiest military airfield in the world. Sheppard needed a new fire station and quick.

The 819th RED HORSE Squadron from Malmstrom AFB, MT, was ready for the challenge. Plans called for the unit to leave the first week of October 2001, but the events of Sept. 11 froze the team in place awaiting word from higher headquarters.

"We were ready to go to Sheppard, but now we just wanted to join the fight," said SSgt William Brookins, 819th RHS structures craftsman. By the middle of October the project was back on and the team headed for the Lone Star State. Twenty-six craftsmen traveled the 1,600 miles to Wichita Falls, TX, excited to begin the new project.

Clockwise from top: The team screeds concrete footers and foundation; SSgt Pat Bowles *(left)* and MSgt Mike Miller *(right)* discuss techniques for reinforcing the building footer form prior to placing concrete; SSgt David Rhodes cuts interior siding to length; SSgt Bob Ward *(left)* and A1C Donald Mizell work on building mezzanine; a crane is used to lift the building center beam into place.

The team digs earth formed footers for the building foundation.
(Photos courtesy 819th RHS)

The mission at hand was to construct a pre-engineered building (PEB) with specialized overhead doors, overhead water fill stands, storage areas, a clean room and a reinforced concrete foundation capable of supporting the weight of 78,000-pound fire trucks.

"This building gave us opportunities to train on a lot of different wartime tasks," said MSgt Mike Miller, the team's project manager. "We'll be using them soon."

The team completed the building for about $367K, more than $80K under the base's estimated cost of $450K. Construction took 67 days to complete from ground breaking to ribbon cutting. That kept the team away from home during the Thanksgiving holiday, but the crew was happy to be working. "It's a great feeling to help in maybe saving a pilot or firefighter by just doing your regular job," said SSgt Chris Los, 819th RHS electrical craftsman.

The new Auxiliary Fire Station stall completely resolves the crash response deficiencies at Sheppard AFB. "The station eliminates line standby, which disrupted day-to-day fire operations," said Jeff Sukalski, Sheppard Fire Chief. "Fire station 3 will let us manage our day-to-day training, making the department more efficient," he said.

The new Auxiliary Fire Station truck stall increases the safety factor for both pilots and fire department personnel. This building will save millions of dollars in Air Force assets, and more importantly lives.

"The response coverage improved drastically," said Sukalski. Crash response time to the end of the runway has been cut in half to almost 2.5 minutes and the fire department has a new home at the end of the runway.

To The HORSE!

Capt Ryan J. Novotny is a civil engineer project officer at the 819th RHS, Malmstrom AFB, MT, and was the deployed commander of the team.

Deployed Firefighters
Practice Life-Saving Skills

by MSgt Bill Lincicome
40th Air Expeditionary Wing Public Affairs

An explosion rocks the flightline during a routine maintenance operation aboard a C-17. Three maintainers are missing. Others report the emergency to the command post. Within minutes, firefighters are on the move, racing toward the scene to save lives and fight the raging fire.

That was the scenario for an emergency exercise held at a deployed location supporting Operation ENDURING FREEDOM recently. Although the situation described above didn't really happen, the 13 members of the 40th Expeditionary Civil Engineer Squadron Fire Department roared into action as if it were the real thing.

The exercise tested the abilities of firefighters with a C-17 aircraft, explained SMSgt "Milo," the fire chief. They train each month on all assigned aircraft to make sure they're familiar with entry procedures, aircraft shutdown and aircrew extraction.

Most of the firefighters are deployed from Seymour Johnson Air Force Base, NC. Milo, the only firefighter deployed from MacDill AFB, FL, said the exercise went extremely well.

"Firefighters positioned vehicles to cover rescue crew members entering the aircraft while deploying hand-lines from vehicles to fight the simulated fire," he said.

The firefighters are coping with the real-world demands of a deployed environment, Milo said, but training is never set aside. "We only have a few minutes to get into the aircraft and save lives."

Firefighters with the 40th Expeditionary CES Fire Department remove their protective equipment after completing a C-17 ground-emergency exercise.

Firefighters with the 40th Expeditionary CES Fire Department remove a "victim" from a C-17 Globemaster III as a fellow firefighter stands by to assist during a ground emergency exercise at a deployed location. *(Photos by SrA Rebeca M. Luquin)*

The Magnificent 7

Training tomorrow's Air Force civil engineers today

by MSgt Robert Bartlebaugh
366 TRS, Det 7

Deep in the Ozark Mountains of Missouri, in the middle of Mark Twain National Forest, a unit of Air Force people is stationed at the U.S. Army's Ft. Leonard Wood.

How did they get there? It all started with the 1990 Base Realignment and Closure (BRAC) Commission and the Interservice Training Review Organization (ITRO). The groups funded a cost-saving decision to place training units of all military branches with similar missions together. This generated many challenges, including a large relocation of military units and families of sailors, airmen and marines to this U.S. Army post. Among the newcomers — Air Education and Training Command's 366th Training Squadron, Detachment 7, from Sheppard Air Force Base, TX.

Det 7 is considered a small unit by Air Force standards. However, in the last six years its members have made contributions to rival large Air Force organizations, generating their internal and "physically coined" alias: the *"Magnificent 7."* Since its activation in 1995, Det 7 has blossomed from the smallest to the largest training detachment in AETC. Five of ten sections directly support Air Force permanent party personnel, temporary duty and non-prior service students.

Instructors teach ITRO Engineer Apprentice students on their road construction outer limits.

Pavement and Construction Equipment Operator instructors use a power screed to place and finish concrete for a self-help parking lot driveway at Ft. Leonard Wood. *(Photos courtesy 366 TRS, Det 7)*

One of two detachment sections responsible for Air Force-unique civil engineer and ITRO training support for Air Force, Army, Navy and Marine Corps students is the Air Force Pavements and Construction Equipment School. At 70 academic days, the Pavements Maintenance and Construction Equipment Operators Apprentice Course is the largest and longest Air Force technical training school at Ft. Leonard Wood. Instructors have also added a highly sought-after mobile five-day Pavements Maintenance Inspection and Repair Course to their inventory.

The second ITRO training school is Air Force Engineering. This group brings four resident courses of instruction to Ft. Leonard Wood: a multi-service, 63-day Engineering Apprentice Course; a 14-day Engineering Design Course; a 14-day Construction Surveying Course; and a 9-day Construction Materials Testing Course. In addition, Engineering has a mobile 17-day Contract Construction Inspector Course.

The Air Force Civil Engineer Readiness School trains Air Force and international students in disaster response; nuclear, biological and chemical warfare training, detection and prevention; and also administers the Prime BEEF training program. This mission-critical section contributes six courses to the detachment: a 53-day, three-level Readiness Apprentice Course; a 10-day, seven-level Readiness Craftsman Course; a 5-day Advanced Readiness Course; a 5-day mobile Air-Base Operability Course; and a 5-day resident and mobile Nuclear/Biological/Chemical Control Cell Course.

Although once considered a candidate for base closure for lack of overall mission importance, Ft. Leonard Wood has become one of the premier locations for Army and joint service training initiatives. The people of Det 7 have been blessed at their new home.

MSgt Robert Bartlebaugh is the NCOIC Equipment Operations, Pavements and Construction Equipment Operator Course, 366 TRS, Det 7, Ft. Leonard Wood, MO.

SSgt Rich Davis *(left)* exchanges a biohazard simulator sample with TSgt Dan Copsey. The Readiness instructors are practicing their teaching skills while inspecting the M22 Vapor Detector Unit outfitted with the latest in Joint Service Lightweight Integrated Suit Technology.

More information on Det 7 can be found on their web site:
www.wood.army.mil/Det7

Det 7 carries out initial and advanced career field training for engineering technicians, pavements and equipment technicians, readiness technicians, vehicle operators and security forces, and authors Career Development Courses for engineering, pavements and equipment, readiness, and vehicle operations.

Continuing Education

AFIT
Civil Engineer and Services School

Wright-Patterson AFB, OH

Course No.	Title	Off	Start Date	Grad Date
MGT 422 (S)	Project Management	02A	08-Jul-02	12-Jul-02
MGT 444 (S)	Competitive Sourcing	02A	08-Jul-02	12-Jul-02
MGT 585	Contingency Engineer Command Course	02C	08-Jul-02	12-Jul-02
ENV 521 (S)	Hazardous Waste Management	02B	15-Jul-02	19-Jul-02
MGT 101	Introduction to the Base Civil Engineer Org.	02C	22-Jul-02	14-Sep-02
MGT 421 (S)	Contracting for Civil Engineering	02B	22-Jul-02	02-Aug-02
ENG 460 (S)	Mechanical Systems for Managers	02A	05-Aug-02	09-Aug-02
MGT 424 (S)	Real Estate Property Management	02A	12-Aug-02	16-Aug-02
ENG 470 (S)	Electrical Systems for Managers	02A	19-Aug-02	23-Aug-02
Seminar (S)	Energy Savings Performance Contracts	02C	20-Aug-02	20-Aug-02
ENG 440 (S)	Roofing Design	02A	26-Aug-02	30-Aug-02
Seminar (S)	HAZWOPER Refresher	02G	27-Aug-02	27-Aug-02
Seminar (S)	HAZWOPER Refresher	02H	28-Aug-02	28-Aug-02
ENG 555 (S)	Airfield Pavement Construction Inspection	02B	09-Sep-02	13-Sep-02

Registration for resident courses, which are offered at Wright-Patterson AFB, OH, begins approximately 90 days in advance. Applications must go through the student's MAJCOM Training Manager. Registration for the satellite offerings, marked with an (S), closes 40 days before broadcast. For satellite registration, course information, or a current list of class dates, visit the CESS website at: http://cess.afit.edu.

366 Training Squadron

Sheppard AFB, TX

Course No.	Title	Start Dates	Grad Dates
J3AZR3E051-007	Airfield Lighting	10-Sep	19-Sep
J3AZR3E051-008	Electrical Distribution Sys. Maint.	05-Aug/05-Sep	30-Aug/02-Oct
J3AZR3E051-010	Bare Base Electrical Systems	30-Jul/23-Aug/17-Sep	10-Aug/06-Sep/28-Sep
J3AZR3E051-012	Fire Alarm Systems	06-Aug/04-Sep/11-Sep/30-Sep	29-Aug/27-Sep/04-Oct/24-Oct
J3AZR3E051-013	Intrusion Detection Systems (IDS)	22-Jul/12-Aug/09-Sep	09-Aug/30-Aug/27-Sep
J3AZR3E071-001	CE Adv. Elec. Troubleshooting	05-Aug/04-Sep	30-Aug/01-Oct
J3AZR3E472-000	Liq. Fuels Stor. Tank Entry Spvsr.	17-Sep	27-Sep
J3AZR3E451-004	Fire Suppression Systems Maint.	08-Jul/29-Jul/01-Sep	26-Jul/16-Aug/30-Sep
J3AZR3E471-101	Bare Base Water Purification and Distribution Systems	10-Jul/7-Aug/21-Aug/04-Sep	19-Jul/16-Aug/30-Aug/13-Sep
J3AZR3E453-003	Pest Management Certification	08-Jul	02-Aug/30-Aug/15-Oct
J3ARR3E453-002	Pest Management Re-Certification	15-Jul/09-Sep	19-Jul/13-Sep
J3AZR3E052-013	CE Advanced Electronics	08-Jul/05-Aug/17-Sep	02-Aug/30-Aug/15-Oct
J3AZR3E072-002	Troubleshoot. Elec. Power Gen. Eq.	08-Jul/31-Jul/26-Aug/19-Sep	29-Jul/21-Aug/17-Sep/10-Oct
J3AZR3E072-113	Bare Base Power Generation	08-Jul/23-Sep	01-Aug/17-Oct
J3AZR2F051-001	Fuels Quality Control	17-Jul/07-Aug/28-Aug/19-Sep	06-Aug/27-Aug/18-Sep/09-Oct
J3AZR2F051-005	Cryotainer Maint. & Support Equip.	26-Jul/12-Aug	08-Aug/23-Aug
J3AZR2F051-006	Cryogenics Production	09-Aug	09-Oct
J3AZR2F051-007	Fuels Accounting	29-Jul/19-Aug/09-Sep	15-Aug/06-Sep/26-Sep
J3AZR2F091-002	Petroleum Logistics Management	23-Jul/10-Sep	08-Aug/26-Sep
J3AZR3E151-013	HVAC/R Controls Systems	22-Jul/09-Sep	23-Aug/11-Oct
J3AZR3E151-014	Direct Expansion Systems	15-Jul/26-Aug/30-Sep	14-Aug/26-Sep/31-Oct
J3AZR3E151-015	Indirect Expansion Systems	08-Jul/29-Jul/09-Sep	25-Jul/15-Aug/26-Sep
J3AZR3E050-001	CE Work Estimating	08-Jul/16-Sep	26-Jul/04-Oct

Ft. Leonard Wood, MO

Course No.	Title	Start Dates	Grad Dates
J3AZP3E571-003	Engineering Design	05-Aug	16-Aug
J3AZP3E571-004	Construction Surveying	22-Jul/19-Aug	02-Aug/30-Aug
J3AZP3E571-005	Construction Materials Testing	08-Jul	18-Jul
J3AZP3E971-003	Advanced Readiness	15-Jul/09-Sep/23-Sep	19-Jul/13-Sep/27-Sep
J3AZP3E971-005	NBC Cell Operations	08-Jul/19-Aug/09-Sep/23-Sep	12-Jul/23-Aug/13-Sep/27-Sep

Indian Head, MD

Course No.	Title	Start Dates	Grad Dates
J5AZN3E871-001	Adv Access and Disablement	15-Jul/05-Aug/26-Aug/16-Sep	26-Jul/16-Aug/09-Sep/27-Sep
J5AZN3E871-002	Advanced EOD Course	15-Jul/05-Aug	26-Jul/16-Aug

Gulfport, MS

Course No.	Title	Start Dates	Grad Dates
J3AZP3E351-001	Low Slope Maint. & Repair	08-Jul/29-Jul/19-Aug/09-Sep	18-Jul/08-Aug/29-Aug/19-Sep
J3AZP3E351-002	Fabrication Welded Pipe Joints	15-Jul/12-Aug/26-Aug/23-Sep	26-Jul/23-Aug/09-Sep/04-Oct
J3AZP3E351-003	Metals Layout Fab. & Welding	22-Jul/03-Sep	08-Aug/20-Sep

Additional course information is available on the 366th TRS web site at https://webm.sheppard.af.mil/366trs/default.htm. Students may enroll on a space-available basis up until the class' start date by contacting their unit training manager.

RED HORSE Deploys to Israel

The landscape was harsh and unrelenting, but felt somehow familiar to the Montanans who were 6,700 miles from home. Called to Israel for construction work, members of the 219th RED HORSE Flight had an opportunity to develop their wartime skills in a deployed environment while experiencing a different culture.

The 219th RHF, a Montana Air National Guard unit, deployed to an Israeli Air Force base Jan. 2 through Feb. 9 to provide heavy construction capabilities in support of U.S. European Command (USEUCOM) Exercise Related Construction (ERC).

Although thousands of miles from home, the landscape in Israel had a familiar feel to members of the 219th RED HORSE Flight from Montana. *(Photos courtesy 219th RHF)*

The 15-member team constructed a K-Span facility and repaired concrete airfield taxiways on the Israeli Air Force base.

The 15-member team constructed a 119- by 48-foot K-Span facility (a metal, Quonset-shaped contingency building) and repaired concrete airfield taxiways.

"These types of deployments provide not only skill development for airmen, but also opportunities for NCOs to develop leadership ability, improve project planning proficiency and master logistics challenges," said SMSgt Bill Gamradt, the noncommissioned officer in charge of the deployment. Nearly all materials and equipment for the project were procured in country, necessitating much more deliberate planning and host nation coordination than is normally required.

K-Span construction provides an excellent avenue for increasing troop multi-skills because it requires all disciplines (carpenters, equipment operators, vehicle mechanics, etc.) to develop the ability to assist in a variety of specialty construction areas. "I am very impressed with how quickly a team comes together on this type of project and works as one unit," said SrA Sonny Schlecht.

The team also had an opportunity to experience the local culture. Since all of the projects were on an Israeli Air Force base, service support and facilities were according to Israeli custom and tradition. The host base dining facility provided messing. Although the troops were not accustomed to the variety and limitations of the food due to local kosher dietary requirements, all meals were excellent. Another custom observed was the "Shabbat" or Sabbath dinner served every Friday night after sundown. "All the people we encountered, both military and civilian, were very helpful and friendly," said TSgt Bob Lund.

The 219th RHF accomplished the mission ahead of schedule — a result of strong leadership, good management and hard work. As the unit has done in Honduras, Guatemala, Korea, Germany, and many other countries, it not only completed quality construction projects for the customer, but also improved its combat capability by building upon its base of discipline, cohesion and teamwork.

(Capt Frederyck Cayer, 219th RHF)

> "These types of deployments provide not only skill development for airmen, but also opportunities for NCOs to develop leadership ability, improve project planning proficiency and master logistics challenges."

The K-Span project provided the team an opportunity to develop its wartime skills in a deployed environment while experiencing a different culture.

A TALE of TWO SQUADRONS

The story of the Triple Nickel and the Penny Less

For some, the Vietnam era was considered the best of times and the worst of times; but there is no doubt it was a historic time for Air Force civil engineers.

As the U.S. build up in Southeast Asia continued in the mid-1960s, the Air Force assumed greater control of construction and maintenance functions on its bases from the Army and Navy, who traditionally performed most construction at Air Force bases but were unable to keep up with the demand.

With no heavy construction capability of its own, only Prime BEEF teams which performed light construction and base maintenance functions, the Air Force established a new type of unit in 1965 called RED HORSE that was self-sufficient and capable of carrying out heavy construction projects such as runways and hardened aircraft shelters.

The first two RED HORSE squadrons were the 555th, known as the Triple Nickel, and the 554th, affectionately referred to by its members as The Penny Less. Activated Oct. 1, 1965, they trained at Cannon AFB, NM, and deployed to Southeast Asia in early 1966.

Troops from the 554th were assigned to Phan Rang AB and later Da Nang AB, and the 555th's troops were assigned to Cam Rahn Bay AB. Eventually five other RED HORSE units were trained and deployed to Southeast Asia.

The Triple Nickel was inactivated in 1969, but the 554th remained in Vietnam for three more years before moving to Thailand in 1972 and to its current home at Osan AB, Korea, in 1976. It was the only RED HORSE unit to remain in theater after Vietnam, completing many important projects in the 1970s and 1980s.

The 554th was downsized to almost caretaker status in the early 90s, going from a full sized (404-person) unit to less than 50, according to Lt Col Joe Castro, Air Force Civil Engineer Readiness Program manager. Two years ago the unit was "robusted" to 139 people but still lacked some of the capabilities of a full-sized RED HORSE Squadron.

"That's when the Guard and Reserves stepped up and said, 'we can fill that capability.'" Castro said.

The Air National Guard activated the 254th RED HORSE Flight in late 2000 at Camp Murray, WA, and the Air Force Reserve activated the 555th at Nellis AFB, NV, in 2001, resurrecting the 555th's name and heritage.

"Hold on to that. You might need it later." Sage advice that proved its worth recently when the last commander of the 555th RHS, Col (ret) Ray Medeiros, passed the unit's original Vietnam-era guidon to the newest commander, Lt Col Frank Myers … 32 years later. *(Photo by Lois Walker)*

Although the 555th and 554th are serving together again, they are no longer sister squadrons. The 554th is "Mother Horse" to the 555th and 254th. During contingencies and deployments, both units are assigned to the 554th. This combination of active duty, Guard and Reserve forces makes it the first-known "Total Force" civil engineer squadron in the Air Force.

"The challenge for all of us is integrating active, Guard and Reserve forces into a total force squadron," said Castro. "We'll be conducting a lot of troop training projects in Korea for members of the 254th and the 555th."

Castro said training will focus on construction techniques and the unit's responsibilities throughout the Korean peninsula, important since Guard and Reserve members will make up more than half the squadron's force.

Guardsmen and Reservists will deploy to Korea as part of their two-week annual training, which will supply the 554th with a continuous rotation of personnel.

"Most of the active duty members are here on one-year remote tours," Castro said, "so eventually the Guard and Reserve are going to be the continuity in this total force squadron and they may be teaching the active force what to do in country."

The times, they are a changing.

(TSgt Michael A. Ward, Air Force Civil Engineer Support Agency Public Affairs)

Editor's note: Lt Col Castro will leave the Pentagon in July to become the commander of the 554th.

New Deputy Civil Engineer On Board

Kathleen I. Ferguson is the new Deputy Air Force Civil Engineer, Headquarters U.S. Air Force, Washington DC.

A member of the Senior Executive Service, Ms. Ferguson is formerly chief, Combat Support Division, Directorate of Supply, Deputy Chief of Staff for Installations and Logistics, HQ USAF. She was recently selected to replace Michael A. Aimone, who had served as The Deputy Air Force Civil Engineer since 1999 and is now the Deputy Director of Logistics Readiness, Deputy Chief of Staff for Installations and Logistics, HQ USAF.

Kathleen I. Ferguson

Ms. Ferguson began her Air Force career as a design civil engineer at Plattsburgh Air Force Base, NY, in 1981. She transferred to Langley AFB, VA, two years later, where she held a variety of positions with the 1st Fighter Wing, HQ Tactical Air Command and HQ Air Combat Command including chief, Engineering Branch and chief, Contract and Environmental Planning Section with the 1st Civil Engineering Squadron, and chief, Military Construction Programs Branch, at HQ TAC. At HQ ACC she was deputy chief of the Programs Division.

Moving to the Pentagon in 1994, she worked in several positions in the environmental and civil engineering program areas. Ms. Ferguson became chief of the Installation Support Panel with the Office of the Deputy Chief of Staff for Installations and Logistics when the Air Force corporate structure stood up in 1995. In 1997 she moved to HQ U.S. Air Forces in Europe, Ramstein Air Base, Germany, to serve as chief, Programs and Resources Division, for the Civil Engineer Directorate. She returned to the Pentagon in 1999 as chief, Installation Support Panel and chief, Civil Engineer Programs and Analysis Branch, with the Office of The Civil Engineer.

A 1989 graduate of Air Command and Staff College at Maxwell AFB, AL, Ms. Ferguson holds a Bachelor of Science degree in civil engineering from the University of New Hampshire and a Master's degree in public administration from Auburn University. She is a registered professional engineer in the state of Virginia.

Proud Father

CMSgt Julio C. Morelos Jr. pins the Air Force civil engineer badge on his son, Airman Julio C. Morelos III, during the Joint Engineer Assistant Course graduation ceremony Nov. 6 at Ft. Leonard Wood, MO. The chief was the guest speaker at the graduation. Chief Morelos is an Individual Mobilization Augmentee assigned to the Air Force Civil Engineer Support Agency, Tyndall AFB, FL. He is the agency's explosive ordnance disposal; nuclear, biological and chemical; and IMA program manager. Airman Morelos is an Engineer Assistant who is now at his first duty assignment at Osan Air Base, Republic of Korea. *(courtesy photo)*

Civil Engineering Gains New SES Position

James R. Pennino is the first to hold the new Senior Executive Service position created in the Office of the Command Civil Engineer at Headquarters Air Force Materiel Command, Wright-Patterson Air Force Base, OH. Formerly an active duty slot, the Deputy Command Civil Engineer position at AFMC is now an SES position, bringing to four the number of SES slots available in the Air Force civil engineer career field.

James R. Pennino

Mr. Pennino comes to AFMC from the Air Force Center for Environmental Excellence (AFCEE), where he was the director of the Western Region Environmental Office, working in San Francisco, CA. He began his Air Force career in 1966, spending four years as an active duty civil engineering officer with assignments in the United States and overseas, including one with the 557th RED HORSE Squadron, Kwang Ju, Korea. He entered civil service in 1972 as a facility project programmer for HQ U.S. Air Forces in Europe, specializing in long-range facility planning and programming until his voluntary departure from federal service in 1984, when he left to start his own construction-related business. Mr. Pennino returned to federal service in 1997, serving as chief, Programs Development and Financial Management Branch, HQ Pacific Air Forces, Hickam AFB, HI, before joining AFCEE in 1999.

The AFMC position is the only civil engineer SES slot located at a major command. The other three positions are: The Deputy Civil Engineer, HQ U.S. Air Force, Washington DC; Director, AFCEE, Brooks AFB, TX; and Director, Air Force Base Conversion Agency, Arlington, VA.

2001 Colonel-Selects

The following Air Force civil engineer officers were recently selected for promotion to the rank of colonel. Congratulations to all on their leadership and achievement.

Jared A. Astin
David C. Brewer
* Theresa C. Carter
William M. Corson
Carlos R. Cruz-Gonzalez
Michael Falino
Otis L. Hicks, Jr.
Irvin B. Lee
Marshall K. Lounsberry III
* Neal B. McElhannon
* Kevin E. Rumsey
* Thomas J. Schluckebier
Keith E. Smith
Joyce F. Sohotra
Douglas K. Tucker
Mark D. Wright

**BPZ (below the promotion zone)*

2001 Lieutenant Colonel-Selects

Congratulations to the following Air Force civil engineer officers on being selected for promotion to lieutenant colonel.

Brent Adams
Peter C. Bahm
David J. Crow
David F. DeMartino
John P. Dewine
Richard M. Doran
Kraig A. Evenson
* Patrick F. Fogarty
Marjorie A. Fuller
Thomas L. Glardon
Scott A. Hartford
Billy J. C. Irwin
Dimasalang F. Junio
Alexander P. Karibian
David R. Lehosit
David H. Maharrey Jr.
Keith H. Maxwell
Christopher C. McLane
Deborah A. McMurtrey
Patrick C. Morris
* Salman M. Nodjomian
Marc L. Pincince
Marvin W. Smith Jr.
Jeffery A. Vinger
Benjamin Wham II
Alan J. Wieder
Calvin Williams

**BPZ*

2001 Senior Master Sergeant-Selects

Congratulations to the following Air Force civil engineer non-commissioned officers on being selected for promotion to senior master sergeant.

Fernando A. Adams
Louis F. Alimonda
Kimberley R. Allen
Clark M. Andrean
Dennis P. Askin
Matthew Bernhardt
Gregory E. Brown
Ronald A. Brown
George E. Bunting
Dennis W. Carson
Michael Cavaliero
Uwe W. Chadwick
Somanita Chotkowski
Joseph M. Clabaugh
David D. Daniel
Michael J. Dimick
Randy J. Dollinger
James D. Donnett
Jacob P. E. Dunbar
Kevin J. Eide
Brian E. Ellis
Thomas E. Gilpin
Nor B. Gomez
Todd A. Gumprecht
Jay M. Hammond
William M. Hancock
Jerry J. Hanes
Denny J. Heitman
Richard N. Held
Craig E. Henry
John S. Himmel
Craig N. Hjuler
Carroll W. Holcombe
Harold W. Hollis
Paul T. Humphrey Jr.
Paul J. Johnson
David A. Jones
William N. Kendall
Francis B. Lagat
Francis E. Larkin III
Jerry W. Lewis Jr.
Miguel A. Ley
Armando Lucero
David E. Martin
Kevin W. Matlock
Robert G. McCarty
Sidney R. McNeil
John E. McQueen Jr.
James J. Medeiros
Michael A. Miller
Brian A. Naragon
Troy D. Odden
Thomas A. Pachniak
Paul R. Pladson
Edward M. Poloka
Michael P. Ramsey
Jimmy A. Richey
Richard J. Robinson
Paul D. Ross
James A. Route Jr.
Jimmie Sampson Jr.
Francisco A. Sandoval
Oscar L. San Luis
Danny W. Satterlee
Richard B. Sheridan
Garland W. Smith
Morgan S. Spruill
William B. Staples
Gerrodd Stevenson
Louis D. Suarez
Joseph Tarro
Gary A. Temple
Daryl J. VanCise
Michael D. Walters
William T. Walton III
Kathleen M. Werlebushnell
Douglas L. Wilson
Anthony G. Wood
Eric E. Yocam

AFCEE Director Earns Presidential Honor

Gary M. Erickson, Director of the Air Force Center for Environmental Excellence, was recently honored as a Meritorious Executive by President George W. Bush.

Mr. Erickson was among 12 Air Force civilians to receive either a Distinguished or Meritorious Executive award from the president. The chief executive confers these ranks each year on a select group of career SES civilians for their exceptional service to the American people and long-term achievements.

The Meritorious Executive rank is conferred on leaders for their sustained accomplishments. Only 5 percent of the SES corps receives this award annually. In announcing the awards, President Bush said that in addition to exceptional performance, the honorees also have in common "an outstanding work ethic, commitment to public service and pride in a job well done."

"It's a significant award," said Erickson. "I have watched other SES members that I've admired over the years be selected and honored this way, so it's a little humbling to have one of those awards sent your way."

The director was quick to give credit for his selection to the AFCEE staff. "My hat's off to them," he said. "They're the ones who did the hard work and made it all possible. It's a double enjoyment for me personally to receive the award and also be part of a team that produces a recognition like this."

Mr. Erickson has been the director of AFCEE since 1996. *(Gil Dominguez, AFCEE Public Affairs)*

Gary M. Erickson

Beale Firefighter Wins GEICO Award

SMSgt Robert Simpson

SMSgt Robert Simpson is the Air Force recipient of the 2001 GEICO Military Service Award for his work in fire safety and fire prevention.

Sergeant Simpson, a firefighter with the 9th Civil Engineer Squadron at Beale Air Force Base, CA, was honored by the Government Employee Insurance Company for his contributions to both the military and civilian communities. He initiated Beale's first joint wildland fire training program and coordinated the construction of 35 miles of fire breaks to protect the base's mission-essential facilities. In addition to his regular duties, he spends numerous hours providing training and assistance to local firefighting organizations.

The Military Service Award program annually recognizes the on- and off-duty contributions of one member from each military service branch. Award recipients receive a plaque and a $2,500 honorarium. *(Air Combat Command News Service and GEICO Direct)*

RED HORSE Engineer Goes Airborne

An Air Force electrician was the first RED HORSE engineer to graduate from Army Airborne School in a ceremony March 28 at Ft. Benning, GA.

TSgt Joel Moore went through parachute training as part of an initiative to create an air-deliverable contingency response group at Moody Air Force Base, GA. The idea is for a team from the group, including engineers, communicators, security forces and others, to be delivered by helicopter or parachute to a damaged or bare airfield. They will secure it, make the necessary repairs and get it ready for the Air Force's cargo aircraft to deliver more people and equipment.

Having a team ready to drop in and create a functional air base "will provide the Air Force more options in selecting future operational locations," said Brig Gen Pat Burns, the Air Combat Command Civil Engineer.

As a member of the 819th RED HORSE Squadron at Malmstrom AFB, MT, Moore will be on-call to deploy with Moody's 820th Contingency Response Group. He is the first of 138 RED HORSE members the Air Force plans to send to airborne training.

Army Airborne School is a three-week course where students learn to parachute from an aircraft safely. The students make five parachute jumps, including two in combat gear.

For graduation, Moore jumped out of a C-130 into the drop zone where the ceremony was being held. After landing, he mingled with the crowd before forming up with his fellow students to receive his jump wings.

"Jumping into graduation was great," Moore said.

In the end, Moore said, he learned how to successfully exit an aircraft, flip away from other paratroopers and land without breaking his legs. "Just keep your feet and knees together and your eyes on the horizon and you'll be all right." *(2Lt Kevin S. Brown, ACC Public Affairs)*

Care Packages Send A Taste of Home

Civil engineers at F.E. Warren Air Force Base, WY, are ensuring their deployed co-workers get a taste of home.

Members of the 90th Civil Engineer Squadron prepared 25 care packages with baked goods, magazines and books, and personal care items in March for shipment to an undisclosed location overseas.

Rhonda Frederici, 90th CES Operations Flight, organized the project after she learned from people who were deployed how much any package, especially those with cookies, meant to them. More packages are headed for the deployed personnel around the Fourth of July, she said. *(Air Force Space Command News Service)*

MSgt Charles Woske, 90th CES first sergeant, labels a package of cookies for deployed troops. *(Photo by Elizabeth McClain, 90th CES)*

A Patriotic Podium

MSgt Mike Reed from Eielson Air Force Base, AK, didn't let being deployed to a remote desert environment keep him from showing some CE creativity and can-do ability in the field.

After the September 11th attack on America, he was deployed to a bare base location in Southwest Asia. There he used his off-duty time and woodworking talents to incorporate the U.S. flag into the wing commander's podium. The commander requested it be ready in time for the first Commander's Call, which was in five days.

"Anyone can build a podium," said Sergeant Reed. "I wanted to build one people would be proud to stand behind."

Sergeant Reed said he made the podium from scrap pieces of mahogany. Even the stars are made of wood.

"We cut the wood for the stars down to 1/16 of an inch, glued on a paper template, then cut them out with scissors and glued them into position on the box," said Sergeant Reed. "I used the front and back of the mahogany to form the stripes; one side was white and the other was kind of reddish."

For the blue field he selected a piece that had been left in the sun and had just the right distinction to show off the white stars. "It also made for a good contrast from the red and white stripes," he said. "I put on about eight coats of aircraft lacquer, given to me by a British friend. It sealed up nicely and came out better than expected — too much sand and dust for the perfect finish."

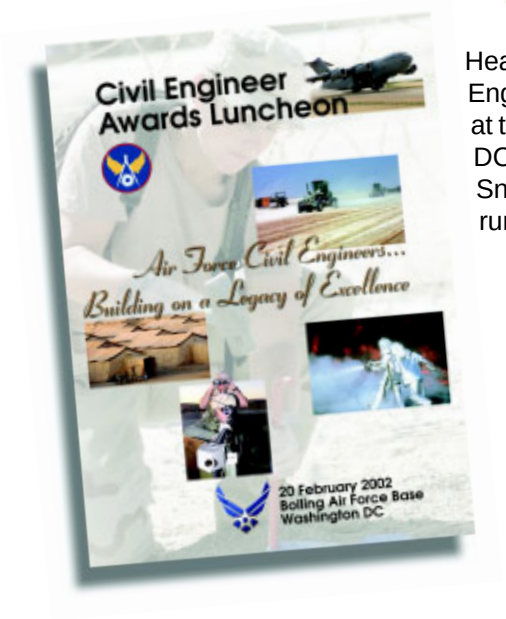
Several visiting DVs have used Sergeant Reed's podium, including Army Gen Tommy Franks, Commander, U.S. Central Command; Secretary of the Air Force Dr. James G. Roche; and the Vice Commander-in-Chief, Vice President Dick Cheney. *(Letha Cozart, editor)*

"Anyone can build a podium . . .

Standing at podium, from left: MSgt Mike Reed, Secretary Roche, and Vice President Cheney

I wanted to build one people would be proud to stand behind."

2001 Air Force Civil Engineer Awards



Lt Gen Michael E. Zettler, Deputy Chief of Staff for Installations and Logistics, Headquarters U.S. Air Force, has announced the recipients of the 2001 Air Force Civil Engineer Awards. The awards were presented Feb. 20, during National Engineers Week, at the 40th annual Civil Engineer Awards Luncheon, Bolling Air Force Base, Washington DC. The Balchen/Post winner was recognized at the 36th Annual International Aviation Snow Symposium Awards Luncheon May 1. Following are the winners (in bold) and runners-up. *(Poster, left, by Keith Fred)*

Outstanding Civil Engineer Unit Award and The Society of American Military Engineers Curtin Award

Large Unit

437 CES, Charleston AFB, SC (AMC)
49 CES, Holloman AFB, NM (ACC)

Small Unit

31 CES, Aviano AB, Italy (USAFE)
314 CES, Little Rock AFB, AR (AETC)

Brigadier General Michael A. McAuliffe Award (Housing Flight)

9 CES, Beale AFB, CA (ACC)
31 CES, Aviano AB, Italy (USAFE)

Major General Robert C. Thompson Award (Resources Flight)

36 CES, Andersen AFB, Guam (PACAF)
325 CES, Tyndall AFB, FL (AETC)

Brigadier General Archie S. Mayes Award (Engineering Flight)

100 CES, RAF Mildenhall, UK (USAFE)
7 CES, Dyess AFB, TX (ACC)

Major General Clifton D. Wright Award (Operations Flight)

52 CES, Spangdahlem AB, Germany (USAFE)
3 CES, Elmendorf AFB, AK (PACAF)

Chief Master Sergeant Ralph E. Sanborn Award (Fire Protection Flight)

56 CES, Luke AFB, AZ (AETC)
18 CES, Kadena AB, Japan (PACAF)

Senior Master Sergeant Gerald J. Stryzak Award (Explosive Ordnance Disposal Flight)

775 CES, Hill AFB, UT (AFMC)
39 CES, Incirlik AB, Turkey (USAFE)

Colonel Frederick J. Riemer Award (Readiness Flight)

51 CES, Osan AB, ROK (PACAF)
305 CES, McGuire AFB, NJ (AMC)

Outstanding Civil Engineer Environmental Flight Award

319 CES, Grand Forks AFB, ND (AMC)
30 CES, Vandenberg AFB, CA (AFSPC)

The Society of American Military Engineers Newman Medal

Lt Col Thomas D. Quasney, 48 CES, RAF Lakenheath, UK (USAFE)
Col Cornelius J. Carmody, HQ AFSPC, Peterson AFB, CO (AFSPC)

The Society of American Military Engineers Sverdrup Medal

Maj Roy-Alan Agustin, HQ USAF, Washington DC (USAF)

The Society of American Military Engineers Goethals Medal

Robert M. Moore, GS-15, HQ USAF, Washington DC (USAF)

The Society of American Military Engineers Goddard Medal

Active Duty

SMSgt Roger L. Austin, 31 CES, Aviano AB, Italy (USAFE)
SMSgt William E. Ferenc, 8 CES, Kunsan AB, ROK (PACAF)

Air Force Reserve

MSgt David S. Nickel, 916 CES, Seymour Johnson AFB, NC (AFRC)

Major General Joseph A. Ahearn Enlisted Leadership Award

CMSgt Carla F. Sharman, 437 CES, Charleston AFB, SC (AMC)
CMSgt Anthony M. Rabonza, 18 CES, Kadena AB, Japan (PACAF)

Mr. Harry P. Rietman Award (Senior Civilian Manager)

Richard A. Pinto, GS-14, HQ USAF, Washington DC (USAF)
George G. Robins, WS-16, 45 CES, Patrick AFB, FL (AFSPC)

Major General Augustus M. Minton Award (Outstanding *Air Force Civil Engineer* magazine article)

Col David S. Zelenok, 50 SW, Schriever AFB, CO (AFSPC)
MSgt Ronald A. Brown, 35 CES, Misawa AB, Japan (PACAF)

Major General William D. Gilbert Award

Officer

Capt Eric S. Turner, HQ USAFE, Ramstein AB, Germany (USAFE)
Lt Col Patrick E. Ryan, HQ AMC, Scott AFB, IL (AMC)

Enlisted

SMSgt Todd W. Barnes, HQ AMC, Scott AFB, IL (AMC)
SMSgt Paul L. Hicks, HQ AFMC, Wright-Patterson AFB, OH (AFMC)

Civilian

Karl-Willi Ningelgen, C-SSS-10, HQ USAFE, Ramstein AB, Germany (USAFE)
John S. Busca, GS-13, HQ AETC, Randolph AFB, TX (AETC)

Major General Eugene A. Lupia Award

Military Manager

Capt Dwight F. Junio, 52 CES, Spangdahlem AB, Germany (USAFE)
Capt Stephen T. Grace, 607 MMS, Osan AB, ROK (PACAF)

Military Technician

TSgt Brian C. Kurtz, 1 CCS, Ramstein AB, Germany (USAFE)
TSgt Craig S. Hall, 510 CES, USAFA, CO (USAFA)

Outstanding Civil Engineer Senior Military Manager

Lt Col Robert E. Moriarty, 75 CES, Hill AFB, UT (AFMC)
Maj Deborah A. McMurtrey, 49 CES, Holloman AFB, NM (ACC)

Outstanding Civil Engineer Military Superintendent

SMSgt Edward J. Rosemeier III, 48 CES, RAF Lakenheath, UK (USAFE)
MSgt David M. Fain, 56 CES, Luke AFB, AZ (AETC)

Outstanding Civil Engineer Civilian Manager

Gloria Y. Swen, GS-9, OL-E AFCESA/CEMIRT, Travis AFB, CA (AFCESA)
Richard Ramirez, WS-10, 95 CES, Edwards AFB, CA (AFMC)

Outstanding Civil Engineer Civilian Supervisor

John L. Cooper, WS-8, 796 CES, Eglin AFB, FL (AFMC)
Stanley L. Beard, GS-7, 62 CES, McChord AFB, WA (AMC)

Outstanding Civil Engineer Civilian Technician

Kenneth S. Feaster, WG-11, OL-A AFCESA/CEMIRT, Dover AFB, DE (AFCESA)
Jerome T. Cook, WG-10, 50 CES, Schriever AFB, CO (AFSPC)

Outstanding Civil Engineer Individual Mobilization Augmentee

Officer Manager

Maj Eric S. Tillstrom, 2 CES, Barksdale AFB, LA (ACC)
Col Paula J. Loomis, HQ USAF, Washington DC (USAF)

Enlisted Manager

MSgt Gale Benton, 56 CES, Luke AFB, AZ (AETC)
CMSgt Julio C. Morelos, Jr., HQ AFCESA, Tyndall AFB, FL (AFCESA)

Balchen/Post Award (Snow and Ice Removal)

28 CES, Ellsworth AFB, SD (ACC)
52 CES, Spangdahlem AB, Germany (USAFE)

2002 Air Force National Society of Professional Engineers Federal Engineer of the Year Award

Military

Capt William H. Kale, 819 RHS, Malmstrom AFB, MT (ACC)

Civilian

Michael J. Santoro, GS-14, HQ AFCESA, Tyndall AFB, FL (AFCESA)

Military Superintendent Award renamed

The Air Force civil engineer community has honored the first person to hold the position of Chief, Enlisted Matters by renaming one of the highest annual NCO awards after him.

The Outstanding Air Force Civil Engineer Military Superintendent Award is now the CMSgt Larry R. Daniels Award. Daniels was the career field's chief of enlisted matters from 1989 to 1992.

CMSgt (ret) Larry R. Daniels

"This is by far the highest honor ever bestowed upon me," Daniels said. "It is especially meaningful to have my name associated with the top senior NCO each year."

The position was created in 1989 by General Joseph "Bud" Ahearn, The Air Force Civil Engineer at the time. Ahearn became familiar with Daniels while both were stationed at HQ United States Air Forces in Europe in the mid 1980s.

Daniels entered the Air Force in 1966. His first assignment was as a carpenter at Travis AFB, CA, followed by a one-year tour with the 820th RED HORSE Squadron in Vietnam. Following a tour at Rhein Main AB, Germany, he spent five years at Luke AFB, AZ, where he retrained to become a "Triple Nickel" (programs and work control technician). From 1978 to 1987, he served at three different locations in England and at Ramstein. In 1987 he transferred to the Air Force Engineering and Services Center at Tyndall AFB, FL (precursor to the Air Force Civil Engineer Support Agency) and moved to Washington DC when tapped for the chief of enlisted matters position two years later.

Daniels said the proudest achievement for him during his three-year tenure in the position was working with the Tri-Service Housing Steering Group and DoD to help single airmen living in dormitories have private rooms. "It was the first large step toward the quality of life standards that are still improving to this day," he said.

Daniels retired in 1992 and currently lives in Peoria, AZ, with his wife Dottie. He will help present the award bearing his name during the Civil Engineer Annual Awards Banquet in February 2003. *(Lois Walker, AFCESA Historian)*

Preserving & Enhancing the ENVIRONMENT

2001 Air Force and Secretary of Defense Environmental Award Winners

Several Air Force personnel have recently been recognized for their contributions and commitment to the service's environmental programs. The Air Force Chief of Staff announced the winners of the 2001 General Thomas D. White Environmental Awards in December. The Air Force winners then went on to compete in corresponding categories for the 2001 Secretary of Defense Environmental Security Awards, where they claimed five of the 10 awards annually given.

"These awards give us a measuring stick for where our environmental programs are within the Department of Defense, and how well we're adhering to DoD directives that are based on public law," said Col Jim Holland, chief, Environmental Division, Office of The Air Force Civil Engineer.

The Air Force has adopted a "green" attitude over the past several years, Holland said. "One of our main goals is to be a good neighbor," he said. "Environmental issues are not only those within the base fence, but outside the base as well."

Following are this year's award categories, winners and honorable mentions, and their major commands. *(Compiled from news releases by Gil Dominguez, Air Force Center for Environmental Excellence Public Affairs and MSgt Ron Tull, Air Force Print News)*

2001 General Thomas D. White Environmental Awards

Environmental Quality Award (Non-Industrial)
Eglin AFB, FL (AFMC)
Reserve Component
181st Fighter Wing, Terre Haute, IN (ANG)
Honorable mention
Grissom ARB, IN (AFRC)

Environmental Quality Award for Individual/Team Excellence
Joan Albury,
Patrick AFB, FL (AFSPC)
Honorable Mention
Ramstein AB, Germany (USAFE)

Natural Resources Conservation Award (Small Base)
Fairchild AFB, WA (AMC)
Honorable Mention
Robins AFB, GA (AFMC)

Natural Resources Conservation Award for Individual/Team Excellence
Patrick AFB, FL (AFSPC)

Cultural Resources Management Award (All Installations)
Eglin AFB, FL (AFMC)

Restoration Award (All Installations)
F.E. Warren AFB, WY (AFSPC)
Honorable Mention
Travis AFB, CA (AMC)

Restoration Award for Individual/Team Excellence
Beatrice Kephart,
Vandenberg AFB, CA (AFSPC)
Honorable Mention
Michael O'Brien, Beale AFB, CA (ACC)

Pollution Prevention Award (Industrial)
Robins AFB, GA (AFMC)

Pollution Prevention Acquisition Individual/Team Award
Patrick AFB, FL (AFSPC)

2001 Secretary of Defense Environmental Security Awards

Natural Resources Conservation (Individual/Team)
Natural Resources Conservation Team,
45th Space Wing,
Patrick AFB, FL (AFSPC)

Environmental Quality (Non-Industrial Installation)
Air Armament Center,
Eglin AFB, FL (AFMC)

Pollution Prevention (Industrial Installation)
Warner Robins Air Logistics Center,
Robins AFB, GA (AFMC)

Environmental Restoration (Installation)
F.E. Warren AFB, WY (AFSPC)

Environmental Restoration (Individual/Team)
Beatrice Kephart,
Vandenberg AFB, CA (AFSPC)

49th Civil Engineer Squadron

Parent Unit:
49th Fighter Wing
(Air Combat Command)

Location:
Holloman Air Force Base, NM

Commander:
Lt Col Edward Piekarczyk

Assigned Personnel:
284 military, 192 civilians and 54 contractors

Mission:
Provide combat-ready engineers for worldwide deployments and provide programs, design, construction, maintenance, fire protection, explosives disposal and environmental support for 7.4M square feet of buildings and $2.6B of infrastructure supporting F-117A and Foreign Military Sales pilot training for the 49th FW and 26 associate units from 14 different commands.

Mottos:
Engineers Lead the Way!
Mess with the Bull — Get the Horns!

Unique Requirements: Provides engineering support for the largest base in Air Combat Command supporting the F-117A Stealth Fighter mission, German Air Force Tornado and F-4 training, Bare Base and the 46th Test Group with associated high-speed test track.

The 49th CES manages over $115M in facility projects with an annual operating budget of $25M. Holloman AFB is a 59,639-acre complex that includes 7.4M square feet of buildings, 1,440 housing units, 206 miles of roads, a 90-mile Bonito water pipeline, 15 off-base water wells supplying the Holloman/Alamogordo communities, three active runways, 11 taxiways and three parking ramps. CE also supports NASA space shuttle missions by training and leading Holloman's 90-man Space Shuttle Contingency Response Force (SCRF). The SCRF coordinates with 68 on- and off-base agencies to prepare for the Shuttle at the primary back-up landing site.

The unit recently accomplished an expedient recovery of a QF-4 drone that crashed on Holloman's only heavy aircraft runway. CE led the Disaster Control Group, secured the crash site, surveyed runway damage and aircraft debris, and assisted the Aircraft Crash Recovery Team with documentation, cleanup and removal. Virtually overnight they harnessed a local contractor to repair approximately 2,000 feet of runway in three days. The runway was operational five days after the crash — an ACC record. Reopening the runway was especially critical due to Holloman's vital role in providing bare base equipment and personnel to Operation Enduring Freedom.

Innovations: Holloman is standing up a GeoBase Team, operationalizing Global Positioning System equipment and Geographic Information System software to manage facilities and infrastructure. After the QF-4 crash, GeoBase tools and skills compressed the accident survey from 24 hours with traditional methods to 6 hours. CE also utilized the Fast Payback Capital Investment Program to purchase a paving machine, saving $8M in life-cycle cost. The first completed project already met payback requirements.

Community Involvement: The Horizontal Repair section partnered with the Alamogordo School District to construct a 400-meter oval running track and football/soccer complex. This self-help project saved the school district over $225,000 in construction costs. The squadron also participated in several key roles in the largest natural disaster drill in state history.

Recent Accomplishments: Awards include the 2001 Air Force Outstanding Civil Engineer Squadron, Large Unit Runner-up award; the 2001 Air Combat Command Outstanding Civil Engineer Squadron, Large Unit award; the Air Combat Command Outstanding Readiness Flight award; the National 2000 Partners In Flight Award, Stewardship category (first and only DoD organization to receive this prestigious award); and the National Registry of Environmental Professionals' Environmental Excellence Award, 2001.

Unit Spotlight

Turning a Bare Base into Home Base

(Above) **SSgt Dennis Rellins and SSgt Linwood Stull, both from the 27th CES, construct a holding facility for fuel. *(Photos by Lt Col Nick Desport)***

***(Above)* A1C Brady Dryden, 27th CES, dumps sand around a new water line that will tie the water plant to the dining hall at his deployed location.**

▲ Members of the 27th Civil Engineer Squadron, Cannon Air Force Base, NM, deployed to Southwest Asia in September to create a base capable of supporting the KC-135s that would refuel aircraft participating in Operation ENDURING FREEDOM.

▲ As part of the 319th Air Expeditionary Group Support Squadron, deployed 27th CES members helped put up 165 tents, 35 hardened facilities and a dining hall that sat 400 people and served 4,000 meals a day. They built a 5.2-megawatt power plant, a water storage farm that provided more than 160,000 gallons of water and a fuel farm holding more than 1 million gallons — making it possible to provide aerial refueling to fighters and bombers flying into Afghanistan. *(Air Combat Command News Service)*