

*Air Force*  
**CIVIL ENGINEER**

*Vol. 9 \* No. 2 Summer 2001*

**Focus on  
Graduate Education:  
AFIT's GEEM Program**





Maj Gen Earnest O. Robbins II



## Are you ready for a Graduate Degree? Graduate Education sponsored by the Air Force is a Win-Win Situation

Each year an exceptional opportunity arises for 30 or more of our best lieutenants and captains — the chance to receive an Air Force sponsored graduate degree. For those who take advantage of this opportunity, the benefits to themselves and to the Air Force are many.

The program at the Air Force Institute of Technology (AFIT) provides officers with an excellent education and a respected degree in the area of Engineering Management or Environmental Management, provided through AFIT's in-residence Graduate Engineering and Environmental Management (GEEM) program. A few officers each year are eligible to pursue advanced degrees at civilian universities.

This year alone, 33 officers (including two majors) will earn an Air Force-funded Master's Degree. The Class of 02 commenced in August with 23 Civil Engineer officers attending AFIT's in-residence GEEM program at Wright-Patterson AFB and another 10 attending civilian institutions across the country.

AFIT leads the way in meeting the education needs of our Air Force and the Department of Defense. We are fortunate to have at our disposal a fully accredited, balanced graduate program that mirrors the support we need in the civil engineer career field. GEEM graduates are recognized as having an exceptional educational background ideally suited for future duties at the installation and MAJCOM, Air Force and DoD levels and in each CE core competency. A recent accreditation review team of scholars who evaluated AFIT's degree programs came away very impressed by what they saw, describing the graduate school's focused military-interest programs as "a credit to the nation."

It is important that we in civil engineering, along with the remainder of the Air Force, maintain a corps of leaders who are prepared to employ our Service's changing scientific and technical capabilities. Many GEEM graduates have gone on to hold some of the most senior leadership positions in Air Force civil engineering. The selection process for the Class of 03 will begin soon and I encourage those of you with excellent academic and military performance to step up to the challenge.

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*More today than ever before, the Air Force relies on daily support from its Guard and Reserve personnel. The air reserve components, Air National Guard and the Air Force Reserve Command, comprise about one-third of the Air Force. Given the current size of the active duty force, the Department of Defense is increasingly looking to the ARC for help in meeting mission demands and holding down operations and personnel tempo.*

## Going to the Guard

An interview with Colonel Janice M. Stritzinger, The Civil Engineer, Headquarters Air National Guard, Andrews Air Force Base, MD.

**The CE:** As someone who has served the Air Force in both enlisted and officer positions, active duty and reserve, and worked as an engineer in private industry, what is your perspective on the Guard's role in helping the Air Force achieve its worldwide mission?

**Col Stritzinger:** We have highly skilled individuals who not only provide and apply their Air Force skills training,

**The CE:** What percent of the Air Force's total military civil engineer capability does the Guard currently provide?

**Col Stritzinger:** The ANG provides about 29 percent of the total engineering force in the Air Force. The Reserve has about 17 percent and the active has the remaining 54 percent. About 10 percent of our ANG civil engineer force is comprised of full-time personnel. The remaining 90 percent are drilling Guardsmen who dedicate their weekends and free time to serving their country through augmentation of our total force missions. Combined with the Reserves, we are a very economical avenue for fulfilling wartime requirements, AEF [Aerospace Expeditionary Force] missions, construction deployments through our Deployment for Training program, active duty volunteer support and homeland security issues. The ANG as a whole provides a good amount of force structure for approximately 7.2 percent of the Air Force budget.

**The CE:** The growing threat of nuclear, chemical or biological weapons against U.S. targets has caused homeland security to become an increasingly important DoD mission. What role do you see ANG civil engineers playing in that arena?

**Col Stritzinger:** Our ability to provide assistance in the homeland security arena is a by-product of our wartime construct. The equipment and personnel skills available for utilization in Chemical, Biological, Radioactive, Nuclear, and Explosive (CBRNE) events are a direct and inseparable result of the training provided by the Air Force. Our dispersed locations in every state and territory position us well to respond quickly.

The ANG will continue in its constitutional role as an avenue for state governors to provide relief to on-scene local responders. We will also continue to provide support to planning and exercise activities of local and state communities while providing AEF support to the Air Force. This can all be done in addition to our historic role — augmenting the total force warfighting capability.



**Col Janice M. Stritzinger took the reins as The Civil Engineer, HQ Air National Guard, Andrews Air Force Base, MD, in July 2000.**

but they also provide skills honed and learned in the private sector. We have enlisted personnel in my old Air Force specialty of site development who are registered professional engineers and architects. We have fire protection individuals who are members of very active local fire departments. We have officers who are production designers and project managers for architectural and engineering firms playing an active role in the everyday construction business across the United States and overseas. This depth of knowledge provides a synergistic, experienced, cost-effective method of adding value to the Air Force mission.

*The CE:* Is it difficult to balance federal readiness requirements with individual state concerns?

**Col Stritzinger:** It is as difficult as balancing federal readiness requirements for individuals with CINC [commander-in-chief] and MAJCOM [major command] concerns. States have unique issues that can and have been addressed with the Guard force structure currently provided. Our federal mission is typically our primary mission, with the exception of emergency response. It is this federal mission that allows us to use our skills to benefit states and local communities in times of need. These federal opportunities help us to further hone our skills for support of the state mission and are a highly visible demonstration to the local community of the military capability this nation possesses.

Without our participation in state exercises and missions, the total force would have a harder time recruiting our young men and women into the profession of arms. As a shrinking number of the nation's population have any direct military experience, this exposure in local communities can strengthen the connection that the country as a whole feels toward our military, so we have their support when we need it for broader missions.

*The CE:* Has ANG civil engineering's culture changed as a result of the increase in real world deployments?

**Col Stritzinger:** After my recent trip to Southwest Asia, I found that real world deployments have offered our personnel an opportunity to put to use the training and equipment provided by the Air Force. I was refreshed to find that our culture is still healthy. In general, our personnel look forward to accomplishing real world missions. Utilized properly, they come back from deployments with a sense of accomplishment and contribution to the Air Force mission.

Our folks are not in the Guard for the money, but for a patriotic sense of duty to country, accomplishment of national and world missions, sharing experiences with brothers and sisters in arms, and continuing military service while pursuing a civilian career. The caution is that when our total force military folks get bored or are not used as they have been trained, they will take their expensively attained skills and do something else that they do find challenging.

Our other concern is to not overuse this resource. The culture within the Guard must always remember that our troops answer to civilian employers as well. The support of these civilian employers is critical to the success of the Air National Guard and, in turn, the Air Force.

*The CE:* The 554th RED HORSE Squadron is on its way to being a full-up, total force squadron, combining the strengths of active duty and air reserve component

As the Air National Guard Civil Engineer, Colonel Stritzinger oversees civil engineer and services force structure, administering a force of more than 11,000 personnel. She directs all ANG readiness training, facility planning, programming and construction, environmental activities, and the negotiation of land leases and airport joint use agreements for 170 ANG installations with a combined plant replacement value of \$12.6B.

civil engineers. Do you expect to see the number of total force civil engineer squadrons increase in the future?

**Col Stritzinger:** I would hope that we could find additional areas to partner in total force squadrons. I think that it is unavoidable and desirable. The National Military Strategy, operations tempo, Quadrennial Defense Review, Total Force Assessment and other comprehensive reviews must and will drive unique and innovative partnering for mission accomplishment.

We need to do a better job of understanding Air Force issues, strengths and weaknesses, and the active force needs to do a better job of understanding Guard and Reserve issues, strengths and weaknesses. The ultimate difficulty will be finding the resources for mission requirements that will allow the special talents we each bring to the mix to be used to provide the most cost-effective solutions to the Air Force of the future.

Colonel Stritzinger has achieved several historic firsts in both the Air Force and the Air National Guard. When she enlisted in the Air Force in 1971, she was among the first group of women selected to enter the newly opened career field of site development specialist, serving with the 44th Civil Engineering Squadron at Ellsworth AFB, SD, and the 21st CES at Elmendorf AFB, AK. She was the first woman to be assigned to an engineering specialty in Alaskan Air Command.

She joined the ANG in 1977, and was assigned to the 176th CES at Kulis ANGB, AK. While at Kulis, in 1987, she became the ANG's first female base civil engineer and base fire marshal. Colonel Stritzinger later moved to Headquarters ANG at Andrews AFB, MD, becoming the first female to serve as The Civil Engineer in the ANG and the first female major command CE.



**Colonel Stritzinger with total force firefighters on an AEF rotation in the United Arab Emirates. Standing opposite Colonel Stritzinger on the P-19 is the ANG Chief Support Officer, Col Terry Scherling.**

# Building a Brighter Future

Alaska and New Hampshire Guardsmen team up to build a school in Ecuador

by Maj Donna M. Prigmore  
*176th Wing Public Affairs*

Nestled in the Pacific coastal lowlands of western Ecuador lies the tiny village of Pacoche en Medio. A drive down the one and only dirt road that passes through the serene, rural village reveals sites of everyday living; mules carrying heavy loads, farm animals scurrying about, and people looking out from their bamboo homes.

Sounds so familiar to us as city dwellers don't exist in this village of 450 people. There are no horns honking, no telephones ringing, and no televisions playing. Instead, the occasional bray of a burro, the crow of a rooster, or the stir of a child playing alongside the road are typical sounds filling the air.

Life is simple here.

Men either fish commercially or farm for a living. Women stay home to raise children, care for elderly parents, and weave baskets and hats for commercial sale. Children attend school for nine months out of the year in the one schoolhouse (a 30-year-old bamboo structure) available in the village.

The school, damaged over the years by the forces of

El Niño, provides a forum for elementary (kindergarten through sixth grade) education. No opportunity beyond that level exists in the village. Once 6th grade is completed (usually at age 12), boys quickly transition into adulthood and go to work with their fathers. Girls stay home with their mothers and help with domestic chores; and so the cycle goes.

But not for much longer. The cycle is about to be broken and children's lives changed thanks to Air National Guard civil engineers from Alaska and New Hampshire who deployed to Pacoche in February and March, respectively, to build a much-needed school there.

On February 11, 41 members of the 176th Civil Engineer Squadron from Anchorage, AK, began phase one of a project to build a two-room schoolhouse, home economics building, water storage tower and latrine system for the people of Pacoche en Medio. Two weeks later, on February 24, 35 construction members from the 157th CES from Portsmouth, NH, arrived to take over from the Alaskan engineers and complete phase two of the project.

Over the four-week construction period, the civil engineers mixed more than 55 cubic yards of concrete and 2 cubic yards of stucco, shoveled 15 cubic yards of rocks and 10 cubic yards of sand, hand placed hundreds of five-gallon buckets of concrete, laid more than a thousand concrete blocks, welded scores of steel bars for windows, and installed more than 2,100 square feet of metal roofing.

With temperatures averaging 85-90 degrees, heat exhaustion was of prime concern and proper hydration the number one goal for the men and women who spent hours each day sweating from extensive manual labor. Hundreds of bottles of water were consumed by the crews, an effort that ultimately paid off since no one became ill from the heat.

As with most construction projects, however, not everything went as planned for either team.

For the Alaskans, adversity struck the first day on the job. They arrived at the site expecting to see a concrete slab in place for the school's foundation; but it wasn't there. Heavy rains a week earlier made it impossible for the Ecuadorian contractor to accomplish the task in the time planned.

"Not having the slab in place put us four days behind schedule," admitted Lt Col Andrew Mamrol, 176th CES commander. "We were expecting to start laying concrete blocks right away, but instead we had to help the contractor prepare and place the slabs."

For the New Hampshire engineers, heavy rains during the second week of their deployment caused the



**MSgt Charles Sutton, 176th CES, pushes a wheelbarrow full of concrete during the first phase of construction of a new school in a village in Ecuador. (Photos by Maj Donna Prigmore)**

project to come to a complete halt for at least a day. The road to the village was washed out and, in some areas, covered by up to 3 feet of mud. Six New Hampshire engineers hiked 3.5 miles to the construction site to assess likely damage to the school. Fortunately, the site had remained unscathed by the wind and rain, and within 24 hours the crews were back at work — but not in the usual way.

For the next two days the village road remained impassable, so the entire crew had to hike 3.5 miles to reach the site, assisted only by small pick-up trucks when possible. Although poor road conditions caused significant delays in the remaining four days of the construction project, the civil engineers pressed on, unwilling to let the forces of nature interfere with their goal to complete the major construction phases of the school.

Perhaps the greatest challenge for both citizen soldier teams while deployed to Ecuador was the lack of modern tools and heavy equipment. Fortunately, the teams brought an assortment of power tools and power generation equipment, all of which helped move the project along.

“Without our contingent of tools, this project would not have come together in the time allotted,” said Capt Ed Soto, 176th CES project officer.

A concrete truck was perhaps the one heavy equipment item sorely missed by all. Having no means to mix and place large amounts of concrete, the engineers had to

rely on two small mixers, several wheelbarrows, and lots of 5-gallon buckets for placement.

The teams’ resource limitations were completely overshadowed, however, by the graciousness of the village people. Each day, they waited with excitement for the bus carrying the engineers to arrive in the village.

“We woke up at 5 a.m. daily, ate breakfast at our hotel in Manta, then took a 40-minute bus ride to the job site,” explained SMSgt Tom Hull, 176th CES. “It was easy to get up that early knowing we’d be greeted by the waves and smiles of villagers who ran out of their homes as soon as they heard our bus.”

From day one, the villagers showed excitement and gratitude toward the ANG men and women, showering them with kindness and gifts and frequently providing lunches of soups and rice dishes.

According to the village’s schoolteacher, Carlos Vite Rodriguez, approximately 20 students will begin 7th grade in April when the new school year begins. Rodriguez will continue to teach his 70 elementary school students and another teacher is set to teach grades 7-12.

Knowing that the children of Pacoche en Medio will soon be able to receive an education beyond the 6th grade is a feeling of accomplishment hard to put into words for the civil engineers. They not only helped build a community in a small Ecuadorian village, but helped build a lasting bridge between North and South America.



TSgt Todd Peplow and SSgt John Swearingin, both of the 176th CES, pour concrete mix. No concrete mixer trucks were available in the village to aid in the construction of the school.

# “Working Together in the Millennium”

## U.S., German Firefighters Team Up for Training

by MSgt John Olsen  
*469th ABG*

U.S. Air Force firefighters from Rhein Main Air Base, Germany, and firefighters from the Frankfurt International Airport teamed up to learn and practice technical rescue skills during a recent field training session at the German Federal Armed Forces barracks in Mainz. Twenty firefighters and five instructors spent three long and tiring days together, sharing a test of physical endurance, strength and mental stamina.



Firefighters advance a fire stream into the basement to begin an interior fire attack and search the basement for trapped victims. (Photos courtesy 469th ABG)

### Day One

The training began on a cold, damp morning February 20. The crews began beddown operations upon arrival at the site. Knowing that not much time for sleep would be afforded during this bivouac, they hastily set up “home” and within 20 minutes were back to their vehicles unloading the remaining supplies. Chain saws, jackhammers, air packs and a variety of other search and rescue equipment, including more than a ton of heavy timbers, was swiftly staged adjacent to the site of a collapsed building.

The building looked like something one would

expect to see in the midst of a battle zone. Parts of the exterior walls were torn down, debris and rubble were scattered everywhere, and massive concrete slabs with protruding steel segments were partially hidden by an overgrowth of vegetation. The three-story structure, which was built on a concrete foundation with masonry walls and reinforced concrete floors, was purposely constructed to replicate the remains of a collapsed building. It is the center of attraction for a series of training evolutions designed to teach firefighters the physically demanding and technically challenging skills of search and rescue operations.

Air-inflatable tents were strategically located in the north and south sectors of the collapse site. One shelter served as a medical treatment station and the other served as the logistics section for breathing air cylinders, respiratory protection equipment and communication devices. The training grounds quickly took on the appearance of a natural disaster site. Firefighters were now ready for action and were divided into four rescue teams.

Team 1, under the instruction of Oberbrandmeister (OBM)/fire crew leader Jan Scheffler of the Frankfurt Airport Fire Department, learned the techniques of building shoring operations. With hammers swinging and chain saws ripping through heavy timber, the firefighters precisely erected stabilizing structures to prevent wall and ceiling collapse of the training prop.

Meanwhile, Team 2, under the instruction of Brandinspektorenanwärter (BIA)/fire officer candidate Harry Trumpler, was busy breaching and breaking through 14-inch masonry walls using air-operated jackhammers, electric hammer drills and gasoline-operated masonry cutting saws.

About 100 yards to the south, on top of a three-story training tower, SSgt Joel D. Steffel of the Rhein Main AB fire department drilled Team 3 on technical rope rescue evolutions. Firefighters learned to rappel and perform vertical and horizontal rope rescue operations using state-of-the-art equipment from Rhein Main’s Tactical Rescue Unit.

At the collapsed structure the lead instructor, OBM Stephan Syring, instructed Team 4 firefighters on tactical considerations and hazards of structural collapse rescue. Following a walk (and in many cases, a crawl) through the structure, the team donned self-contained breathing apparatus for their first of many journeys through a 70 centimeter diameter tunnel.

Two firefighters entered the small opening and advanced the length of the tunnel. After negotiating about 20 meters of the tunnel, the team was directed to turn at the first opening on the right, which sent them down another 7 meters in the tunnel system. This branch of the tunnel ended at a 50 centimeter square opening. Descending through the dark vertical opening took them between two series of “lean-to” floor collapses. Once they exited the tunnel system the three remaining firefighters, who had served as the stand-by rescue team, got to enjoy the same experience.

Throughout the remainder of the day the four teams rotated through each training station, eagerly learning the skills needed to safely execute and implement search and rescue tactics. Fourteen hours of hard, deliberate training took its toll. The crews returned tired and cold and ready for a hot meal. By 11 p.m. they were fast asleep, getting needed rest for the day to follow.

### Day Two

Armed with training and tools, and with confidence bolstered, the rescue crews were tasked to demonstrate their technical expertise at a simulated building collapse incident.

The exercise began at 9:30 a.m. when teams were informed that a gas explosion had occurred in a three-story apartment, causing parts of the structure to collapse trapping five residents. Large volumes of smoke, produced by three smoke machines, billowed over the incident site.

The instructors served as incident and sector commanders for the firefighting and rescue activities. Their assessment of the site revealed that the structure had sustained heavy damage from the explosive blast. The east wall appeared to be heavily weakened and unstable and an uncontrolled gas fire raged in the basement.

Firefighting and rescue teams aggressively combated the fire and located and rescued the victims using the structural collapse rescue techniques practiced the day before. After almost three hours of strenuous rescue work, the incident commander declared the situation under control and ordered termination of the exercise.

Following a 45-minute break and rehabilitation period, the instructor staff conducted a debriefing of the firefighting and rescue activities and directed the reconstitution of equipment from the incident site, completing the first half of training activities for day two.

Next, the four rescue teams rotated through an additional series of training stations where they practiced cutting through structural steel members using oxygen-acetylene torches and other metal cutting devices, continued technical rope-rescue evolutions, and practiced ascending and descending the interior shaft of the training tower using mechanical advantage hauling systems and a tripod.

Meanwhile, crews attached to supplied-air breathing

apparatus again advanced through the long and confined space of the tunnel system, this time filled with smoke creating zero visibility. When they reached the void space of the smoke-filled “lean-to” collapse, they observed search techniques and the use of thermal imaging equipment to locate trapped victims.

### Day Three

The final morning of training was dedicated to reconstitution of the training site and equipment. General servicing and cleaning of tools and equipment and loading of vehicles ended the activities at Mainz. The convoy formed and returned to Frankfurt Airport/Rhein Main AB.

### Objectives Met

The test was over, and as a “team” they had superbly completed all course objectives. Firefighters from two different organizations, countries and cultures had come together and achieved mutual goals.

This is just one example where the Frankfurt Airport and Rhein Main AB fire departments joined forces to collectively enhance their emergency response capabilities. The two share a cooperative and productive work relationship. The technical expertise and mutual support they provide each other is highlighted by their motto: “The Frankfurt Airport Fire Departments — Working Together in the Millennium.”

*MSgt John Olsen is the fire chief for the 469th Air Base Group Fire Protection Flight, Rhein Main Air Base, Germany, and was one of the instructors during this field training session.*



Firefighters train on techniques to cut through protruding structural steel members.

# Air Force Engineering Made in France

## *Little-known mission a big job for Elmendorf engineers*



by MSgt Kenneth Fidler  
*16th Expeditionary Operations Group Public Affairs*

Four Air Force guys, a room full of power tools, and almost 1 million square feet of working space. TV's Tim "The Tool Man" Taylor would be overjoyed.

That's what confronted four engineers from the 3rd Civil Engineer Squadron, Elmendorf Air Force Base, AK, when they arrived at Istres Air Base, France, in February for a 90-day deployment.

"We thought we were going to meet up with a bigger CE unit," said MSgt Bill Gann, environmental engineer and CE team chief. "Turns out, we were the CE team for the whole deployment."

This little-known mission became a big chore for Gann and his three engineers, TSgt Aubrey Goff, an electrician; SSgt John Douglas, a structural craftsman; and AIC Sean Blanchard, a power production journeyman. The 970,000 square feet of real estate comes with enough clogged pipes, power problems, leaks, and grounds maintenance (even snaring a snake) to keep any CE crew busy.

**SSgt John Douglas cuts the frame of a metal cage door as part of a project to expand a storage area for the U.S. Air Force detachment at Istres, France. (Photo by MSgt Kenneth Fidler)**

The CE team was among approximately 180-200 active duty and Air National Guard personnel deployed to a small U.S. Air Force detachment, the 16th Expeditionary Operations Group, located at this French air base approximately 40 kilometers from Marseilles. About 50-60 of the group are active duty personnel on 90-day Aerospace Expeditionary Force deployment orders.

The Air National Guard runs the flying mission, rotating its 17 tanker units every month, with intra-unit personnel rotations every two weeks. Three active duty aircrews and a handful of maintenance personnel from McConnell AFB, KS, join them every two months. The crews fly KC-135 Stratotankers that refuel U.S. and NATO aircraft patrolling the skies over the Balkan region under NATO's Operation JOINT FORGE.

The U.S. Air Force has had an expeditionary mission here since 1994. Prior to 1997, U-2 reconnaissance planes flew out of Istres. The U-2s moved to southern Italy, but the refueling tankers stayed on French soil.

The engineers won't soon forget their tour at Istres. The hangar in which the unit operates measures more than three football fields in length and about one in width. The Air Force leases the hangar from the French aerospace company, Dassault Aviation.

"It's 900 meters all the way around; I walked it with



**TSgt Aubrey Goff (left) and MSgt Bill Gann cheer a French youngster's tennis ball toss during a visit to the U.S. Air Force detachment at Istres. The boy, Quentin, is affiliated with a local shelter that provides transition assistance to families who have been victims of domestic abuse. The 16th Expeditionary Operations Group played host to the children for a day of fun and games. The CE team built the wooden game boards for the children. (Photo by MSgt Keith Reed)**

the measuring wheel because I was going to mark off a jogging path when the weather got better," Goff said.

They were welcomed on their second day, Feb. 19, with a lightning storm that knocked out the power. Looking for the circuit breakers — some hidden — proved difficult. The hangar has 20 main circuit breakers and hundreds of smaller ones.

The next week, they walked 8,000 feet of taxiway to install reflectors every 50 to 200 feet for nighttime flying operations. They walked in 60 mph winds called the Mistral, which are notorious in this region in springtime, and measured the distance with a measuring wheel.

"I was worried about getting here and having nothing to do," said Douglas, recalling his deployment preparation. "I brought tons of books, thinking I'd have nothing to do when work was over." The team worked every day for the first two months, averaging 10-12 hours a day, taking one Sunday off. They built walls in offices, patched the hangar floor, fixed weed-eaters and lawn mowers, painted parking ramp lines, unplugged bathroom drains, and added 200 square feet of storage area for the base exchange.

"You name it, we've done it," he said, including replacing more than 100 fluorescent light bulbs and installing more than 150 smoke detectors.

One project came with the spread of foot-and-mouth disease in the United Kingdom and other parts of Europe. "We treated all the food trash with acid," Gann said. "In the beginning, we had to take it over to the French side for disposal because they had very strict procedures; later, we disposed of it ourselves."

Blanchard handled hazardous waste disposal, keeping

track of used oil, hydraulic fluid and batteries from aircraft maintenance.

He did other things he probably wouldn't do at Elmendorf, like training incoming units on how to use the one U.S. and two French-made fire extinguishers near the maintenance area. "That's a firefighter area, but we didn't have firefighters. So, every Guard rotation I showed them how to use the fire extinguishers at the other end of the hangar."

Col Bill Smith, who's been the 16th EOG commander since December, said the sheer size of the hangar is probably the biggest challenge for civil engineers.

"The hangar is an immense 80,000 square meters and requires extensive maintenance," Smith said. "The French stopped using this hangar in the mid-70s, so very little was done on the building until the Americans took over in the mid-90s. The plumbing and electrical and water systems are outdated and need constant repair."

Smith added that he was "impressed" with how the CE team managed to keep up with a big workload and find time to volunteer in charitable ways.

On May 16, the unit played host to children from a local transition shelter for women who have suffered domestic abuse. "It was the CE folks who built games for the kids and stayed around to entertain them throughout the afternoon," Smith said. "Truly a great group of professionals."

As the group prepared to re-deploy to Elmendorf, Gann looked back on the deployment. "We left this place better than we found it," he said, "and the things-to-do list is ready for the next crew."

# Time for a Change-Out

Power pros don't just keep the electricity flowing on base, they also operate and maintain the barrier systems that are on ready status anytime an aircraft is in the air.

by TSgt Jeff Hufford  
*100th CES*

From keeping power facilities up and running to maintaining aircraft arresting systems (cables and barriers) that save lives and aircraft, Air Force civil engineer electrical power production personnel, or "power pros," are a multifaceted career field specialty. As in other civil engineer squadrons, the 100th CES power pro section installs, operates and overhauls electrical generating power production plants and equipment along with the base's aircraft arresting systems (AAS). They recently accomplished a 10-year overhaul and change-out of the AAS in April.

## Generating Work

The 100th CES' eight-man power pro shop, seven military and one civilian, supports the entire Royal Air Force Mildenhall, England, community with emergency backup power. The base has approximately 30 commercial generators,

ranging from 8 to 350 kilowatts each. These are used to support critical facilities such as the wing command post, base communications, the air control tower and others.

The generators are completely automatic in that they sense the presence of commercial power. When one phase of power senses a drop in voltage or frequency, the automatic transfer panel (ATP) will start the genera-

tor and transfer the commercial power to generator power. Once power is restored and a preset timer times out, the ATP will automatically switch back to commercial power and shut down the generator.

Power production personnel are required to test these generators once a month under building load to ensure 100 percent reliability. Because of their minimal manning and the number of generators they support on base, they also train the users on how to operate the generators in the event of a total power outage.

The team also supports numerous scheduled power outages each year, while base electricians perform periodic maintenance on electrical distributions and transformers. To ensure no degradation to the mission, they have approximately 30 mobile generators, ranging from 5 to 200kw each, that can be installed for affected buildings.

Last year the team supported 20 scheduled power outages, including ones in the dining facility, the local area network system and the commissary, and they expect to support about the same number again this year. Their mobile generators also supported the United Service Organizations (USO) concert tours hosted by the 100th Services Squadron, such as Tonic and Tops in Blue.

The power pros support numerous unscheduled power outages as well. Last year, after a cable was accidentally cut by a contractor, they installed a generator for a dormitory and the Professional Development Center. This occurred at about 4 p.m. on a Friday and it was pouring rain — not the greatest time to install an electrical generator. However, the team knew that to ensure quality of life for dorm residents over the weekend, they had to get it done no matter what.

Power pros perform the same job in wartime, supporting nearly every major operation. Last year the 100th CES sent personnel to Mozambique in support of the African flood relief effort, as well as to Cameroon, Africa, to support Med Flag, a joint military medical exercise. They also provided prime power for operations in Turkey during the Kosovo crisis.



(Top) An F-15's tail hook engages the steel cable of the aircraft arresting system on the runway at RAF Mildenhall, England. (Photo by A1C Rasheen Douglas) (Above) A1C Trezith Smart removes the clutch from the old BAK-12. (100th CES photo)

## An Engaging Job

Power pros also operate and maintain the base's AAS. These systems are somewhat like the ones used on Navy aircraft carriers. However, whereas the Navy uses an AAS for every landing on a ship, the Air Force uses them only for emergencies such as total hydraulic failure or hot brakes. The purpose of an AAS is twofold — to save the pilot's life and to save the multimillion-dollar aircraft from skidding off the runway.

The AAS at RAF Mildenhall is comprised of two BAK-12s. They have two rotary friction energy absorbers, also called arresting engines, located on each side of the runway. Each absorber has two four-rotor Bliss brakes mounted on a common shaft along with a 1,200-foot, 7-inch-wide nylon tape storage reel. The nylon tape is directed underground to the edge of the runway and through a deck-sheave or fairlead beam used to direct the tape path along the runway edge and avoid conflict with runway edge lights. The tape is then connected to a 1.25-inch steel cable that is connected to the purchase tape and absorber on the opposite side of the runway. The cable is elevated 2 inches off the runway surface to accommodate engagement with a fighter plane's tailhook.

In the event of an in-flight emergency (IFE), the pilot lowers the plane's tailhook before landing. The tailhook engages the steel cable, paying out the stored 1,200-foot nylon tape. As the absorbers' storage reels on both sides of the runway begin turning, the common



SSgt Andrew Franks, 100th CES Heavy Repair, uses a crane to hoist the old BAK-12 system out. (Photo by SSgt Karl Danforth)

shaft drives a hydraulic pump and a gear reducer through chains, developing hydraulic brake pressure that is controlled by a gland and a needle valve. The pressure applied to the brakes creates friction and, much like the system in your car, the energy of the aircraft's forward momentum is converted to heat, slowing the aircraft to a smooth, safe stop.

After the aircraft is disengaged by transient alert and fire department personnel, the AAS is rewound by gasoline engines in approximately three minutes, ready for the next emergency. Total operation time from aircraft engagement to complete rewind is approximately 10-20 minutes, depending on the length of aircraft runout. The operation is a complete team effort, relying on communication between air control tower, fire department, transient alert and barrier maintenance personnel.

The BAK-12 AASs are capable of arresting tailhook-equipped aircraft at a nominal weight and speed of 50,000 pounds at 180 knots. Random cable failures occur at speeds exceeding 180 knots.

The BAK-12 energy absorbers are overhauled every 10 years as part of their periodic maintenance. They are recertified each year by aircraft engagement at approximately 90 knots. The annual certification engagement is accomplished to ensure the integrity and safe operation of the system.

The arresting systems at RAF Mildenhall are maintained to ensure an alternate divert location for RAF Lakenheath's fighter mission. In the event of an IFE on Lakenheath's runway, Mildenhall's barrier maintenance team is given approximately six minutes to rush from wherever they are on base to the runway to install the cable in case RAF Lakenheath's fighters are diverted. The team has received many accolades from RAF Lakenheath commanders as well as RAF Mildenhall's air control tower and base operations for breaking their own records, activating the AAS within three minutes.

The arresting systems at RAF Mildenhall are maintained to ensure an alternate divert location for RAF Lakenheath's fighter mission. In the event of an IFE on Lakenheath's runway, Mildenhall's barrier maintenance team is given approximately six minutes to rush from wherever they are on base to the runway to install the cable in case RAF Lakenheath's fighters are diverted. The team has received many accolades from RAF Lakenheath commanders as well as RAF Mildenhall's air control tower and base operations for breaking their own records, activating the AAS within three minutes.

## Mission Ready

Power pros are always on call. With responsibility for the base's emergency electrical power and aircraft arresting systems, that call can come at all hours of the day and night. But with that responsibility comes great personal satisfaction in doing what it takes to support the mission.

*TSgt Jeff Hufford is the noncommissioned officer in charge, 100th CES Electrical Power Production/Barrier Maintenance Section.*



SSgt Karl Danforth connects a load cable to a MEP 7 (mobile electric power) generator. (100th CES photo)



# All Aboard!

## COVER Train keeps enlisted education & training on track

by MSgt Ron Brown  
*HQ AFCESA*

In this time of high operations tempo, meeting training requirements is a top concern for both civil engineer commanders and troops. Between maintaining bases and meeting Aerospace Expeditionary Force deployment taskings, there's barely enough time to get our work done, much less focus on accomplishing skills and contingency training.

CE has stepped up to the challenge with the release of COVER Train, an integrated training delivery and management system designed to deliver the growing family of training materials to CE units in a centralized, simple and accessible format.

COVER Train is an acronym for "Contingency,

Operations, and Vocational Engineer Review Training." The "engine" of this train metaphor is the software, and the 13 civil engineer Air Force Specialties (AFSs) are its "cars." This vehicle provides a quick, flexible and inexpensive way to deliver training materials ("cargo") to the field and track trainees' progress.

### From paper to plastic

In recent years, civil engineering has seen the advent of computer-based training to augment both classroom and on-the-job education. The result has been significant cost avoidance, time redemption, and a high-quality product that is convenient, flexible and effective. Accordingly, CE's vision for training promises a shift away from paper, to plastic, and eventually into the world of electrons.

The Air Force Civil Engineer Support Agency (AFCESA) has responded by systematically reducing paper use — delivering training materials such as Career Field Education and Training Plans (CFETPs), Air Force Qualification Training Packages (QTPs) and software upgrades to the Certification and Testing Program via the web.

Despite successes with web-based delivery, we concluded that the main thrust of quality training will best be served by starting with stand-alone platforms like CD-ROM and DVD (digital versatile disk). Why? Because we must meet seven key criteria to ensure training excellence:

- Reliability (available on-demand)
- Stability (limited interruption while training)
- Simplicity (easy to train and use)
- Flexibility (adaptable to Air Force and commercial off-the-shelf systems and software)
- Capacity (high volume for video, simulations)
- Clarity (legible, audible and ergonomic to users)
- Accessibility (attainable from multiple locations)

### One-stop shopping

AFCESA began developing COVER Train, which is currently under review for Air Force-wide application, in response to the need to consolidate subject and task knowledge training tools. Considering civil engineer education and training's relatively short shelf life (one to three years) and "intra-disciplinary diversity," there was a real need to increase standardization in training and eliminate high printing and distribution costs. The solution was to consolidate all training tools, devices and instruments into one delivery system for "one-stop shopping."

COVER Train will be used to fulfill all training functions except, of course, hands-on training. This includes CFETPs, QTPs and Career Development Courses. It has been designed for use at home, in the field, or on deploy-

ments, and offers Internet links to quickly and efficiently capture the most current publications and updates.

## Keeping training on track

The COVER Train package includes an E-Tutor, which will be used by unit education and training managers (UETMs) to train their assistants. Training sessions will also initially be delivered via satellite broadcasts.

The UETMs will load data for themselves and their shop supervisors into the program database. COVER Train disks will then be issued to each shop to be loaded on shop computers. Shop supervisors will load their master task listing (MTL), trainers and certifiers.

Trainees are then loaded by their trainers and are issued a CD or DVD to accomplish training. Trainee records can be updated daily in the shop by way of e-mail or a 3.5-inch floppy disk from their home computer.

Most training, i.e., subject and task knowledge, occurs away from the work center. Trainees will load their own student version of COVER Train on their personal computers and transmit training progress using e-mail and/or a floppy disk.

When COVER Train's Certificate of Networthiness requirements are complete, the unit's server will facilitate the flow of data from the UETMs to the shops and then to each individual trainee.

When a trainee PCSs to their next assignment, their data is transmitted via e-mail and their individual records are backed up on a floppy disk.

## Everyone's onboard

COVER Train is intended to interface and exchange data with other management systems such as the Automated Civil Engineer System (ACES). We've teamed with several agencies to ensure COVER Train is "on-track" and in concert with Air Force systems: Air Force Institute for Advanced Distributed Learning, Air Force Personnel Center training officials, Systems Support Group programmers, the Deputy Chief of Staff for Installations and Logistics Maintenance Directorate's Maintenance Analysis Training Advisory Group, and Air National Guard and Air Force Reserve Command functional training managers. We've also partnered with the Deputy Chief of Staff for Communications and Information Force Management Division's Force Development Branch to accelerate Air Force Portal delivery. We've begun preparatory steps to link with the Deputy Chief of Staff for Personnel Training Division's "Personal Trainer," and interface with the Air Force's new personnel data (MilMod) and logistics module (LOGMOD) systems.

## So, where are we now?

After 20 months of development and testing, the

## Unique functions and characteristics of COVER Train:

- Auto e-mail information transfer
- Auto updates for forms, records and documents
- Digital video
- Personal organization system

COVER Train program is ready to leave the station bound for civil engineer units. In December 2000, we completed beta testing of COVER Train in 29 locations, compiled and prioritized feedback, and produced version 1.0. In addition, The Civil Engineer, the Deputy Chief of Staff for Installations and Logistics, and the major command Civil Engineers have all been briefed on COVER Train and its applications.

The initial release of COVER Train will be delivered to CE units in CD-ROM and DVD formats. DVDs will only be delivered to requesting units who meet predetermined criteria (accessibility to recommended systems, etc.). We will eventually migrate program distribution to the web, as bandwidth increases and we can rely on it as a stable environment.

Only five CE specialties (electrical; structural; heating, ventilation & air conditioning (HVAC/R); pavements & equipment; and utilities) will be "boxcars" on the initial release. Version 2.0, due for release in Spring 2002, will pull all 13 AFSs. Subsequent versions will also be web-enabled to maximize accessibility and ease of use.

For more information on COVER Train contact Mr. Ralph Gruber at DSN 523-6181, or e-mail: [ralph.gruber@tyndall.af.mil](mailto:ralph.gruber@tyndall.af.mil)

*MSgt Ron Brown is a civil engineer enlisted career field manager at HQ AFCEA, Tyndall AFB, Fla.*



"Sergeant Cyber" is a 3-D, computer-animated character featured in the "E-Tutor," part of the COVER Train package.

# Opportunity Knocks

## AFIT's graduate education program boosts Air Force careers

An interview with Col George K. Haritos, Commandant, Air Force Institute of Technology, Wright-Patterson Air Force Base, OH.

*The CE:* What are the advantages to an Air Force officer of attending the Air Force Institute of Technology for their graduate education versus a civilian institution?

**Col Haritos:** The fundamental difference that makes AFIT unique is we have one customer, the U.S. Air Force. An Air Force officer attending a quality civilian university can expect to receive a very good education. However, since the university has no knowledge of who will hire each graduate, it can only provide Air Force students with broad, “generic” if you will, preparation. That’s where AFIT provides a distinct advantage.

Air Force officers who come to AFIT know what their assignments will be upon graduation. That allows us to customize the education in each major, and many times for each student, to prepare them for the needs of the Air Force organization where they will be working. I often say that although there is no “Air Force” differential equations, physics or electrical engineering, there are

specific Air Force applications for each. Our professors bring these connections to the classroom — how they are applied to enhance the Air Force mission.

We also require our master’s students to complete a thesis. This is becoming less prevalent at many civilian universities. The master’s thesis is important because in most cases it represents the first opportunity for the student to be a producer, rather than a consumer, of information. Aside from the value of the research to the Air Force sponsor, attacking and completing a major individual research project provides excellent experience to our young people and represents a significant foundation for their development for

leadership positions.

Nearly 90 percent of thesis topics at AFIT are sponsored by the Air Force or the Department of Defense. At a civilian university, when a student looks for an advisor to do a thesis, the topic has been predetermined. Captain Smith cannot say, “I would like to work on facilities engineering development, the way we do it in the Air Force.” If the professor has no funding support in that

area, he’s not going to help Captain Smith do that. Some professors will pick up an occasional student without money, but usually graduate students work with professors who have already won research grants and need help executing them.

Another advantage we have over civilian institutions is that half our faculty members are military officers who stay here an average of only four years. This means we have a constant influx from the field, bringing the latest issues to the classroom. There is no way our program can become stale, because we know exactly what the Air Force needs.

Finally, you don’t operate in isolation in the Air Force. You always work with those who are in career fields that overlap yours. This is the only place in graduate education where you interface with other Air Force officers who are in operations research, information resources management, electrical engineering, logistics management, or even meteorology, for instance. All of these areas have interplay with civil engineering.

*The CE:* How is AFIT changing to meet the modernization challenges of the Air Force mission?

**Col Haritos:** Let me focus here on the areas of greatest interest to your readers.

The Air Force’s desire to modernize weapon systems is forcing civil engineers to examine more efficient ways of maintaining and operating base infrastructure. As we contract out various functions, it is imperative that young CE officers understand how to manage projects and programs. Project management is receiving increased attention at AFIT and is being applied to a wide variety of topics. We’re also developing a research stream to address total ownership costs of base facilities, determining the right amount of infrastructure maintenance and incorporating the plant replacement value concept.

In the environmental arena, AFIT students actively perform research in innovative environmental remediation methods to help the Air Force clean up contaminated sites in a more cost-efficient way. We will eventually reach a point where environmental issues are more commonly understood and contaminated areas cleaned up. At AFIT, we will begin to focus more on issues such as sustainable development (an ecosystem approach to development), efficient maintenance, and CE contingency requirements, including new responsibilities,



Col George K. Haritos

training, equipment and structure.

We also have a program on space facilities. It is a structures option under the astronautics program. Students receive a degree in astronautical engineering, with a specialization in construction and maintenance of space facilities. We have a simulation satellite that our professors and students constructed here. It's operated to simulate all degrees of freedom, motion, space, and how you dampen motion so you don't overshoot when operating a space structure or satellite and keep it oriented in a certain direction. A follow-on assignment to that program might be with Air Force Space Command or a joint assignment.

For many years, the Air Force has been concerned with life cycle costs of aircraft. How about life cycle costs of facilities? For the last few years we have been addressing the issue of using environmentally friendly materials to make composites for aircraft, so that when they are retired we don't have problems caused by hazardous chemicals present in the manufacturing materials. How about eco-friendly building materials and finding ways to help manage the development of facilities? Here at AFIT we have electrical engineers, computer software developers, structures engineers, aeronautical engineers, and civil engineers, all working toward improving the ability of the Air Force to carry out its mission. There's a lot of synergy.

We have a great relationship with The Air Force Civil Engineer. I think the civil engineer career field is the best organized in the Air Force when it comes to meeting its educational requirements. We are working very hard to develop similar relationships with the other career fields we serve.

**The CE:** Tell us about the recent accreditation AFIT received.

**Col Haritos:** In October 2000, we were visited by a team of educators appointed by the Higher Learning Commission of the North Central Association of Colleges and Schools [NCA]. We were first accredited by the NCA in 1961, and have received the maximum possible 10-year re-accreditations since then. Accreditation is necessary for AFIT's continued ability to confer degrees.

The NCA accreditation process considers all "health" aspects of the Institute: the quality of our academic programs, our faculty's and staff's credentials, our admission criteria, graduation requirements, our management structure and its effectiveness, facilities, library, institutional (Air Force, in this case) commitment, our planning and resources (including budget execution), morale, student critiques, evaluation of our graduates by their supervisors, and other like factors.

At the exit briefing, the team stated that they were very well impressed with all three resident AFIT schools: the Graduate School of Engineering and Management,

the Civil Engineer and Services School, and the School of Systems and Logistics. They were very complimentary of the faculty and staff, the new science and engineering laboratories building, and the planned campus expansion. Focusing on the graduate school, they said they were envious of AFIT's excellent students, faculty and staff. They remarked on the graduate school's focused military-interest programs, saying, "... they are a credit to the nation." Of course, after these remarks, we were not surprised to again receive the full 10-year re-accreditation.

**The CE:** What else is new at AFIT that you would like our readers to know about?

**Col Haritos:** This January we cut the ribbon on a new \$8.2 million laboratory building. It's about 30,000 square feet, including 5,000 square feet of clean rooms for microelectronic mechanical systems and fabrication of electronic components, with sophisticated air cleaners, air handlers, filters, etc. It's an outstanding facility. I remember when I was teaching here from 1982 to 1985, we had most of our students doing their experiments in the laboratories in Area B of Wright-Patterson. Now almost all our students conduct their experiments and thesis research in our own facilities. One of the suites is an environmental suite with the latest environmental facilities for civil engineering students to use.

We have also recently gained approval for a major campus upgrade plan. Modernizing the Graduate School of Engineering and Management building is the first priority because of its age (early '60s era). The number two priority is an addition to the library. We have a great library, but need more space because we recently combined our library with the Air Force Research Laboratory's technical library, accommodating the combined people and holdings in our facility. Third priority is an activities center, what I call a student union, with a gym, student lounge, food court and the like. In the out MILCON years, we have planned for a professional development center and a VOQ [visiting officers quarters] annex.

AFIT offers great opportunities for our Air Force civil engineers, both at the degree-granting, graduate school level, and in professional continuing education. I hope your readers will continually check out our offerings, both in-residence and through the distance-learning program, to see what a difference we can make in their Air Force careers.

Most people have no idea that AFIT is more than 80 years old. The first civil engineering classes began in 1948, so AFIT has been providing education to civil engineers for more than 50 years.

# The GEEM Program

## Graduate Education with an Air Force Focus

An interview with Lt Col Alfred E. Thal, Head, Department of Systems and Engineering Management and Assistant Professor, Engineering and Environmental Management, Graduate School of Engineering and Management, Air Force Institute of Technology.

*The CE:* For those who may not be familiar with the Graduate Engineering and Environmental Management (GEEM) program, what is its purpose and some of its history?

**Col Thal:** The program's purpose is quite simple: to help young civil engineer officers transition from technical duties to middle and senior management positions. Our engineers are some of the best in the world and possess great technical skills from their undergraduate degrees. However, engineering and architectural undergraduate programs typically don't include any courses on organizational management skills. This is a weakness we try to address because our engineers are also Air Force officers and we tend to place them in leadership positions very early in their careers. Therefore, the GEEM program is designed to help bridge that gap between technical and managerial, and provide students with skills and knowledge they can use throughout their careers.

As for the program's history, it was initially called Facilities Management and graduated its first class in 1973. It was renamed Graduate Engineering Management (GEM) in 1980 for two reasons. First, there was a change in the curriculum in response to the career field. Second, it was recognized that very few schools around the country offered degrees in facilities management, while engineering management programs were becoming more prevalent. So, part of the reason for the name change was to increase acceptance within the academic community. In 1991, in response to the career field's desire to develop additional expertise in environmental issues, the program was given its current title.

Over the past three decades, the program has graduated 677 students with master of science degrees. Those students have made significant contributions to the career field, and many have gone on to hold some of the most senior leadership positions in the Air Force civil engineer community.

*The CE:* What other types of changes has the program undergone during this time?

**Col Thal:** Two important changes were the length of the program and focus of the curriculum. From its inception until the graduating class of September 1995, the length of the program was 15 months. For the class that began in June 1995, the program was extended to 18 months to provide more of the courses the career field desired and to provide a more realistic timeframe for students to perform and complete quality research.

During the early 90s, the curriculum became heavily focused on environmental issues and every faculty member had received their doctoral degree in that field. This was appropriate at the time and was in response to the career field's needs. However, those needs changed again in the mid-90s as an increasing amount of environmental work was performed by our civilian workforce or contracted out. In 1995, Headquarters U.S. Air Force civil engineering leadership decided to more fully include graduate education in its annual review of education and training requirements through the Program Review Committee (PRC). As a result, the Graduate Education Subcommittee was formed in May 1995, with an initial objective being to focus the GEEM curriculum to more closely match the requirements of the career field. You could say that the pendulum has swung back to the center, and there is now a more balanced curriculum.

*The CE:* How is the career field involved in these curriculum changes?

**Col Thal:** There are actually two ways — informal and formal. By informal, I'm referring to the networking we, the GEEM faculty, do with the career field. Through friendships and discussions with our peers, we are able to detect trends and identify areas in which the career field is interested. The more formal way is through the Graduate Education Committee (GEC), which makes recommendations to the PRC.

The GEC guides the program's content and emphasis to ensure the curriculum evolves with the changing needs of the career field. The committee, chaired by the Deputy Air Force Civil Engineer and comprised of senior representatives from each major command and field operating agency, reports directly to the PRC and usually meets



Lt Col Alfred E. Thal

annually in March. The PRC, chaired by the Air Force Civil Engineer and comprised of all major command Civil Engineers and agency commanders, meets annually in June to review all CE education and training needs.

Regardless of the manner of involvement, formal or informal, the result may be a change in core courses, a new sequence of courses, development of a new course, or simply incorporating a particular topic in one or more of our existing courses. The bottom line: the GEEM program has always been, and will continue to be, responsive to the career field's needs. Between the reviews accomplished by the GEC and PRC, and internal reviews by GEEM faculty, the GEEM program is ideally suited to provide graduate education tailored to the needs of the CE career field.

**The CE:** How is the current curriculum structured, and what options are available to students?

**Col Thal:** A few years ago, the GEC identified three broad categories in which it recognized that certain abilities and skills desired of CE officers are best achieved through graduate education. First, CE officers should understand the behavior of organizations and be able to help lead organizations to strategic objectives. Second, CE officers should be able to apply basic analytical tools, both quantitative and qualitative, to help improve productivity and optimize resources. This includes all forms of resources — financial, material, information and human. Third, civil engineers should understand and comprehend the regulatory framework in which we operate.

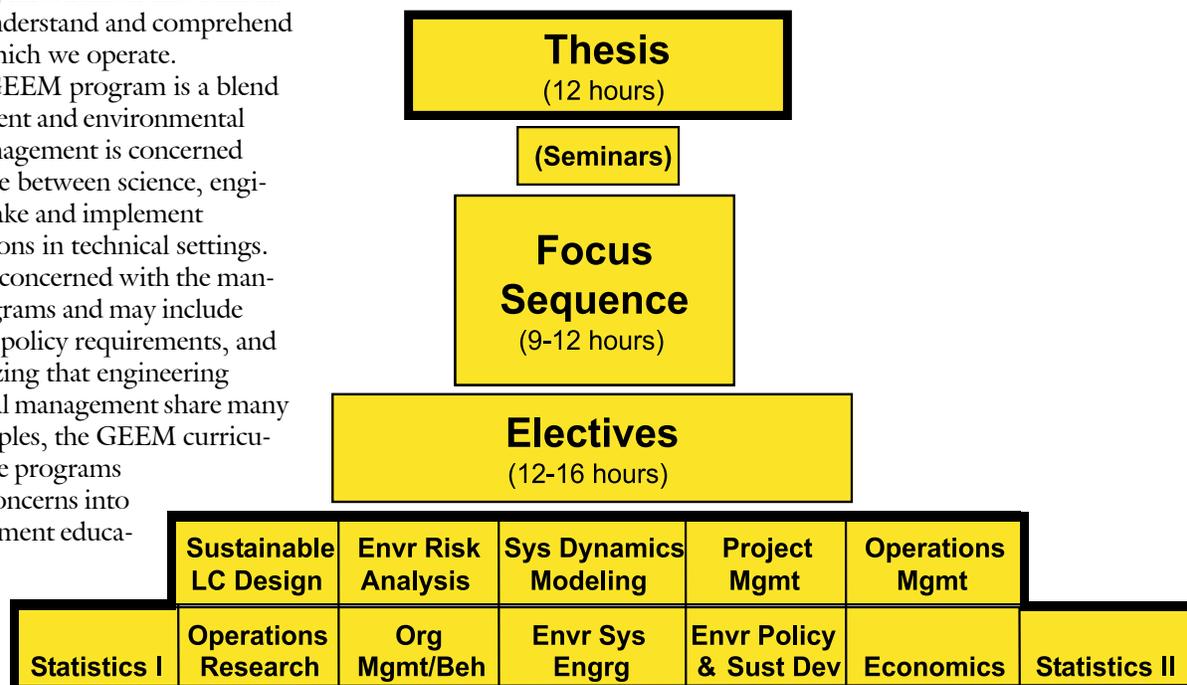
As the name implies, the GEEM program is a blend between engineering management and environmental management. Engineering management is concerned with providing a proper balance between science, engineering and management to make and implement strategic and operational decisions in technical settings. Environmental management is concerned with the management of environmental programs and may include applied science, regulatory and policy requirements, and management skills. By recognizing that engineering management and environmental management share many of the same fundamental principles, the GEEM curriculum goes beyond other graduate programs by integrating environmental concerns into traditional engineering management education. Although the curriculum was heavily slanted toward environmental issues in the early 1990s, the program now strives for a more balanced approach.

There is still a perception that we are heavily focused on environmental topics. I hope your readers will see that this

is simply not the case anymore. In fact, this balance is also reflected in our faculty. Our three civilian faculty members offer a tremendous amount of environmental expertise to the program and our three military faculty members bring more of a management focus to the table. This management focus will continue to improve as we ask our pipeline faculty to concentrate their doctoral studies in more traditional engineering management areas.

Students choosing an engineering management sequence will have about 20 percent of their program come from environmental courses. There are currently two specialty sequences in engineering management. The human resource management sequence reinforces the student's knowledge of human resources in organizations and emphasizes the importance of leadership, strategic planning and policy-making. The quantitative decision making sequence allows the student to more fully explore and understand decision support aspects of statistical analysis.

Students choosing an environmental management sequence will have about 70 percent of their program come from environmental courses. There are currently two specialty sequences in environmental management. The applied environmental sciences sequence presents the science and engineering concepts that govern design of treatment and remediation processes for surface water, groundwater and soils. The environmental systems analy-



**COMMON CE CORE (12 courses / 40 hours)**

**GEEM Program.** The core courses represent what one might expect to find in any traditional engineering management program. Students take all of the core courses and then are free to select a specialty application sequence that provides depth of study in a focused area of engineering management or environmental management and prepares the student for research on a related topic.

sis and management sequence focuses on understanding ecological systems and how these systems are impacted by human activities.

*The CE:* Is the GEEM program accredited?

**Col Thal:** I'm glad you asked that. This is another area where there are some misperceptions in the field. There are two types of accreditation for engineering programs. We are accredited by the North Central Association of Colleges and Schools, one of six accrediting bodies in the United States. Without this accreditation, a degree from AFIT would be essentially worthless. However, with it, an AFIT degree has exactly the same academic standing as a degree granted by other accredited schools.

Accreditation from the Accreditation Board of Engineering and Technology (ABET) is an entirely different matter. The purpose of ABET accreditation is to ensure that a graduate who claims to be an engineer has actually received education in the concepts accepted in this country as fundamental to the practice of engineering. Therefore, it is absolutely critical that a bachelor of science (B.S.) degree in an engineering field be ABET-accredited. Very few schools seek the ABET accreditation at the master's level and above; it just isn't common practice. We have chosen not to pursue ABET accreditation for a number of reasons. If we were ABET-accredited, we could only accept students who had an ABET-accredited B.S. degree, which would eliminate some of our CE officers from eligibility. Another reason is that we don't want to lose our flexibility and responsiveness to the career field by subjecting ourselves to the requirements imposed by ABET.

*The CE:* With what types of research efforts might GEEM students be involved?

**Col Thal:** The only limitations to the type of research a student might pursue are their own interests and the expertise on the faculty to guide the research effort. The list of topics runs the spectrum — we've had students explore the Aerospace Expeditionary Force, RED HORSE organization, SABER contracts, contingency training, landfill performance, and various types of innovative treatment methods for contaminated sites. It's usually about a fifty-fifty split, with half of the class pursuing a traditional civil engineering topic and the other half pursuing an environmental topic.

*The CE:* How does AFIT's GEEM program differ from those offered at a civilian institution (CI) and why would you recommend AFIT over a CI?

**Col Thal:** The primary difference, the one I think the career field is most interested in hearing about, is the Air Force focus we are able to provide. A typical CI does not

have a specific customer; therefore, the programs they offer are usually more generic. The CI programs are usually very solid and some are quite good, but they are unable to give the military perspective from which Air Force officers would benefit the most. Here at AFIT though, we only have one customer, and for the GEEM program that customer is the civil engineer career field. Thus, we are able to coordinate with the career field through the GEC and PRC to provide the specific knowledge and tools required to meet the challenges civil engineers face every day on the job.

Another difference is the number of hours the students take in our program. During the six quarters that students are assigned to the GEEM program, they will take at least 72 quarter hours — 60 coursework hours and 12 thesis hours. A student would probably only take about 48 quarter hours in a typical CI program over the same 18-month time span. There are two primary reasons for this difference. First, we fully understand the potential career impact if a student is unable to finish their program. Therefore, AFIT's philosophy is that an 18-month program is needed to ensure students have a high success rate at being able to complete their research efforts and graduate. Second, to ensure the American taxpayers' money is being well spent, we require students to be on full-time status every quarter. Since 12 quarter hours is considered full-time, the total for six quarters is 72 quarter hours.

Other than these two primary differences, academic life at AFIT is essentially the same as at a CI. A student may have two classes that meet for one hour each on Mondays, Wednesdays and Fridays; and two other classes that meet for 90 minutes each on Tuesdays and Thursdays. Time not spent in class is spent studying, doing homework, using the library, writing papers, conducting research, etc. The academic life is the same, regardless of whether it's at AFIT or a CI, the only difference is that students wear the uniform daily at AFIT and report to a military base for their classes.

Why would I recommend AFIT over a CI? The bottom-line answer is the program is ideally suited to provide graduate education tailored to the needs of the CE career field. The breadth of the program provides classes on topics that meet the career field's needs, and the depth of the program allows students to apply their knowledge to a specific research question. The program is highly interdisciplinary and allows students the opportunity to explore specific aspects of research topics by enlisting support from other departments within AFIT. Also, students have an enormous amount of flexibility in choosing their application sequences and research areas; they are able to customize the professional management and technical skills they wish to learn while at AFIT.

*The CE:* If someone is interested in pursuing the GEEM program, what are the eligibility requirements and the

application process?

**Col Thal:** Our eligibility requirements are fairly straightforward. Our goal is to have students with a 3.0 GPA [grade point average] in their undergraduate engineering program with a 2.5 math GPA. Additionally, applicants should have taken math courses through differential equations and have at least one course in chemistry. We also require qualifying scores on the Graduate Record Exam of 500 on the verbal portion and 600 on the quantitative portion. If an applicant does not meet these criteria, they may ask for a departmental review of their academic records. We recognize that there's not much a student can do to make dramatic improvements in undergraduate GPAs and will take other factors into account to consider the "whole person" — factors such as subsequent success in graduate-level courses, recognition for academic excellence at squadron officers school, etc. However, we are very strict about students having a course in differential equations — it's considered a prerequisite for two of our core courses and we don't want to have a student enter the program and perform poorly right away. If an applicant does have a weak area, we will work with them to suggest steps to improve their academic record. The bottom line I'd like for your readers to take away from this is: please contact us if you have any questions about academic eligibility.

As for the application process itself, it's actually a two-step process. First, an individual submits a formal "Request for Evaluation" to be declared academically eligible (the form is available on AFIT's web site). The next step is to notify AFPC [Air Force Personnel Center] of their desire to attend AFIT with AF Form 3849. It's important that everyone understand that AFIT determines academic eligibility and AFPC makes the final decision on who is selected to attend. Through the GEC, we are discussing some possible changes to the way the process currently works and will let everyone know how that turns out in the near future.

**The CE:** When is the right time for an officer to attend, and is there an active duty service commitment associated with the program?

**Col Thal:** Ideally, we'd like students to have two assignments and five to six years of active duty service under their belts. This allows them to develop a good understanding of the CE business and gives them some experience they can draw from and apply to coursework and research. As I said, this is what we would ideally want. For a variety of reasons though, most of our students are in the three- to four-year group. The key is

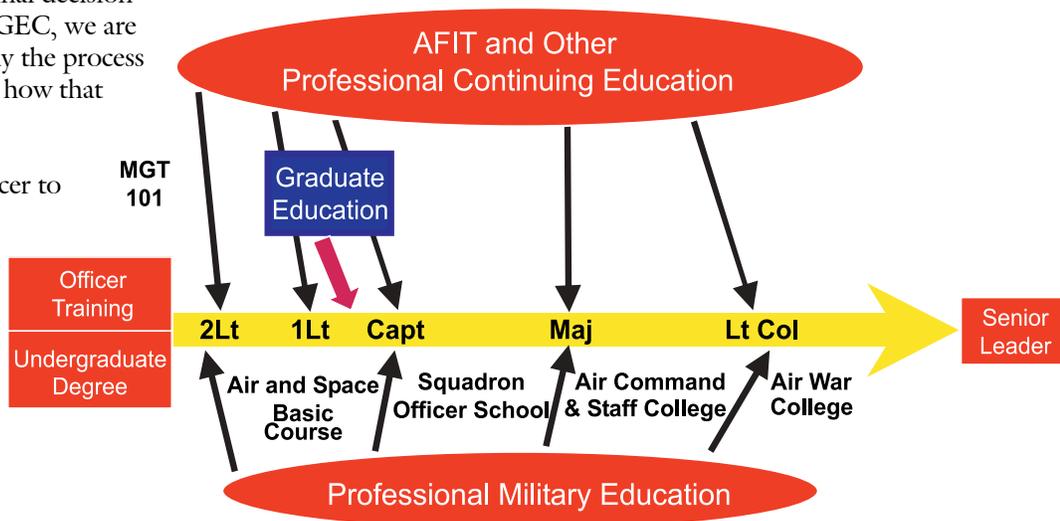
whether the timing fits well with an officer's career development, and that's another area where AFPC plays a critical role. As for the active duty service commitment (ADSC), there is a 3-year ADSC that begins upon completion of the program and runs concurrently with other service commitments.

**The CE:** What types of follow-on assignments do students typically receive after graduating from the program?

**Col Thal:** Most bases have at least one or two positions coded for an advanced academic degree (AAD). Therefore, there are no limitations imposed by the fact that a student has just graduated. As with any assignment, the only limitation is whether there is an opening at the particular base in which the officer is interested. As a matter of information, we usually have one or two people go to a major command, two or three to AFCEE [Air Force Center for Environmental Excellence], five or six volunteer for a remote, four or five might go on an overseas long tour, and the rest go to another stateside assignment. For specifics, I would refer any questions to AFPC.

**The CE:** If an officer has questions about the program, whom should they contact?

**Col Thal:** The phone number for the Admissions and Registrar Directorate (AFIT/RR) is DSN 785-6231. Their e-mail is [afit.counselors@afit.edu](mailto:afit.counselors@afit.edu) and their web page is <http://rr.afit.edu>. For the GEEM program, our departmental phone number is DSN 785-2998 and my office number is DSN 785-3636 x4591. My e-mail address is [Alfred.Thal@afit.edu](mailto:Alfred.Thal@afit.edu) and our department's web page is <http://en.afit.edu/env>.



**Civil Engineer Officer Development.** According to Colonel Thal, the career field believes graduate education should benefit students for the rest of their careers and not simply their next assignment. To support this broad view, graduate education is considered in concert with both Professional Continuing Education and Professional Military Education, with all three areas critical to the career development of CE officers.

# Speaking of AFIT ...

Interviews with current and former GEEM students

**Capt Manuel Fernandez** came to AFIT from the 4th CES Environmental Flight, Seymour Johnson AFB, NC.

*Q.* Why did you come to AFIT and how has it worked out for you?

*A.* I wanted my next assignment to be school, but I really didn't know what to expect of AFIT. My impression of it was that it wasn't really a well-known or respected program, until I started looking into it more. I'm pretty happy with having come here. I think it's a great decision, and the best part of it is now I know 25 other people in CE who I'll run into again and again.

*Q.* What would you say to others who are considering AFIT for their graduate education?

*A.* If they want to get a quality master's degree, I think this is a good program to do it in. A lot of things we do in class pertain to the civil engineer career field, and your only job here is to be a student.

*Q.* Any other advice you'd give to potential students?

*A.* One misconception I had when I came here was that if I did the environmental track that meant I was going to an environmental job when I left. That's not always the case. Last year we had people in the management track who went to environmental jobs, while people in the environmental track went to other types of engineering jobs. So, it doesn't necessarily matter what you do here in terms of the job you get afterward.

**Capt Bill Kale** came to AFIT from Lajes Field, Azores, where he was the base architect with the 65th CES.

*Q.* Why did you enroll in AFIT's GEEM program?

*A.* I wanted a degree in engineering management. It didn't really matter from where. In hindsight, I'm glad I came here because you don't have to

worry about finding your way on your own as in a civilian institution. Here, they grab hold of you, put you through a refresher course, and you have automatic friends because everyone's in the military. They understand your circumstances and are willing to work with you.

*Q.* Is there anything else you'd like readers to know about AFIT?

*A.* It gives you a chance to learn more about the Air Force. If you want to do a thesis on an acquisition topic, an environmental issue, or RED HORSE, you can. Another good thing is three of us were able to take our PE [professional engineer] exam while we were here. Being here gives you the chance to do things like that while you're in study mode.

I think you get out what you put into it. If you come with a lousy attitude and don't put any effort into it, you're not going to get anything out of it. If you put in the effort, you can learn a lot and it should help you reach your goals.

**Capt Laurie Richter** is a Civil Engineer and Services School instructor and recent GEEM program graduate. Prior to attending AFIT, she was the EOD Flight Chief, 377th CES, Kirtland AFB, NM.

*Q.* What advice do you have for those considering the GEEM program? Would you recommend it to others?

*A.* Yes, I would recommend the program to others. I would encourage them to talk to students who are currently going through the program to get an idea of the time constraints and academic load. There is free time to do extracurricular things. At the same time, the studies are hard. The first couple of quarters are the toughest time-wise, because you have a full load. Then, as you go through the program it eases up a little, because you start doing your thesis work and you have fewer courses.

The quarter system is nice because there are built-in breaks for you — one to three weeks during certain parts of the class — so you're able to plan vacations and time with family.

*Q.* What should they do to prepare?

*A.* The biggest thing is to talk with students who are going through it to get a feel for the types of subjects we're teaching now, because it may be different from when some of their commanders went through, even a couple years ago. The program is constantly restructured and tailored to meet Air Force civil engineer needs.



Capt Manuel Fernandez



Capt Bill Kale



Capt Laurie Richter

# Views from the Field

Commentary on Issues Affecting Air Force Civil Engineering

## “Heroes of Defusion”

by Col George J. Nixon  
*36th Support Group Commander*

The fifth day of October in the year 2000 will forever mark a personal milestone. It was the day of my first duties as a *bona fide* on-scene commander.

On-scene commanders respond to incidents where hazardous conditions exist. They are usually not the first on scene. The first responders are usually fire, police or medical personnel, and among them is the incident commander. In the majority of the cases, the incident commander remediates the problem before a more senior on-scene commander is called or even needed.

On this day, the Andersen Air Force Base command post received a request from the Guam Police Department for an explosive ordnance disposal team to dispose of a bomb found at a remote site off base. Permission was granted and a two-man EOD team was dispatched: MSgt Larry Senst and SSgt Jack Burleigh of the 36th Civil Engineer Squadron.

Sergeant Senst, the incident commander, located the bomb in dense jungle about five miles outside Andersen's back gate. He reported to the command post that it was indeed a live bomb, probably from World War II, with fuse intact.

Since remediation required liaison between the landowner, the police department and the local mayor, I was called to be the on-scene commander. I brought with me Capt Aaron Altwies, 36th CES, Capt Brian Thompson, from the 36th Air Base Wing judge advocate office, and SSgt Robert Pullen, from 36th ABW public affairs. Within minutes we were there, meeting the “heroes of defusion,” Sergeants Senst and Burleigh.

Was I impressed! Calm, cool and collected, they guided me through dense jungle to the bomb site. Fearlessly, they strolled to within inches of a horrific ordnance

that could explode at any moment at the slightest provocation. Sergeant Senst quickly explained the type of bomb, the potential fuses used, and a strategy to defuse the bomb. All he would need were some C4 explosives and blasting caps, which I knew nothing about. Having previously reviewed Senst's personnel folder, I knew he was qualified to diagnose and remediate the problem. “Approved,” I said.

It was hot, humid, rainy, muddy and a thousand other adjectives for uncomfortable. But the heroes of defusion were not even breaking a sweat. They trained for this. They lived for this. There was no fear in them, only duty.

I radioed back to Andersen for the needed equipment and within a short time it was brought to the scene by two more EOD professionals, SSgts David Toombs and Ysidro Gonzalez. These men gave me a quick tutorial on C4 and explained the specific objectives of the defusing operation. Together with Senst and Burleigh, they scouted the site and laid preparatory equipment in place.

Soon it was time for all but Senst and Burleigh to back out to the periphery of the EOD cordon, about one-half mile away. We did. At the outer control point I met with the mayor of Yigo, Robert Sanchez Lizama. Together we marveled at the professionalism and bravery of the EOD team. More than 50 times a year they gladly perform life-saving duties from which others recoil.

Soon we heard a small blast. A small blast is the sign of success — bomb defused without bomb explosion.

“It was a successful operation,” came the report.

Soon we headed back to base, I savoring my first on-scene commander experience. In years to come I'll exaggerate and tell of my dangerous trek through the jungle, coming face to face with a dreaded bomb from the gravest war of the 20th century. But when I remember October 5, 2000, it'll really be the heroes of defusion who leap first to mind.

# Continuing Education

**AFIT**  
Civil Engineer and  
Services School

Course No.	Title	Off	Start Date	Grad Date
MGT 101	Intro. to Base Civil Engineer Org.	02A	15-Oct-01	08-Dec-01
ENV 418	Environmental Contracting	02A	22-Oct-01	02-Nov-01
MGT 423 (S)	Project Programming	02A	22-Oct-01	02-Nov-01
SVS 101	Services Initial Skills	02A	24-Oct-01	08-Dec-01
MGT 412	Financial Management	02A	29-Oct-01	09-Nov-01
ENV 020 (S)	Env. Comp. Assessment Prog.	02A	05-Nov-01	08-Nov-01
ENV 531	Air Quality Management	02A	05-Nov-01	09-Nov-01
ENV 419	Env. Planning, Prog. & Budgeting	02A	06-Nov-01	08-Nov-01
Sat Seminar	HAZWASTE	02A	15-Nov-01	15-Nov-01
Sat Seminar	HAZWOPER	02A	27-Nov-01	27-Nov-01
Sat Seminar	HAZWOPER	02B	28-Nov-01	28-Nov-01
ENV 022 (S)	Pollution Prevention Program	02A	03-Dec-01	07-Dec-01
ENG 464	Energy Management Tech.	02A	10-Dec-01	14-Dec-01
ENV 222 (S)	Hazardous Material Mgmt Prog.	02A	12-Dec-01	14-Dec-01
ENG 466	Energy Management Policy	02A	17-Dec-01	21-Dec-01

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

Ft Leonard Wood

Eglin AFB

Gulfport, MS

Course No./Title	Start Dates	Grad Dates
J3AZR3E051-013/Intrusion Detection Alarm Sys.	03-Oct/25-Oct-01	24-Oct/15-Nov-01
J3AZR3E051-012/Fire Alarm Systems	02-Oct/29-Oct/26-Nov-01	26-Oct/23-Nov/19-Dec-01
J3AZR3E071-001/CE Adv. Elec. Troubleshooting	23-Oct-01	20-Nov-01
J3AZR3E051-008/Electrical Distribution Sys. Maint.	10-Oct-01	06-Nov-01
J3AZR3E051-003/Cathodic Protection	15-Oct/31-Oct/28-Nov-01	26-Oct/14-Nov/11-Dec-01
J3AZR3E051-016/High Volt. Cable Test. & Splicing	04-Dec-01	13-Dec-01 (tentative)
J3AZR3E051-007/Airfield Lighting	02-Oct/23-Oct/05-Nov-01	12-Oct/01-Nov/15-Nov-01
J3AZR3E472-000/Liq. Fuels Stor. Tank Entry Spvrs.	29-Oct-01	08-Nov-01
J3AZR3E472-001/Liq. Fuel Sys. Maintenance Tech.	30-Oct-01	13-Nov-01
J3AZR3E453-003/Pest Management Certification	03-Oct-01	31-Oct-01
J3ARR3E453-002/Pest Mgmt. Re-Certification	15-Oct/10-Dec-01	19-Oct/14-Dec-01
J3AZR3E052-013/CE Adv. Electronics	15-Oct/26-Nov-01	09-Nov/21-Dec-01
J3AZR3E072-002/Troubleshooting Elec. Pwr. Gen. Eq.	15-Oct/28-Nov-01	05-Nov/19-Dec-01
J3AZR3E072-113/Bare Base Power Generation	15-Oct-01	08-Nov-01
J3AZR2F051-001/Fuels Quality Control	18-Oct/08-Nov/03-Dec-01	07-Nov/30-Nov/21-Dec-01
J3AZR2F051-005/Cryotainer Maint. & Support Eq.	01-Oct/22-Oct/26-Nov-01	15-Oct/02-Nov/07-Dec-01
J3AZR2F051-006-8/Cryogenics Production	16-Oct-01	17-Dec-01
J3AZP3E571-001/Construction Materials Testing	01-Oct-01	12-Oct-01
J3AZP3E571-003/Engineering Design	15-Oct-01	26-Oct-01
J3AZP3E971-003/Advanced Readiness	03-Dec-01	07-Dec-01
J3OZP32E1D-009/Readiness Flight Officer	22-Oct-01	02-Nov-01
J5AZN3E871-001/Adv. Access and Disablement	15-Oct/05-Nov/03-Dec-01	26-Oct/19-Nov/14-Dec-01
J5AZN3E871-002/Advanced EOD Course	15-Oct/03-Dec-01	26-Oct/14-Dec-01
J3AZP3E351-001/Low Slope Maint & Repair	15-Oct/26-Nov-01	25-Oct/06-Dec-01
J3AZP3E351-002/Fabrication of Welded Pipe Joints	22-Oct-01	02-Nov-01
J3AZP3E351-003/Metals Layout Fab & Welding	01-Oct/29-Oct/26-Nov-01	19-Oct/16-Nov/13-Dec-01

For those not already scheduled to attend the above 366th TRS courses, students can enroll on a space-available basis up until the class' start date. Visit the 366th TRS web site at <https://webi.sheppard.af.mil/366trs/default.htm> or call DSN 736-5801 for more information.

# Going Global with GOER

New computer program shortens operational environmental planning process from months to minutes

by Capt Denise N. Shorb  
*AFSOC Public Affairs*

Special operators can now quickly assess the impact of environmental and cultural conditions at deployed locations in just 30 minutes thanks to a new computer program developed by the Air Force Special Operations Command Environmental Division at Hurlburt Field, FL. The Global Operational Environmental Review (GOER) computer program streamlines the environmental impact

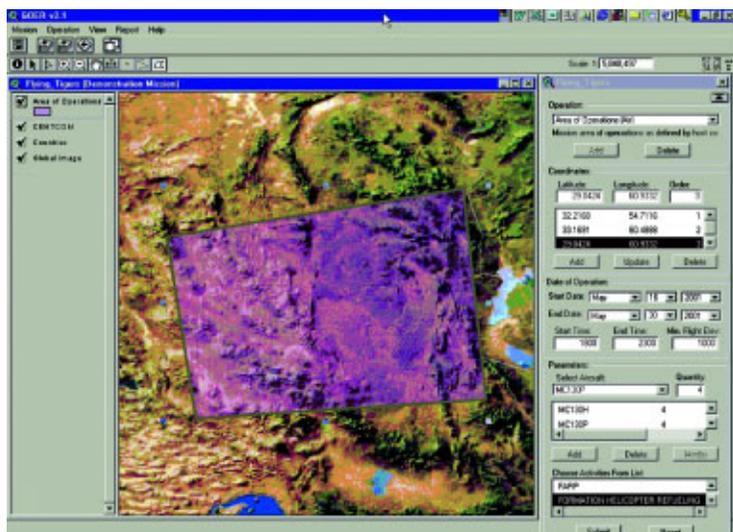
review process, which can currently take up to three months to prepare.

“The Department of Defense is limited in its ability to quickly analyze and review potential environmental and legal impacts of a deployment or mission,” said Mike Applegate, AFSOC Environmental Division chief. “Consequently, deployments or missions that require short notice to plan and execute aren’t getting properly evaluated prior to execution for potential environmental impacts.”

Developed to provide a required environmental review capability on short notice in a secure or deployed location, the GOER program can also be expanded to meet all routine mission and exercise planning.

“The program is designed to allow the user to input information such as base camp location, airframes to be used, activities to be conducted, and duration of these activities; it will then generate an environmental impact statement based on the provided information,” said Anita Allen, a biologist with CH2M Hill, the primary development contractor.

According to Mr. Applegate, the program also identifies cultural concerns for the impacted area. “The program takes into account not only environmental concerns such as type of soil, endangered animals, and climate, but makes cultural considerations as well. Once the information is entered into the program, it will highlight cultural landmarks, no fly zones, and religious holidays that need to be



The GOER program can be used during the operational planning phase to quickly and easily review the potential environmental and legal impacts of Defense Department missions and deployments. The above screenshot shows sample inputs. (Courtesy HQ AFSOC/CEV)

The U.S. Air Force has launched several new initiatives to provide warfighters with unprecedented awareness of the mission situation. The Headquarters Air Force Geo Integration Office (HAF GIO) was recently established within the Readiness and Installation Support Division of the Office of The Civil Engineer to ensure innovative mapping architectures from various combat support sectors are integrated to maximize mission effectiveness at minimum cost. GOER can be a vital environmental complement to the GeoBase operational framework that is being assembled by the new HAF GIO to support Air Force basing support requirements. The GOER architecture was designed according to DoD guidelines to ensure interoperability with both Air Force and joint information solutions such as the Global Combat Support System. By tailoring their Unit Type Codes/Equipment and Mission Profile databases, the flexible GOER architecture will deliver situational insights to other Air Force operational elements and deliver the right information at the right time in the right format to help warfighters make the right decision.

considered when planning an operation in any area.”

“We’re trying to operationalize the environmental process,” said Col Michael Hrapla, The Civil Engineer, AFSOC. “We’re doing this by developing a tool that automates a significant portion of the environmental review process, streamlines and prioritizes critical information needed by mission commanders and planners, and provides this information in a seamless, transparent manner to reduce any additional workload.

“Forces today are required to accomplish their mission in an environmentally sensitive way in operations worldwide — this tool will provide that capability quickly, accurately and efficiently for our special operations commanders.”

Currently, the GOER program has been developed for the U.S. Central Command area of responsibility (AOR). Applegate hopes to have a fully operationally capable global GOER program developed by 2003, covering all five AORs.

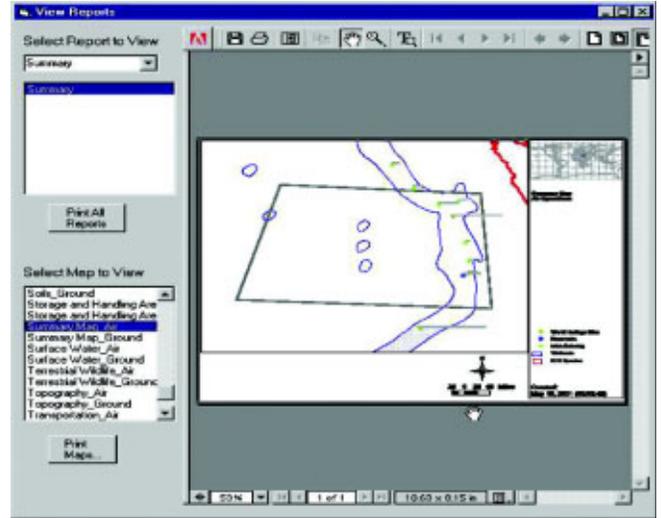
### Why Go with GOER?

One benefit of the program is that anyone can use it because there are only four requirements for input: location, including latitude and longitude; mission duration; equipment to be used; and the planned activity. After this information is loaded into the computer, the program produces three separate reports — a commander’s summary, an environmental review report and a synopsis of applicable regulations.

The commander’s summary is a color-coded, quick-look report summary that reflects three degrees of probable impact significance. Green indicates no significant environmental issues, yellow represents some significant but easily correctable environmental impacts, and red indicates potentially complex environmental or

Several partners and contractors are assisting AFSOC with development of GOER. Each has a unique role to play. As the proponent, AFSOC created the concept and is providing development leadership to contractors. AFSOC created and provided the software logic, legal hierarchy and legal analysis to contractors to use in building GOER. Further, AFSOC will test system protocol and conduct field tests.

The Air Force Center for Environmental Excellence is providing personnel for direct program management and development support including development planning, troubleshooting, budget estimating and tracking, and assisting in technical reporting. Air Staff has provided project development and management support money. The Army Corps of Engineers is providing GOER contract management over CH2M Hill, the primary development contractor and system integrator. Universe Technologies, Inc, and ANSER Corp. are providing AFSOC with in-house technical project management and personnel support. Earth Tech Inc. is conducting research on and creating a database of the Alpine Biome.



A sample of the reports generated by GOER — a combined issues map.

legal issues that would normally require input from an environmental professional.

The second report, the environmental review, is produced in the Air Force Environmental Impact Analysis format. This report documents the pre-deployment environmental review required by various DoD and Air Force Instructions. It provides users with details of the information provided in the commander’s summary report.

The third report provides any applicable regulations specific to the country or AOR in which the operation may occur.

According to retired Col Jerry Cruik (Anser Inc.), a former MH-60 pilot who is currently a contractor with AFSOC, the program spans the dividing lines between operational planning and environmental assessments.

“For any given deployment, it provides the operational planners and leadership with solid insight of what the environment can potentially do to both their people and their equipment. In addition, GOER points out potential legal and cultural pitfalls that planners and leadership need to be aware of,” he said.

“Without timely, accurate and correctly analyzed environmental and cultural impact data, AFSOC personnel and equipment are unnecessarily placed in harm’s way or potentially left to unintentionally commit international incidents.”

Colonel Hrapla believes the computer program and the data it provides will be useful to other DoD organizations outside the Air Force, serving as a backbone for environmental reviews in the planning stages of a deployment. Once completed, it could revolutionize the process for required stateside National Environmental Policy Act documentation by reducing the time required for data acquisition from months to minutes.

*Editor’s Note:* Colonel Michael Hrapla retired from the Air Force in June.

## Aviano, Italian Militaries Team Up To Remove WWII Bomb

Members of the U.S. Air Force, the Italian Air Force and Army, and the base Carabinieri teamed up in a cooperative effort to remove a World War II bomb found near the base exchange and commissary at Aviano Air Base, Italy, in April.

The unexploded AM-30 100-pound, general-purpose bomb was unearthed by members of the 31st Civil Engineer Squadron from about a 6-foot depth while tracing a leaking water line behind the base exchange/commissary complex. Base officials immediately issued an evacuation order for the entire potential blast area — including outdoor recreation, the veterinary clinic, and the base exchange and commissary. Traffic patterns were also rerouted as a safety precaution.

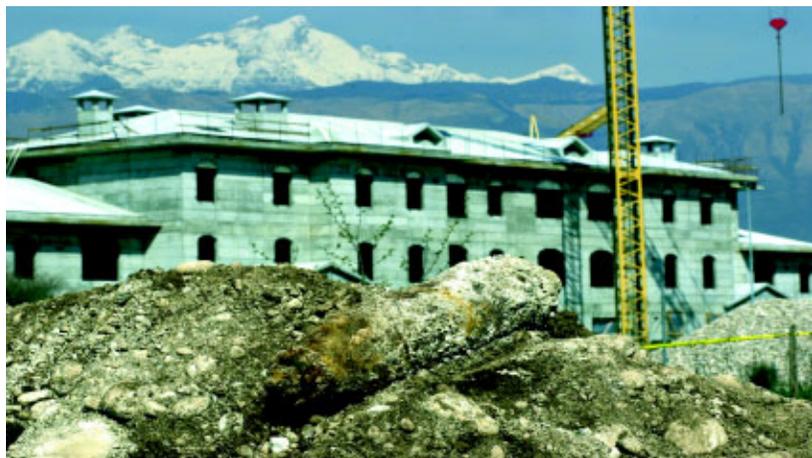
Representatives from the 31st CES Explosive Ordnance Disposal Flight, 31st Medical Group, wing safety, and 31st Security Forces Squadron accompanied the Italian

Army explosive ordnance experts and the Carabinieri as they moved the bomb from the base to the Dandolo Range near Maniago, where it was safely detonated.

In an effort to ensure no further unexploded munitions exist near Hangars 4 and 6, the Navy Regional Office In Charge of Construction is now surveying the area.

“The cooperation of the Italian and American militaries ensured this potentially dangerous situation was handled smoothly and professionally,” said Lt Col Ann Borgmann, 31st Support Group deputy commander. “The strong daily working relationship we have with Colonel (Alessandro) Tudini and

the Italian military team was evident as we successfully solved a problem impacting the entire Aviano community. Without a doubt, the way this device was handled was a resounding success.” (SSgt Dawn Harris, 31st Fighter Wing Public Affairs)



An unexploded AM-30 100-pound, general-purpose bomb dating from World War II rests in the spot that 31st CES members discovered it in April during Aviano 2000 construction. 31st CES explosive ordnance disposal personnel worked with Italian Army explosive ordnance experts to dispose of the bomb. (Photo by SSgt Mitch Fuqua)

## Minuteman II Missile Returns to South Dakota

Although the Cold War is over, its legacy lives on in western South Dakota. To honor those who held President John F. Kennedy’s “ace in the hole,” people from Ellsworth Air Force Base, SD, and the 90th Missile Wing at F.E. Warren AFB, WY, are preparing to transfer two decommissioned Minuteman II missile sites to the National Park Service.

About 25 people from F.E. Warren, many of whom served with the 44th Missile Wing there before it was inactivated in 1994, placed a Minuteman II in a silo at one of the sites in June as a tribute to the men and women who fought the Cold War from deep within the Great Plains. The missile had been stored at a depot at Hill AFB, UT.

The Strategic Arms Reduction Treaty calls for all missile silos in South Dakota to be destroyed or turned into static displays by Decem-

ber. So far, more than 400 sites across the Great Plains have been demolished, with only a few remaining.

The two sites near Ellsworth were selected for the display for several reasons. “Over the years, as the Minuteman II and III were developed and deployed, our sites remained the least upgraded in the Minuteman system,” said Tim Pavek, manager of the Minuteman II Deactivation Program and a member of the 28th Civil Engineer Squadron there. “Now they are the most representative of the original Minuteman installations. The two sites are really the only originally configured Minuteman II sites remaining.”

National Park officials also determined that the location of the two missile sites near Mount Rushmore and Badlands National Park made them excellent candidates

to join the National Park system. As a result, Congress established the Minuteman Missile National Historic Site in 1999. It includes the two sites and a future visitor center.

“The people of Ellsworth, western South Dakota, and America should be proud and grateful of the role our intercontinental ballistic missiles played during the Cold War,” Pavek said. “These two missile sites, representing hundreds of missile sites dispersed across the rural heartland of America, will be preserved for all as a reminder of this significant period in our history.”

Now that the missile is in place, a viewing enclosure will be constructed over the partially open missile silo. The Air Force will turn the sites over to the National Park Service during an official ceremony this fall. (TSgt D.E. Manuszewski Jr., 28th Bomb Wing Public Affairs)

# New Horizons 2001: Readiness training and humanitarian assistance

New Horizons 2001 brought U.S. military teams to Guatemala, Honduras, Paraguay, Saint Lucia and Saint Vincent recently for training exercises that focused on engineering and medical projects. Active duty, Reserve and Guard members representing all the services built schools and medical clinics, drilled water wells, and provided medical and dental care on clinic visits from January through June. Several Air Force RED HORSE and Prime BEEF teams participated in these U.S. Southern Command-sponsored humanitarian and civic assistance exercises, improving readiness while enhancing the quality of life for people there.

Members of the 820th RED HORSE Squadron from Nellis AFB, NV, deployed to Saint Lucia in January along with U.S. Army and Marine personnel as the lead unit for Joint Task Force Piton. The task force of about 100 personnel constructed a two-story barracks for the St. Lucian Coast Guard and refurbished a community center on the

Caribbean island.

The 820th RHS deployed to Guatemala as well, producing all the concrete and building the foundations for the five schools that were built by follow-on Reserve and National Guard teams. The 820th RHS also drilled wells at three locations there.

The 917th Civil Engineer Squadron, Barksdale AFB, LA, was one of the Reserve units deploying to Guatemala, working on the school at El Porvenir. According to Col David Haulman, 917th CES commander during the deployment, the original school at El Porvenir was deteriorating. It was held together with wide, rotting planks and had an outhouse for a restroom. The AFRC civil engineers replaced it with a three-room building with kitchen and restroom facilities. Detachment 1, 307th RHS, also from Barksdale, built the base camp for the

Prime BEEF teams.

An 823rd RHS team from Hurlburt Field, FL, deployed to Paraguay in March to work with U.S. Army and Marine engineers and Argentine and Paraguayan military members at three construction sites near Concepción. A task force of 300 engineer, medical and support personnel were there for approximately 100 days to hone their engineering and support skills, building two medical clinics and four schools and drilling four wells.

USSOUTHCOM has conducted five of the six planned New Horizons exercises this year, with Navy and Marine engineers due to deploy to the Bahamas later this summer. *(Compiled from 917th Wing and USSOUTHCOM reports.)*



SSgt Daniel Wolfrum, 820th RHS, adjusts the floor plan during construction of the St. Lucia Marine Police barracks. *(Photo by SrA Jeanette Copeland)*



TSgt Peggy Abbott, 908th CES, Maxwell AFB, AL, carries cinder blocks to build restroom facilities for the new school constructed in El Porvenir, Guatemala. *(Photo by SrA Shannon Collins)*

*(Right)* Amn Nathan Geldner and A1C Erik Field, 820th RHS, build stairs for the second story of the St. Lucia Marine Police barracks. *(Photo by SrA Jeanette Copeland)*

*(Far right)* TSgt Tim "Doc" Brush *(left)*, 823rd RHS, and Lance Michael Tailer *(right)*, Marine Wing Support Squadron 271, Cherry Point, NC, support a roofing truss while it is nailed into place during construction of a medical clinic at Tadeo, Paraguay. *(30th Communications Squadron photo)*



Air Force reservists and Guatemalans work side-by-side on a new three-room school in El Porvenir, Guatemala. (Photo by SrA Shannon Collins)



A1C Romeo Peart, 823rd RHS, pulls the drilling steel from the water well drilling machine at Estigarribia, Paraguay. (Photo by SSgt Richard Freeland)



SSgt Bryan Manchester, 823rd RHS, uses a bobcat with excavator to fill the well tower base with dirt after securing it with cement during construction of a well at Las Palmas, Paraguay, in May. (Photo by SSgt Maritza Fernandez)



## Paving Project Provides Training, Saves Money

Several members of the 202nd RED HORSE Squadron, Camp Blanding, FL, gained valuable on-the-job experience during a paving project at Cannon Air Force Base, NM, in May.

27th Civil Engineer Squadron and 202nd RHS members met in January to review the planned paving projects, which would require about 3,000 square yards of asphalt pavement removal and replacement in parking lots, and 2,400 square yards of asphalt overlay of an existing road. The deployment plan was set in motion, with the priority focus now on transportation for the group.

When the two-man advance team

from the 202nd RHS arrived at Cannon May 14, they were informed of a priority change. Due to an extremely rough winter, a number of primary roads had experienced accelerated deterioration. The 27th CES had responded with a comprehensive, base-wide pavement maintenance plan that included complete removal and replacement

of asphalt on two primary roads. For the 202nd RHS, the initial scope of work had just quadrupled — and the 15-man team was due to arrive in three days, for a two-week period.

Then, complicating matters further, the C-130 aircraft transporting the team had to turn back due to an engine problem. The group ended up at a motel in Jacksonville, FL, awaiting transportation.

This logistical problem was promptly resolved when the 27th CES provided a fund site for commercial airfare. On short notice, the Scheduled Airline Ticket Office (SATO) found 15 seats on three different airlines arriving in Lubbock, TX, within a two-hour period. Now, with a day lost, the team would have to work even harder to accomplish its mission.

The advance party made arrangements with a local contractor to provide a milling machine and haul asphalt. This allowed the group to split up, with one crew hauling off the asphalt millings, another preparing the surface for paving and the last crew placing asphalt.

During the remaining four days of the first week, the team removed more than 7,000 square yards of pavement and placed more than 800 tons of new asphalt. The workday started before 7 a.m. and usually finished after 5 p.m., with daytime temperatures reaching the 90s.

The milling operation far

surpassed the speed of conventional asphalt removal, leaving a planed surface requiring only minor cleanup and sweeping before placing the new asphalt. Milling also maximized truck use, eliminating voids inherent to conventional removal and providing a product that could be used later as stabilization.

The second week began, again, with airlift problems. Unsure of the date or mode of travel for return on Memorial Day weekend, the team decided to reduce the scope of work rather than chance not completing a primary road. Another 2,700 square feet of pavement was removed and 300 tons of asphalt placed.

In all, considering costs of commercial airfare and rental equipment, the 202nd RHS saved Cannon AFB more than \$60,000 compared to SABER (Simplified Acquisition of Base Engineer Requirements) contract unit prices. As a bonus for the 27th CES, the millings were used to stabilize an unimproved section of perimeter road that becomes impassable during inclement weather.

In return, 202nd RHS personnel gained valuable experience, not only in specialty training, but in responding to unforeseen conditions and managing assets to maximize performance and minimize costs. (SMSgt Fred Spielmann, 202nd RHS)



SSgt William Brown, 202nd RHS, clears gutters of excess asphalt during a paving job at Cannon AFB, NM. (Photo by SSgt Paul Cox)

## Readiness Challenge VIII Planning Underway

Readiness Challenge VIII, the biennial Air Force worldwide contingency war skills competition, is scheduled for April 18-27, 2002, and will be held at the Silver Flag Exercise Site, Tyndall Air Force Base, FL.

Civil Engineer and Services may be welcoming a new functional to the next competition — Personnel has expressed an interest in having its Personnel Supporting Contingency

Operations (PERSCO) teams participate in this premier international event, which will showcase Air Force “Expeditionary Excellence” — the theme for the next competition.

An expanded international presence is expected, with a potential team from Germany joining teams from Canada, Japan, Norway, and the United Kingdom on the list of invitees. Senior Air Force civil

engineer officers from Australia, France, Greece, Israel, Italy, the Republic of Korea, the Republic of Singapore and Turkey have been invited to attend and observe the competition. U.S. Air Force Air National Guard and Reserve teams will be selected in November 2001, and active duty major command teams in February 2002. (Maj Sean Lewis, CE, HQ AFCEA)

## Memorial to Honor Fallen Horsemen

What started as a normal Air National Guard annual training deployment — two weeks of meaningful work and then home to families — ended in tragedy for the 203rd RED HORSE Flight of Virginia Beach, VA.

Eighteen of its members had just completed two weeks of training at Hurlburt Field, FL, where they had utilized their structural, electrical and utility skills on a site preparation project. They were on their way home

March 3 when their plane, an Army C-23 Sherpa, crashed killing all on board — the 18 RED HORSE engineers and three Florida Army National Guard aircrew members.

Our engineering community has not experienced a loss of this magnitude except during times of war. We join our brethren in their sorrow over this tragic loss, and in remembering those who gave all. May their sacrifice serve to remind us of the high costs we endure in exchange for freedom.

The 203rd RHF has set up a fund for anyone wishing to donate toward construction of a memorial at Camp Pendleton, VA. All funds will be used for the memorial, with any excess going to the families of the victims. Donations may be sent to: 203rd RED HORSE Memorial Fund, c/o Maj Pete Garner, P.O. Box 180, Virginia Beach, VA 23458. (*Col Raymond H. Willcocks, HQANG*)

## New AFSOC Civil Engineer

Col Richard P. Parker, formerly the Deputy Civil Engineer, Headquarters Air Force Space Command, Peterson Air Force Base, CO, has succeeded Col Michael F. Hrapla as The Civil Engineer, Air Force Special

Operations Command, Hurlburt Field, FL. Colonel Hrapla retired in June.

Colonel Parker has held various positions at base, major command and Air Staff levels, including chief,

Program Development Branch, Engineering Division, Office of The Civil Engineer, Headquarters U.S. Air Force, Pentagon and commander, 820th RED HORSE Squadron, Nellis AFB, NV.

## CE Among Air National Guard's Top Enlisted

MSgt Christine Clay from the 159th Civil Engineer Squadron, New Orleans, LA, is among the Air National Guard's top four enlisted people for 2001. Sergeant Clay was selected as Senior Noncommissioned Officer of the Year.

Sergeant Clay, who is originally from Sioux City, IA, is the full-time facility manager and, militarily, the engineering superintendent for the 159th CES at the Joint Reserve Base on the Naval Air Station in New Orleans. Helping to create things from the ground up is what inspires this member of the Air Guard's civil engineering team. "I like to manage buildings" explained Clay who joined the Air Guard in 1988 and now supervises 15 people and manages 67 buildings in five locations. "I enjoy progressing from concept to construction to having people actually living and working in a building."

The other three Outstanding ANG Airmen are: SSgt Brandon Pearce, Airman of the Year; SSgt Peter Bowden, Noncommissioned

Officer of the Year; and MSgt Katie Hines, first sergeant of the year.

Maj Gen Paul Weaver Jr., Air National Guard director, said the four outstanding airmen "exemplify the talent, positive leadership and dedication" of the U.S. military and the National Guard. "We are fortunate to have a system that allows us to recognize those who go above and beyond in their careers and personal lives," Weaver said.

The four were honored during a ceremony at Andrews AFB, MD, June 12. They also spent

a week in the nation's capital, meeting with National Guard and other Department of Defense officials.

(*Compiled from news releases by MSgt Bob Haskell, National Guard Bureau.*)



MSgt Christine Clay, 159th CES, was recently selected as the Air National Guard's Senior Noncommissioned Officer of the Year. Presenting the award to Sergeant Clay are Maj Gen Paul A. Weaver Jr., Director, Air National Guard, and CMSgt Valerie D. Benton, Command Chief Master Sergeant. (Courtesy photo)

## Air Force Bases Honored by White House

Five Air Force bases recently received the White House's Closing the Circle Awards, which are presented to federal agencies that demonstrate outstanding achievement in areas including environmental innovation, recycling and waste prevention. The Air Force winners of the Closing the Circle Awards are:

- Model Facility Demonstration: Grand Forks AFB, ND
- Recycling: Eglin AFB, FL and Barksdale AFB, LA
- Waste Prevention: Fairchild AFB, WA and Ramstein AB, Germany

The five Air Force bases were among 39 award winners selected

from about 200 nominations from departments and agencies throughout the federal government. The winners were honored in a ceremony June 12 in the Presidential Hall at the Old Executive Building next to the White House.

"This year's honorees exemplify our federal workforce commitment to preserve the environment and precious resources by increasing the purchase of green products and services, reducing the generation of wastes and establishing highly effective environmental management programs at their locations," said Juan D. Lopez, acting chief of staff of the White House Task Force on

Recycling. "These local heroes have looked beyond the status quo to blaze new paths in waste and pollution prevention that will truly benefit our future generations."

The awards are presented annually by the White House to the most innovative programs implementing the objectives of Executive Order 13101, "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition." The executive order was designed to expand and strengthen the Federal government's recycling and green purchasing efforts. *(From an Office of the Federal Environment Executive release)*

## Offutt wins DoD environmental award

Offutt Air Force Base, NE, is the recipient of a 2000 Secretary of Defense Environmental Security Award, which recognizes the best environmental programs in the Department of Defense. Eight awards were presented at this year's ceremony on May 3.

The base received the Environmental Restoration-Installation award for saving more than \$2.1

million through new technology demonstrations and proactive management of their restoration program. Included was implementation of a "bio-wall" system that successfully prevented chlorinated solvents from migrating into the groundwater, abandonment of 51 groundwater monitoring wells saving \$600,000 per year, and elimination of the need for a \$500,000 subsur-

face investigation through a no-cost demonstration project using laser-induced fluorescence chemical sensor technology.

Offutt was automatically nominated for the DoD competition as a recipient of a 2000 Air Force General Thomas D. White Environmental Award. *(From a U.S. Department of Defense News Release)*

## Charleston CE Awarded for Good IDEA

SSgt Stephen Daggett, from the 437th Civil Engineer Squadron, Charleston Air Force Base, SC, was recently awarded \$10,000 for a suggestion he submitted to the Innovative Development through Employee Awareness, or IDEA, program.

Sergeant Daggett, a readiness technician, said his suggestion to consolidate readiness materials on a CD-ROM came to him when his unit deployed to Albania. "We had to carry our own equipment. We ended up paying more for excess baggage than we did for our tickets," Daggett said.

Almost all of the publications, forms and checklists needed to per-

form the readiness job were already electronic, according to Daggett. "I was tired of having to download the publications every time and check for updates," he said. "I like to play around with the Web anyway, it just seemed logical to put all of this information on a disc and run it in a Web-based application."

Submitting the suggestion to the IDEA program wasn't Daggett's intention, he said. "Someone else told me I should submit it."

Daggett has made copies of the program already and passed the idea on to other bases. "Some of the other bases used it during IG (Inspector General) evaluations and got high marks for using it," he said.

As for spending the money, Daggett said he plans to pay off some bills. "I'll still have some left over after that," he said.

All told, Daggett's suggestion should save the Air Force \$87,602, according to the analysis submitted by HQ Air Force Civil Engineer Support Agency.

The IDEA program isn't used often enough, according to Daggett. "More people should use it for any idea they might have that could save money. Mine was a pretty straightforward idea, I just put it in there." *(SrA Melanie Streeter, 437th Air Wing Public Affairs)*

## CE Makes AFA Team of the Year

TSgt Matthew Shryock, 16th Civil Engineer Squadron, Hurlburt Field, FL, was one of five individuals representing Air Force Special Operations Command who were recently selected for the 2001 Air Force Association Team of the Year Award.

Sergeant Shryock, was honored at a presentation ceremony in May in Washington DC, along with MSgt Brian Douglas, 24th Special Tactics

Squadron, Pope Air Force Base, NC; TSgt John Sparr, 193rd Aircraft Generation Squadron, Harrisburg International Airport, PA; SSgt Danny Hedrick, stationed in the Pacific Air Forces theater; and SSgt Travis West, stationed in the U.S. Air Forces in Europe theater.

Each year, the AFA recognizes the accomplishments and contributions made by Air Force enlisted members in specific career fields.

This year, AFA elected to spotlight members of AFSOC, specifically these five who represent the civil engineering, flight engineering, transportation, crew chief and pararescue career fields.

The selections were based on achievements the individuals made during the 2000 calendar year, said Air Force Personnel Center officials. *(From an Air Force Personnel Center News Service release)*

## Eielson's 354th CES Named Best in Snow Removal

The 354th Civil Engineer Squadron, Eielson Air Force Base, AK, received the Colonel Bernt Balchen/Wilfred M. Post Award during the International Aviation Snow Symposium April 25th in Buffalo, NY.

The award recognizes outstanding achievement in base and airfield snow and ice control. The 28th CES, Ellsworth AFB, SD, was runner-up.

Eielson received more than 45 inches of snowfall during the 2000 snow season, and the 354th CES' snow and ice control team performed an astonishing 70 ice control operations. They kept de-icing chemical use to a bare minimum by emphasizing more environmentally friendly mechanical control methods.

Total vigilance ensured base streets remained open and more than 4,500 aircraft launches were generated without delay despite the subarctic environment, which is the most severe and challenging one for

snow and ice removal in the Air Force.

The team persevered through a major storm in January when snow fell continuously for five days. The result was more than 21 inches of wet, heavy snow — the greatest single accumulation of snow in five years. Personnel worked 12-hour shifts, 14 days straight, constantly clearing airfield and priority streets. Their tireless efforts enabled 120 mission sorties and ensured safe base driving conditions.

The Balchen/Post award, which is sponsored by the Northeast Chapter of the American Association of Airport Executives, is presented

annually to the outstanding snow removal team in one military and four commercial airport categories. *(SMSgt Clyde Young, HQ AFCEA)*



The Balchen/Post award is presented to SMSgt Dale Fowler, 354th CES horizontal manager, by Mrs. Jeanne Oliver, president, Northeast Chapter of the American Association of Airport Executives. *(Photo courtesy 354th CES)*



### NHL Game Features Air Force Quartet

*(From left to right)* Majors Mike Rits, Scott Bridgeman, Lowell Nelson and Darren Gibbs, all from the Office of The Civil Engineer, Headquarters U.S. Air Force, Pentagon, sing the National Anthem at a Washington Capitals vs. New York Rangers hockey game in Washington DC in March. The group, known as the "Air Force Civil Engineer Quartet," got its start at a unit holiday party. *(Photo by SSgt Angela Stafford)*

## AFCEE Celebrates a Decade of Service

The Air Force Center for Environmental Excellence, Brooks Air Force Base, TX, commemorated its 10th anniversary July 23.

AFCEE, a field operating agency of the Office of The Civil Engineer, Headquarters U.S. Air Force, is the Air Force's premier environmental services agency and center of expertise. It offers commanders a full range of technical and professional services in the areas of environmental restoration, pollution prevention, environmental compliance, natural



**JB Cole, who is known as the "father" of AFCEE, spoke at the Air Force Center for Environmental Excellence's 10th Anniversary Ceremony July 23. Mr. Cole chartered the field operating agency for the Air Force, and served as its first director.**

and cultural resources conservation, facility design and construction management and comprehensive planning.

AFCEE is also the center of expertise for the Air Force's military family housing privatization program and recently instituted a range support unit to study issues associated with air training ranges. In addition, its Technology Transfer Division field tests and studies new technologies that may help speed up or improve environmental cleanup efforts.

The center started out with only a handful of people in 1991 but within a year had in place a full array of environmental contracts. Its concentration initially was on cleanup work at 19 installations affected by the first two rounds of the Base Closure and Realignment process.

AFCEE has developed into a billion-dollar enterprise, with a program totaling more than \$436 million in environmental restoration work alone during the last fiscal year. It now employs more than 360 civilians and 50 military members. In addition to its headquarters staff at Brooks, the agency maintains three Regional Environmental Offices in Atlanta, Dallas and San Francisco.

"Our workload has grown tremendously and we've got more significant work coming in the next few years," said Mr. Gary M. Erickson, AFCEE's director. "It's a real healthy sign of the confidence that the senior Air Force leadership and our customers have in us. AFCEE also has arrived at a point where we can really offer what our customers need from us."

Col Sam Garcia, executive director and military commander, noted that AFCEE was going through a generational change, with some of the original center staffers moving on to the next stage in their careers.

"This summer will be a special one for us," he said. "We're starting to see a change of leadership in our mid-level management positions where much of the creative thinking that characterizes AFCEE's approach to business really takes place."

The colonel added that AFCEE continues to evolve and "get smarter" in the process.

"The environmental mission, obviously, has been our main focus, but AFCEE is seeing ways in which we can benefit the Air Force community more fully. We're stepping up to those challenges as well," he said. *(AFCEE Public Affairs)*

### Earth Week 2001

Tom Billings, Recycling Center supervisor for the 48th Civil Engineer Squadron, RAF Lakenheath, U.K., shows second graders from Lakenheath's elementary school what happens to the cans collected around base. The tour was conducted to help educate students on the importance of recycling and to help kick off Earth Week activities. *(Photo by TSgt Paul R. Caron Jr.)*



# 203rd RED HORSE Flight

**Unit Name:** 203rd RED HORSE Flight (Virginia Air National Guard) **Location:** Camp Pendleton, Virginia Beach, VA **Commander:** Lt Col Thomas J. Turlip **Assigned Personnel:** 160 military, 4 state employees **Federal Mission:** Provide a highly mobile, rapidly deployable, civil engineering response force that is self-sufficient for a limited period of time, to perform heavy damage repair required for recovery of critical Air Force and utility systems for aircraft launch and recovery. Accomplish engineering support for bed-down of weapons systems and the installation of critical utility and support systems required to initiate and sustain operations, especially in austere locations. Operate in remote, hostile environments as an independent, self-sustaining unit (with re-supply of consumables). **State Mission:** To provide a unit organized, trained and equipped which, under order of the Governor, will protect life and property, and preserve peace, order and public safety.

**Base and Unit History:** Located in the picturesque city of Virginia Beach, Camp Pendleton is a State Military Reservation that borders the Atlantic Ocean. It was established in 1912 as a rifle range for state troops, and is still used primarily by the Virginia National Guard. During World War II, however, it was a booming training site for new active duty recruits.

The reservation was originally created in a relatively remote, sparsely populated area. Since then, the City of Virginia

Beach has grown and developed around the facility. The 203rd RHF, which was activated in 1985, occupies about 60 acres of land and more than 75,000 square feet of real property on Camp Pendleton's 325 acres.

The 203rd RHF has a sister unit in Florida — the 202nd RED HORSE Squadron. If activated to Federal service, these two units would join together to form a 400-man RED HORSE Squadron.

The 203rd is a very active Air National Guard unit, deploying more than 200 people over the last 15 months for construction projects in Saudi Arabia, Kuwait, Iceland, Qatar, Azores, England, Florida, Maryland and Virginia.

**Recent Accomplishments:** The 203rd is particularly proud of its recent construction projects in support of Operation Southern Watch in Southwest Asia. During the past few years, teams from the 203rd have deployed to the following locations: Qatar, twice, for electrical projects; Prince Sultan Air Base, Saudi Arabia, to construct various force protection and quality of life projects; and Al Jaber AB, Kuwait, twice, to construct K-Span buildings and various force protection and quality of life projects.

Because of these and many other successful construction projects throughout the world, it's no wonder the 203rd RHF enjoys the outstanding reputation it has earned. "Lead, Follow, or Get Out of the Way!"



# UNIT SPOTLIGHT



*In memory of the 21 Guard members who died  
when their C-23 transport plane crashed  
March 3, 2001, near Macon, Georgia.*

## *...Some Gave All*

### **From the 203rd RED HORSE Flight Virginia Air National Guard —**

Master Sergeant James Beninati  
Staff Sergeant Paul J. Blancato  
Technical Sergeant Ernest Blawas  
Staff Sergeant Andrew H. Bridges  
Master Sergeant Eric G. Bulman  
Staff Sergeant Paul E. Cramer  
Technical Sergeant Michael E. East  
Staff Sergeant Ronald L. Elkin  
Staff Sergeant James P. Ferguson  
Staff Sergeant Randy V. Johnson  
Senior Airman Mathrew E. Kidd  
Master Sergeant Michael E. Lane  
Technical Sergeant Edwin B. Richardson  
Technical Sergeant Dean J. Shelby  
Staff Sergeant John L. Sincavage  
Staff Sergeant Gregory Skurupey  
Staff Sergeant Richard Summerell  
Major Frederick Watkins

### **From Detachment 1, 1st Battalion, 171st Aviation Florida Army National Guard —**

Chief Warrant Officer Johnny W. Duce  
Chief Warrant Officer Erik P. Larson  
Staff Sergeant Robert F. Ward Jr.

*We always seek a reason why  
A loved one has to go.  
We search for answers desperately  
But still we cannot know.*

*And Charging Charlie seeks to find,  
Among the pain and tears,  
Why God could take these Horsemen  
So early in their years.*

*Perhaps God needs to bridge the stars  
Or light some darkened day;  
Or build a framework out of steel  
To brace the Milky Way.*

*Or does He need a pipeline  
Taking water to the sun?  
He's got the Horsemen with Him now;  
That job would soon be done.*

*Poor Charging Charlie's sadder now,  
His stable's not as full.  
And other Horsemen grieve and weep,  
But deployments they will pull.*

*Those Horsemen are still with us.  
They'll be on every tour  
To watch and guide and help us out,  
On that you can be sure.*

*SMSgt Gary Rhoads,  
201st RED HORSE Flight, PaANG*