VOL. 8 NO. 1

THE CE

SPRING 2000

Putting Power Underground

The Civil Engineer - United States Air Force

FROM THE TOP

The Expeditionary Aerospace Force *Steps Forward*

"EAF is a journey, not an end state. Today we are without a doubt the most capable aerospace force the world has ever seen. Thanks to your hard work, sacrifices and commitment, the EAF reorganization will help us stay that way."

—F. Whitten Peters, Secretary of the Air Force

Maj Gen Earnest O. Robbins II
The Air Force Civil Engineer

One of our biggest challenges this past year has been launching the aerospace expeditionary forces (AEFs). Our men and women have leaned forward and provided super support as we created new civil engineering deployment unit type codes (UTCs). These UTCs offer a broader menu of team sizes and equipment for those who might call on our capabilities. All active, Guard and Reserve installations will have new smaller, modular UTCs ready to respond to contingencies or to go overseas to support steady-state operations like Southern Watch in Southwest Asia and Northern Watch in Europe.

While teams are away on AEF deployments of approximately 90 days, we must also cover the continual home base support mission. Quite encouraging is the role our Air National Guard and Air Force Reserve civil engineers play as they, too, deploy to overseas locations and share in supporting worldwide operations. We're still seeking ways to improve the delicate balance between our active duty, Guard and Reserve capabilities and the needs of deployed commanders. Our goal is to have a seamless system for meeting all requirements.

We are learning from our experiences in the first 15-month AEF cycle and will apply them as we prepare for the next one, beginning January 2001. Together with the Major Command staffs and the newly formed AEF Center at Langley Air Force Base, Va., we will refine scheduling to send the right skills and experience levels to forward locations while maintaining home base support and crisis response capabilities. I appreciate your superb accomplishments, initiative and patience thus far.

Together we're achieving better visibility into personnel tempo solutions, becoming better able to detect which parts of the CE force are stressed and focusing relief where needed. These improvements carry over into recruiting, training, nurturing and retaining our valuable civil engineering officers, NCOs and airmen. I am confident stability will increase.

Furthermore, we'll strive to adjust training so they'll have the skills needed to excel in the expeditionary world. Operational expeditionary changes also dictate we use innovative approaches and new technologies to continue making our teams lighter, leaner and more rapidly deployable and employable. I appreciate your hard work in posturing us for future AEF requirements.

I challenge commanders to lead their groups and squadrons through this transition. Consider this a force management opportunity. Let's enhance combat readiness while providing our people and their families the stability and predictability intended. As Secretary Peters so aptly stated, the EAF is a journey, not an end state.

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SSgt Gilbert Miller, 507th CES, exits a manhole after preparing it for installation of electrical cable underground at Tinker AFB, Okla. Story page 18. *(Photo by MSgt Tommie Clapper)*

THE CE

The U.S. Air Force Civil Engineer

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The Civil Engineer
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Col Glenn D. Haggstrom is the U.S. Air Forces in Europe Civil Engineer, stationed at USAFE headquarters, Ramstein Air Base, Germany. He is responsible for civil engineering activities at six main operating bases and 80 geographically separated units throughout Europe. In this interview with The Civil Engineer *magazine, he discusses how USAFE civil engineers meet the command's evolving readiness requirements by using all the resources at their disposal to ...*

Support the Mission

The CE: This time last year, Operations Allied Force (Noble Anvil) and Sustain Hope (Shining Hope) proved once again that Air Force civil engineers are critical to the successful employment of aerospace power. Tell us about USAFE CE's role in that conflict and some of your lessons learned.

Col Haggstrom: When you look at Operation Allied Force, it consisted of two separate and distinct joint task forces. Operation Noble Anvil was the air war over Serbia and Operation Shining Hope was the humanitarian effort in Albania. In my 25 years of service, this is the first time I recall Air Force civil engineers being tasked to support both ends of the spectrum simultaneously. When the operations were at their peak, there were more than 900 engineers deployed at 20 locations on two continents.

Col Glenn D. Haggstrom

One of the first challenges we faced was establishing where forces would operate. USAFE's main operating bases could not handle the numbers and types of aircraft that flew in the conflict. While during the Cold War we had collocated operating bases that were kept in a "warm state" to handle requirements like this, we had since closed those installations and had no such infrastructure to fall back on.

As a result, we essentially had to start over using ADVON teams to go to each prospective installation, physically survey it, meet with the installation commander and establish agreements with the host nation. If the decision was made to use the location, we tailored the force packages and the TPFDD (time-phased force deployment data) to flow the minimum amount of people and material necessary to accomplish the mission. Because airlift was heavily engaged moving operational forces, we had to be creative about how we could bed down our people and support the mission. In many locations, we leased facilities and hotels instead of using HARVEST sets.

At the opposite end of the spectrum, the humanitarian portion, Operation Shining Hope was the first time I think many of us had been involved in an operation of this magnitude. It started off with a very small force from USAFE, the Contingency Response Group, deploying on Easter Day to Tirana-Rinas Airfield, Albania, to establish an APOD (aerial port of debarkation) in support of this mission. In the following weeks it grew exponentially to more than 800 Air Force people on the ground providing the infrastructure necessary to support the growing mission. Initially, that task fell to Prime BEEF and RED HORSE teams. When the Joint Chiefs of Staff tasked the Air Force to construct refugee camps, we brought AFCAP (Air Force Contract Augmentation Program) into the picture to execute the work.

Before it was finished, we had Prime BEEF at Tirana-Rinas bedding down and sustaining the Contingency Response Group, RED HORSE doing heavy horizontal construction to improve the capability of the airfield, and AFCAP constructing the refugee camps. For never having done something of this magnitude, I think everyone will agree the end results, taking care of people, were completely achieved.

From a lessons-learned perspective, a couple of things came out of these operations. First and foremost, the Air Force must never divest itself of military engineers. Operation Allied Force reinforced the absolute necessity of having Air Force military engineers ready to deploy anytime, anywhere to support the aerospace force.

Coupled with that is the timing when engineering forces, and the materials they need to bed down the operational forces, move. Operation Allied Force underscored the importance of having the right flow of forces at the right time — and we did it right. Engineers were on the first chalks to move and prepare the base to receive the operational units. Second, command and control. Operating as part of a joint task force has many challenges. If you don't have the right lines of communication set up you are going to be in for a rough ride — as we found

out. The good news is we learned quickly and set up a structure that enabled us to support all levels within the two JTFs. I do think that, in the future, we need to take a closer look at creating an active Air Force unit type code (UTC) tailored to support a JTF staff that can be called to respond when the JTF is being established.

From the humanitarian relief operation at Tirana-Rinas Airfield, we found we needed a higher level of disaster preparedness expertise than we have with our current UTC composition. As a result, we identified the need to Air Staff and to AFCESA (Air Force Civil Engineer Support Agency).

When the Readiness Working Group got together, that requirement was vetted through the system, and we restructured our Prime BEEF UTCs to include stand-alone disaster preparedness response and expertise. I think this was clearly needed, especially considering the potential use of weapons of mass destruction, at home and abroad.

Another significant lesson learned involved reconstitution. At the start, we were very focused, and rightfully so, on what it took to get in there and stand up the installation to handle the operational forces. Then, as time went on, we transitioned from beddown to sustainment. Finally, as anticipation grew that the operation was going to come to an end, we faced reconstitution. We did not do this as well as we could have. The lesson: it is imperative when engineers complete the beddown phase and enter into sustainment operations, they begin thinking about and planning for reconstitution.

The CE: How did the hub and spoke concept of RED HORSE operations work out organizationally within the theater?

Col Haggstrom: The RED HORSE operation was a tremendous success and reinforced the absolute essentiality of having Air Force military engineers capable of doing heavy construction.

The 823rd RHS laid the groundwork with an advance team performing site surveys at the proposed operating locations. This allowed them to tailor the force they needed to bring from Hurlburt Field, and ultimately from the 820th RHS at Nellis in the latter stages of Operation Shining Hope. It also enabled them to look at the prepositioned equipment at Camp Darby in Italy, where we have two RED HORSE vehicle sets. Once they knew what was needed, the 31st RHF mobilized the equipment and made transportation arrangements with MTMC (Military Traffic Management Command) well in advance of the flow of forces.

The 823rd also set up a cell as part of our command and control structure. From there they interfaced directly with us, and with the RED HORSE forces downrange, as to what the needs were. In many cases, we flowed a RED HORSE team from Hurlburt Field to Ramstein, then, based on the needs of the joint force commander, sent them forward to do a specific task. The hub and spoke concept is the reason it worked.

The CE: How was the Air Force Contract Augmentation Program used in support of specific civil engineer functions during Kosovo operations? How did the concept test out? Is USAFE finding other ways to use AFCAP in a peacetime environment?

Maj Gen Eugene A. Lupia (USAF, ret), Marine Corps Brig Gen Samuel T. Helland (Vice Commander, JTF Shining Hope) and Col Glenn Haggstrom at Tirana-Rinas Airport, Albania. *(Photos courtesy USAFE/CE)*

Col Haggstrom: AFCAP was specifically brought in to construct refugee camps in Albania; however as the conflict continued in Kosovo, we used their capabilities to support other mission requirements. This was the first time we used almost the entire tool bag at our disposal from the AFCAP contract — their construction, planning, food service and shipping capabilities to move equipment in the theater.

The timing could not have been better to have the AFCAP contract available and I think the engineer community is right on target regarding how to use it. Our philosophy and concept of operations is that beddown is done by our military personnel, but there comes a point in time in any operation when you'll transition from beddown to sustainment, and you may need your bluesuit forces to go do other things. That's where I think the absolute value of AFCAP comes in. We can reach out to this force multiplier and bring people in to do sustainment, which then frees our forces to do other things.

I was very pleased with Readiness Management Support — how they responded to us and how they partnered with us. They were in the command cell from start to finish and they were a key part of the team. We could look over and say "Can you handle that job?" and "In what timeframe?" They became a seamless part of the deliberate planning process and in true military fashion were proactive as opposed to being reactive.

As for the future, in order to ensure we maintain the expertise and capability of AFCAP, we can't just put it on the shelf and let it collect dust. As a community, if we're going to look to AFCAP to be a part of the team in future contingencies, operational or humanitarian, we need to exercise them. From a USAFE perspective, we plan to ensure AFCAP is ready to respond to our needs by involving them in exercises throughout the year.

The CE: Were civil engineers able to apply the types of skills they learned through technical training, home station training and Silver Flag team training to the real-world contingency situation in Kosovo? Is the CE contingency training process on track?

Col Haggstrom: Without question the engineers who

deployed were mission-ready and responded to every challenge. I don't think we could have done it better had we gone back and developed the courses after the fact. Of course I'm biased, but I've always thought of our career field as a leader in preparing our forces to do the mission they're called to do when it comes to a contingency or an MTW (major theater war). In our business, our philosophy has always been "Readiness is Job One." And in the case of the Kosovo conflict, it was readily apparent!

The CE: USAFE has been working hard to upgrade military family housing and dormitories to reverse the devastating effects of years of reduced funding at the end of the Cold War. How far along are you, and what effect will new reductions in the MILCON program have on your efforts?

Col Haggstrom: The housing story in Europe is not a pretty one. For many years in the early 90s, this command went virtually without any resources being invested in our family housing, aside from the change of occupancy maintenance we do when a family moves out and we prepare to move another family in.

Units are undersized compared to OSD standards and more than 75 percent have never seen a renovation since they were built in the 50s. We're looking to bring these units up to standard — modern kitchens, modern bathrooms, in-unit washers and dryers, and two bathrooms in our three and four bedroom units. As for dormitories, some of our young airman still live in central latrine dorms.

I think the best things happening to our housing program are the Air Force Dormitory and Family Housing Master Plans. For our folks who live in dormitories, we expect to have all our permanent party airmen in a one-plus-one or room-bath-room type of dorm by this time next year. In military family housing, we put together a course of action that will modernize our units within the next 10 years at a cost of over $900 million.

We are on the right course, with the Secretary of the Air Force and Chief of Staff committed to make the plan a reality. This is an absolute quality of life and retainability issue with our service members. It's incumbent on the Air Force to provide our families a modern, comfortable place to live — one they want to come home to and call their own. The housing master plans will achieve that.

The CE: Tell us more about the new USAFE Contingency Response Group. What is CE's participation? How did it come about and how is it working?

Col Haggstrom: The former USAFE commander, General John Jumper**,** established the 86th Contingency Response Group as the unit that would respond to contingency requirements throughout the theater. The timing could not have been better, considering six weeks after being activated the Contingency Response Group was tasked to support the humanitarian assistance operation in Albania.

The group is a self-sufficient unit focused first on force protection. Securing the area they will be operating out of is their first priority. The unit's composition is unlike any in the Air

Col Glenn Haggstrom *(right)* with Col Pat Coullahan at Camp Shining Hope at the construction site of the sand filtration water system.

Force. In addition to security force specialists, there is a whole array of AF specialties assigned and on-call to the unit, ready to respond in a matter of hours. Included in the force mix are two permanently assigned civil engineers, an engineering assistant and a pavements specialist. Once they complete the initial force protection requirement they transition into their engineering role as an ADVON team and determine what civil engineer requirements are necessary to accomplish the mission. Requirements are then sourced against command capabilities and the deployment process begins.

As for its success, it has been unparalleled and as a result there's a great amount of interest in many other major commands in looking at establishing a similar capability. I think as time goes on we're going to see the concept grow and mature to become an integral part of the force structure, at least in this command, and our initial response capability.

The CE: How are current plans for the turnover of Rhein-Main AB to Germany progressing?

Col Haggstrom: The USAFE commander signed the turnover documents just before the Christmas holiday. This will essentially see the departure of U.S. armed forces and other government agencies from Rhein-Main by Dec. 31, 2005.

The agreement provides the United States about $425 million to reestablish those facilities associated with the airlift mission at Rhein-Main to Spangdahlem and Ramstein. The number and size of projects is staggering, from rebuilding and realigning the runway here at Ramstein to lengthening the runway at Spangdahlem and putting in a parking apron for about 11 C-5s.

We are in the process of establishing a Program Management Office here for the construction aspect. It will be closely allied with the PMO that XP, our plans and programs folks, are developing, which will be the central point of contact for the entire Rhein-Main program. Of course, Ramstein and Spangdahlem are each creating their PMOs, too, to make sure things are done in a timely manner.

We are looking for people to come over and execute the

construction program for the next four to five years — so if there are any interested officers or civilians out there who want to get their hands dirty and walk the ground, let us know.

The CE: What are the important issues you see on the horizon for USAFE civil engineering?

Col Haggstrom: When you are at a headquarters, one of the things that consumes the majority of your time is fighting for resources. When the Berlin Wall came down the amount of resources being put into USAFE declined, and rightfully so, because there were questions as to what role the command would play as we entered the 90s.

Now that we have established that role, the greatest challenge this command faces in coming years is working to ensure the forward presence of aerospace power in Europe and the resources that requires. Operations Noble Anvil and Sustain Hope are a great basis to build from. With the uncertainty in this area of the world, events are going to happen and the Air Force must be prepared to respond. As engineers, this means ensuring the infrastructure at our bases is capable of supporting both the peacetime mission and, when called upon, the wartime mission. Additionally, as an expeditionary aerospace force, we must be prepared to support our forces at locations we may never have seen before.

When you look at the USAFE strategic plan, the challenges ahead of us — provide an expeditionary force, have an expeditionary infrastructure, and provide a high standard of life for our airmen — are formidable. Engineers play an absolutely key and essential role in helping to ensure the strategic vision we have in this command is carried out in each one of these areas. Our focus will continue to be that engineers are fully prepared to support the projection of aerospace power in the European theater or wherever the Air Force calls us to serve.

UNIT SPOTLIGHT

"Others Promise — We Produce"

Unit Name: USAFE Construction and Training Squadron **Parent Unit:** HQ U.S. Air Forces in Europe **Location:** Ramstein Air Base, Germany **Commander:** Lt Col Scott Hill **Personnel:** 75 military, 190 local national civilians

Mission: Command-wide construction, training and aircraft arresting barriers.

Construction: Time-sensitive horizontal and vertical construction, including runway marking, and major repair and renovation throughout the USAFE area of responsibility.

Training: One of three Air Force sites providing SORTS (Status of Resources and Training System) reportable Silver Flag team familiarity training. One of two Air Force sites conducting certified fire rescue technician training. Provides in-depth generator operations and troubleshooting training as well as Joint Services Interior Intrusion Detection Systems (JSIIDS) training.

Barriers: Operates the only all-military, depot-level barrier overhaul function in the Air Force, overhauling mobile aircraft arresting systems and barrier arresting kits (BAK–9, –12 and –13). Supports theater exercises involving USAF aircraft with barrier installations and operations and expedient trim pads.

Significant Deployments: Tasked in January 1999 to begin beddown/relocation of the Predator unmanned aerial vehicle surveillance mission from austere facilities at Taszar, Hungary, to improved facilities at Tuzla, Bosnia-Herzegovina. Rapidly mobilized five USAFE CTS convoys through five countries; a rail shipment from the 31st RED HORSE Flight at Camp Darby, Italy; and numerous airlift shipments. Overcame snow, mud and ice fog to meet required April 1 Initial Operational Capability date.

After evacuating its civilian workforce due to possible hostilities following air strikes on Serbia, the CTS team was backfilled with personnel from the 786th and 52nd CES, who helped complete the foundation/base work and erect two Pre-FAST hangars, three communications towers and install an operations control facility to complete the project. The former USAFE Vice Commander, Lt Gen William J. Begert, called the project "One of the most significant behind-the-scenes accomplishments in execution of the air war over Serbia."

Additional Past Year Accomplishments: USAFE CTS completed 32 projects in 11 countries during 1999, plus runway marking and rubber removal at eight locations. In the training arena, USAFE CTS trained seven teams, conducted two in-depth Mission Essential Equipment Training sessions, four three-week Fire Rescue courses, six JSIIDS courses, and trained the RAF Lakenheath and German Bundeswehr Readiness Challenge VII teams — all during a highly abbreviated training season due to the air war over Serbia.

The Barrier Depot proved its mettle during the air war, marshalling 18 MAAS systems for deployment throughout the theater and executing overhaul on 26 units, as well as providing support to five exercises in four countries.

Editor's Note: The "Unit Spotlight" is being instituted as a regular feature in each issue of The CE *magazine.*

CE WORLDWIDE DEALS WITH ISSUES HEAD-ON

CE leaders assembled in San Antonio, Texas, for the 1999 CE Worldwide Conference in December. Here, they stop for a photograph along the famous River Walk, just outside the hotel where the conference was held. ***(Photo by Gil Dominguez)***

CE Staff Report

The issues confronting the Air Force in the 21st century will not be much different from those it faced in the 20th said Maj Gen Earnest O. Robbins II, The Air Force Civil Engineer. Those issues, which include infrastructure, readiness and environmental concerns, were discussed at the 1999 Air Force Civil Engineer Worldwide Conference.

The meeting of senior Air Force civil engineers from the major commands and Air Staff was held Nov. 29 to Dec. 3 in San Antonio, Texas. It was sponsored by the Air Force Center for Environmental Excellence.

The conference "is an excellent forum for The Air Force Civil Engineer and his staff to share with the major command civil engineers their thoughts, perspectives and concerns about what's going on in our Air Force," Robbins said.

The general said the conference theme, "Meeting the Millennium, Head-On and Heads-Up," represents the idea that "while there are a lot of very difficult issues we need to face head-on, we've got to keep our heads up, keep our optimism up."

Col Emmitt Smith, chief of the Housing Division, Office of The Civil Engineer, presented what he called the "housing big picture."

In his briefing, he pointed out that "housing issues continue to be a challenge for the Air Force," noting that of the 109,000 military housing units that will be in the service's inventory as of fiscal year 2001, 65,000 need revitalization. Colonel Smith said the Air Force Housing Master Plan will serve as a roadmap to help the service fix the inadequate units by 2010.

Smith explained that the Master Plan is the result of a two-year effort that entailed engineering teams visiting almost every base in the service. It provides a corporate, requirements-based, housing investment strategy that integrates and prioritizes traditional construction and operations and maintenance funding with private sector funding.

Col Gary Kirsteatter, deputy director of the Silver Team at the Aerospace Expeditionary Force Center, Langley Air Force Base, Va., updated the civil engineers on AEF planning and program implementation. His center is responsible for coordinating all AEF support activities.

Kirsteatter assured conferees that the Air Force was working to lessen the impact of AEF operations on individual units. Troops are pulled from various organizations to build an AEF, which is then deployed to a theater outside the United States. The type and number of airmen that are needed for an AEF depend on the nature and purpose of the contingency.

Kirsteatter said that airmen are vulnerable to a 90-day assignment every 15 months, but not to exceed 120 days per year. He added, however, that "we will never task a wing to the extent that it shuts down the civil engineer function."

Instead of taking "big chunks" from any one wing, the deputy director said the AEF will, instead, take "small, bite-size pieces" out of a number of units, including those in the Air Force Reserve and Air National Guard.

The bottom line, the colonel said, is the AEF promises stability by easing some of the personal and mission turbulence caused by deployments and last-minute call-ups.

According to Col Brian Miller, chief of the Environmental Division, Office of The Civil Engineer, Air Force lands are facing increased encroachment from all sides. He said there is mounting pressure from the American public for the service to open up its 9 million acres of property for recreational use.

Since undisturbed federal land is often the last refuge for a

number of endangered and threatened species, more and more restrictions are being placed on the military use of public property. On the other hand, the Air Force needs unfettered access to its lands and ranges in order to maintain mission readiness.

Miller said the installation natural resources management plan, or INRMP, is "key to meeting these land-use challenges." An INRMP is a document that serves as a base's guide on what it needs to do to protect any endangered species that may be found on its property as the installation undergoes changes.

Using an "ecosystem management" approach to natural resources management, as outlined in Air Force instructions, will help address many of these potential land-use conflicts as the Air Force enters the new century, the colonel said.

The 2000 CE Worldwide Conference will be held at Headquarters Air Force Civil Engineer Support Agency, Tyndall Air Force Base, Fla.

(Gil Dominguez, HQ AFCEE Public Affairs, contributed to this article.)

Lieutenant Colonel-Selects

Congratulations to the following Air Force civil engineer officers who were recently selected for promotion to lieutenant colonel.

Blaylock, Michael A.
Bower, John C.
Brothers, Heidi S.
Brown, Thomas P.
Cummings, Gregory A.
Emanuel, Gregory G.
Emmette, Charles G.
Funk, David W.
Garcia, Efren V. M.
Grumbach, Stephen D.
Hill, Robert E.
Lacatus, Joseph
Leonard, Mark A.
Lohr, John R.
Matthews-Hains, Mary
Mines, Barry S.
Nelson, David K.
Neuhaus, Bryan K.
Nonaka, Kent H.
Pitchford, Jeffrey L.
Rountree, Keith
Russell, Scott P.
Rainforth, Philip E.
Sobieski, Thomas J.
Stegman, Shane T.

Senior Master Sergeant-Selects

The following Air Force civil engineer NCOs were recently selected for promotion to senior master sergeant. Congratulations to all on their dedication and achievement.

Allen, Stephen
Auch, Bernard B.
Baker, Charles M.
Barnes, Jerry L.
Barnes, Todd W.
Bartleson, John D. I.
Barton, Ali K.
Beasley, Ira J.
Billow, Gary M.
Brundidge, Darryl J.
Burk, Roger W.
Burnette, Ronald W.
Cassino, David A.
Castleman, Bobby G.
Coumbs, Gary M.
Dansereau, Michael
Darby, Vincent D.
Darden, Mark T.
Ehlers, David L.
Ezelle, Christopher
Faulkner, James R.
Gamble, Alton R.
Green, Fredrick W.
Green, Kelli R.
Hardeman, Larry W.
Harlan, Jeffery A.
Hicks, Paul L.
Hoffman, John L. Jr.
Inman, Robert R.
Jones, David A.
Jones, Jimmy E.
Jones, Leslie E.
Jose, Arnel L.
Kaplan, Paul S.
Kennedy, Michael J.
Konkel, Michael J.
Lane, Donald A.
Ledford, Mark R.
Lee, Ann M.
Lee, Tony
Lewis, Mark L.
Linde, David W.
Litke, Michael J.
Lucas, James B.
Mangerson, Teresa G.
Mateo, Reynold
Matthews, Tyrone
McDonald, Laurent R.
McFall, Timothy A.
Morrison, John R.
Moser, Dale R.
Mullis, James E. Jr.
Perry, Frank L. Jr.
Popovich, David L.
Rapp, R. Tim
Sasil, Desi W.
Singhas, Richard K.
Sloan, Craige K.
Slocum, Jeffrey C.
Smith, Anthony G.
Smith, Barry R.
St. Bernard, William
Taylor, Paul D.
Tilton, Jay E.
Trigg, Joseph D.
Vroom, Mark E.
Walsh, Clarence H.
Ward, Robert F.
Woods, Marita S.
Wright, Joseph A.
Young, Charles L.

Kunsan's Recovery of the Century

by Lt Col Nick Desport and
MSgt Tom Sturtevant
Kunsan AB, Korea

18:08:08: Tower: "Standby, standby. We've got an aircraft down, we've got an aircraft down over Big Coyote. I repeat, we've got an aircraft down. The pilot has ejected, we have a visual on him at runway 36."

18:08:46: Ch-2 (assistant chief of operations): "Fire Control, Chief 2 is out. What do we have? Give me the information again. What type of aircraft was it?" ... "Kunsan Tower, is this a rotary or fixed wing aircraft down?"

18:09:20: Tower: "Fixed wing, F-16, sir."

18:20:30: Ch-1 (fire chief): "This is Chief 1, go ahead Kunsan Ground."

Above photos show the CBU-87 recovery site at high and low tides, the F-16 crash site on the southwest corner of Kunsan AB, and construction of a road to the site (sandbar) — 100 yards into the Yellow Sea. *(Photos courtesy 8th CES)*

18:20:31: Ground: "Chief 1, can we get a fire truck to check out the F-16 at the end of the runway at the north end? ... "That's the F-16 that hit the other F-16, the SOF is requesting that a vehicle check him out before he can let him taxi."

18:21:37: Viper 1 (operations group commander): "Be advised that the plane had unexploded live ordinance."

18:21:43: Ch-2: "Command copies, we do have some live MARK-82s and other live ordnance. All units do you copy that there may possibly be live ordnance? ... Also, Control I need EOD to respond out here."

18:22:02: E-7 (structural firefighting crew): "Command, Engine 7. I have the hydrazine response team here with me."

18:25:51: Ch-2: "What's the status of the pilot?"

18:25:54: R-9 (rescue crew): "Pilot is good, we've got to pull him up from the water to the walkway."

18:26:34: Training 1 (assistant chief of training): "Command, Training 1. Tail number 403, pilot advised two MARK-82s and a full gun."

18:26:47: Ch-2: "Copy. We did hear some 20 mm cooking off earlier."

Many challenges faced the 8th Civil Engineer Squadron during a two-week cleanup following the mid-air collision of two F-16s at Kunsan Air Base, Korea, in August. To start: two 500-pound bombs, both most likely armed; 20 mm rounds; poisonous hydrazine and 100-plus degree heat every day they worked at the crash site. And last, but certainly not least, one "missing" Cluster Bomb Unit (CBU-87) containing 202 BLU-97 bomblets. The effort to locate, get to and recover this CBU is what we call Kunsan's "Recovery of the Century."

The Crash

Two F-16s collided in mid-air in the traffic pattern, forcing one of the pilots to eject while his plane crashed into the south end of Kunsan AB. The other F-16

was damaged but was able to land, resulting in another emergency at the departure end of the runway. Our firefighters responded, assisting the pilot who ejected and suppressing the fire around the site — until 20 mm rounds began going off and they had to step back.

Our Disaster Control Group was recalled and formed at the primary staging area. The Support Group commander took charge and, with the advice of the on-scene Fire Chief and Explosive Ordnance Disposal (EOD) unit, cordoned off the area and evacuated those who were near the site. Only then could we begin what would become a 14-day, base-wide challenge of safing and cleaning up the site.

Safing the Site

The EOD team found the two 500-pound bombs the first night. One was only 50 feet from an Army Patriot missile complex. Helicopters armed with Hellfire missiles were within the bomb's fragmentation zone. We made a command-risk assessment to move the Patriots and helicopters in case the bombs went off.

While the relocation was underway, the EOD team took detailed photographs of the crash site for the on-scene and wing commander.

At this point, searchers still had not located the CBU. It was believed to be somewhere in the Yellow Sea off the end of Kunsan's south approach to the runway. Meanwhile, we requested EOD manning assistance from Osan AB, Korea, to help safe the two 500-pound bombs.

We built protective works (sandbag walls) around the bombs to help limit fragmentation in case one of the bombs detonated. It took four hours to construct the two walls, using 50 volunteers to fill more than 1,000 sandbags. After clearing the area of all non-essential personnel, the EOD team rendered the bombs safe in six hours.

Once the two bombs were stable enough to store for destruction at a later date, we turned our thoughts to the rest of the aircraft hazards and the missing CBU.

Locating the CBU

On day four, while searching the area from a U.S. Army helicopter, the vice wing commander spotted a depression and what looked like a fin and fuze in a tidal mud flat in the Yellow Sea, approximately 300 yards off the last approach light. The items were sitting on a sandbar and could only be seen at low tide. They shot video of the site to help determine if this was what we were looking for. A decision was made to send in a three-person EOD team for a closer look the next day via helicopter.

On the video, the fuze appeared to be separated from the dispenser fin by about 100 feet. Our worst fear was that the CBU had opened and there could be 202 small bomblets on this tidal flat — if that were the case, the team would be

Extreme tide fluctuations allowed only short periods for removing the CBU. Construction of a road, dubbed Red Devil Route 1, into the Yellow Sea allowed quick access to the recovery site during low tide.

The 8th CES Environmental Flight's hydrazine response team (TSgt James Correia and TSgt James Humphrey) made the site safe for the investigation and survey team. Meanwhile, sandbag walls were constructed around the two 500-pound bombs to help limit fragmentation in case they exploded before, and during, the EOD team's safing procedures.

SSgt James Holmes, SrA Jacob Smith, SrA Kevin Jones and SrA William Kellum, 8th CES, use a fire hose attached to a floatable fire pump and a suction pump (mud hog) to free the CBU from a muddy tidal flat off Kunsan AB.

going into a mine field.

The next day, as the team was dropped by helicopter on the tidal flat they found the area's contours had completely changed due to the tides — the CBU fin could not be seen. They started clearing the area with a MK-26 ordnance detector to see if any BLU-97 or the CBU could be located, but no luck. They did find the CBU's fuze, which wasn't connected.

With triangulation of the site using the two helicopters and one of the EOD team members as the third leg, they marked the area with buoys anchored to 55-pound dumbbells from the fitness center. Thirty-five feet of rope was used to attach the weights to each buoy to ensure the area could still be found during high tide.

A detailed search for the CBU began using the MK-29 ordnance locator. A few spots were hit and, after digging gingerly on one of the spots, the CBU fin was found. Whether or not the CBU was intact or even attached could not be verified as it was under approximately 2 to 3 feet of mud. As they dug in the sand to access the CBU, the hole continued to cave in, especially since the tide was coming in. All team members could do was feel around and guess. Once they were positive it was the CBU, the fifth buoy was tied to it.

Since the tide was coming in after only a 3-1/2 to 4-hour window, the team gathered their equipment and boarded the helicopters. We met later and devised a plan of attack for the next day.

Removing the CBU

We needed a faster and easier way to haul equipment and materials out to the site, giving us more time to work. Our first option, driving to the site using HMMWVs (high mobility multipurpose wheeled vehicles) and ground shafting techniques, proved futile.

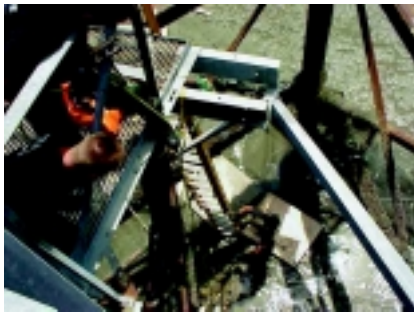
Realizing ground shafting techniques are meant for semi-hard ground and not sandy, mucky areas with a water table of zero, with a few minor deviations, we hoped for success.

The HMMWVs had to navigate the soft tidal mud to reach the firmer sand of the sandbar. We knew if we could reach the sandbar, the HMMWVs would be okay, since the helicopters had landed there without sinking. But just a few feet into the mud, the first HMMWV sunk up to its axles. The only way was to build a road.

Enter the Red Devil Dirt Boys with nine 10-ton dump trucks, two loaders and one dozer. In just 18 hours, they built a road, "Red Devil Route 1," 100 yards into the Yellow Sea during low tides.

With Red Devil Route 1 westbound toward China complete, we were able to get the vehicles out to the sandbar the next day. Without this road recovery would have been next to impossible due to extreme tide fluctuations allowing only short periods for removing the CBU.

While the road was being built, 10 CE volunteers helped carry equipment to the site by heading out the catwalk from the runway approach lights in the sea, down a 25-foot drop, then out another



(left) **Before building Red Devil 1, the 8th CES EOD flight tried to use HMMWVs to haul equipment to the recovery site, but to no avail.** ***(center)*** **The EOD team and CE volunteers carried equipment down the runway approach lights catwalk, rapelled down, then walked through the muck to reach the site.** ***(right)*** **The EOD team attempted a typical ground shafting technique with a few modifications but due to the mud and water they couldn't free the CBU from its resting place.**

300 yards to the site. All equipment was either rapelled down or thrown over the catwalk to someone, then walked through the muck out to the site. This proved to be a monumental effort.

The EOD team started digging and laying shoring for the walls. A mud pump was used to help suck water and mud out of the hole, but the silt proved too much and the CBU would not be recovered that day. We did accomplish one objective — verifying that the CBU was attached to the fins and that it seemed (felt) to be intact. Tie-down straps were placed around the CBU to help ensure it stayed intact during future handling.

We gave it one pull to see if we could get it on top of the mud to recover it the next day. No luck — it wasn't budging. Meanwhile, the tide was coming in again. All equipment had to be carried to the catwalk, hoisted up the catwalk, then brought down the catwalk to the road.

Day 7 — with the new road, and now a new plan, our chances for success were getting better. Our EOD flight chief had called the Naval Diving and Salvage Training Center in Panama City Beach, Fla., for advice. After talking with them, our water shop and our Fire Department, we had the new plan. If we could use water as our friend by pumping it under the CBU while using a mud hog at the other end, we might be able to loosen the CBU enough to pull it from the mud. We also learned that suction from the mud was making the CBU's weight equivalent to a bomb four to five times heavier — equivalent to a 5,000-pound bomb.

The team headed out on Red Devil Route 1 with all the equipment loaded on the HMMWVs, just like we'd envisioned. Unfortunately the shoring material was gone when we arrived on site. We started digging and prepared to use the floating pump to free the CBU.

However, water had gotten into the pump and shorted it out, so it wouldn't start. We continued to dig, tried to give the CBU a pull with the HMMWV winch, and busted the cable. We did recover the aircraft canopy that day, so all was not lost.

Unearthed!

On Day 8 we headed out around 1 p.m. — unfortunately low tide was at the hottest part of the day. After seven straight 90- to 100-degree days, our team was getting exhausted. We all hoped that, with the right plan and a week of experience, success was near.

With the floating pump repaired, we used the new water technique and were able to break mud from the underside loose. We made another attempt to unearth the CBU, but no luck. We applied more water, and this time placed a board underneath as a ramp. We jammed the hose under the CBU, hooked the winch from the HMMWV to the fins — and the CBU slid right out.

The team rolled the CBU up the ramp and into a trailer towed by the other HMMWV. Once on the trailer, we immediately transported it across the sandbar, up Red Devil Route 1, and directly to the hot cargo pad for transfer to its original container. We finished just as the tide came in and covered the sandbar minutes after driving the CBU away. It was placed in storage until the host nation granted permission to destroy it.

Final Thoughts

Throughout this article, the word "we" is commonly used in describing the efforts and the decision-making team. During this incident, and the recovery and cleanup associated with it, there were various meetings with all involved from the wing commander to the EOD airmen. Our evening planning meetings included numerous CE shops, the fire department, EOD and other wing personnel such as the support group commander and wing safety personnel. "We" hashed out all the options, sometimes brainstorming what to do next, developed a plan with options, and executed the next day as discussed.

Sometimes, the plan for the next day involved trial and error, but at no time did we risk injury by pushing forward too fast, too soon. Our leadership's support allowed us to make calls we felt comfortable with. As with many mishaps, there isn't always a checklist to tell you to, for instance, build a road out to a sandbar. The team has to assess the situation and come up with the best and safest plan.

The level of teamwork and support within the CE squadron was amazing. When the time came to react, it was obvious that the training our troops receive is right on the mark. Our firefighters, EOD and readiness personnel responded immediately, putting in a stellar performance during the first few critical hours. Our environmental flight, although not directly trained in hydrazine remediation, stepped up to the challenge, making the site safe for the investigation and survey team. According to the safety investigation board, our surveyors did one of the best jobs ever seen of surveying the crash site, and in minimal time. We had no injuries throughout the task, including heat or dehydration problems. The CE Red Devils proved once again that with teamwork, anything is possible.

Lt Col Nick Desport and MSgt Tom Sturtevant are the commander and EOD flight chief, respectively, of the 8th CES, Kunsan AB, Korea.

Mission accomplished: the EOD team transfers the recovered CBU to its original container for storage, then proper disposal at another location.

Utilities Privatization Update: Phase II

by Maj Bill Owens
HQ AFCESA

The Air Force utilities privatization program has made great strides since the last update in the Spring '99 edition of *The CE* magazine. Most of the program has entered "Phase II" of the utilities privatization process. Requests for Proposal (RFP) have been issued for 35 utility systems at ten Air Force installations, and Air Staff has approved an RFP template to make future solicitations smoother and easier. We are well on our way to meeting the Defense Reform Initiative Directive (DRID) #49 milestone to privatize utilities by September 2003.

Of the 510 systems available to privatize, the Air Force has made 451 "go/no go" decisions. This includes 372 "go" decisions to move projects into the next phase of the process. Seventy-nine systems were selected as potential national security "no go" decisions due to manpower requirements for readiness. This progress puts us at 88 percent of the DRID 49 goal to complete all "go/no go" decisions by Sept. 30, 2000.

The first three utilities privatization RFPs were issued in January to the Texas Regional Demonstration (TRD) Project, Maxwell Air Force Base/Gunter Annex, and Cape Canaveral Air Station.

The TRD Project RFP includes 25 utility systems at Goodfellow, Lackland, Laughlin, Randolph, Sheppard and Dyess AFBs and Ellington Air National Guard Base. The Defense Energy Services Center (DESC) is the procurement agent for the TRD project.

The Maxwell/Gunter RFP includes four utility systems. The 325th Contracting Squadron, Tyndall AFB, Fla., is handling the source selection process.

The 45th Contracting Squadron, Patrick AFB, Fla., has issued an RFP for the water and wastewater systems at Cape Canaveral AS and plans to issue an RFP for the electrical systems in April.

Also, DESC issued an RFP on March 30 for the water, wastewater, gas and electric systems at Bolling AFB. All four of these projects will soon go into source selection, targeting an award date of January 2001.

Another major development in the utilities privatization program is the completion of an RFP template for competitive solicitations. A multi-disciplinary team, commissioned by the Air Force Civil Engineer Support Agency, produced the template. After a thorough, cross-functional review by Air Staff, the template was issued to the field February 14. The template is easily tailored to base-specific requirements, helping to expedite the Phase II process.

The RFP template is also designed to solicit regulated and unregulated utilities. This will reduce the level of effort expended by base personnel to get a utilities privatization RFP issued. The template can be accessed on AFCESA's web page at www.afcesa.af.mil/Directorate/ceo/Contracts/UtilPrivitization/Default.htm.

For additional information contact Rick Baker, AFCESA privatization program manager, at DSN 523-6238, or send e-mail to Rick.Baker@afcesa.af.mil.

Maj Bill Owens is a utilities privatization project manager at HQ AFCESA, Tyndall AFB, Fla.

Why Privatize Utilities?

The utilities privatization process started in 1998 when Secretary of Defense William Cohen ordered military installations out of the utilities business by 2003. Water, wastewater, electric and natural gas utility systems are being specifically addressed across the Air Force. Major commands and bases also have the option of privatizing steam, hot water and chilled water generation systems.

It's part of an overall Defense Department plan to divest the services of water, wastewater, natural gas and electric utilities at almost all military installations by 2003.

"Modernization and cost are the key factors," said Col Lance Brendel, director of operations support, Air Force Civil Engineer Support Agency. "Some of our utility systems are badly in need of major upgrades."

(DoD photo by SSgt Ken Bergmann)

Brendel, whose directorate is responsible for supporting the execution of the Air Force's utilities privatization program, said companies receiving privatization contracts assume responsibility for upgrading utilities to industry standards.

Every Air Force installation will go through a three-phase, two-year evaluation. Utilities will only be privatized if it is economically advantageous to the Air Force and readiness and national security are not affected.

During the first phase of the evaluation, a feasibility assessment is conducted to determine requirements and screen potential candidates. In the second phase, draft real estate documents and requests for proposal are developed. During the third phase, RFPs are issued and proposals are evaluated.

Once a decision to privatize is made, it is reviewed by the Secretary of the Air Force and Congress is notified. If approved, utilities are transferred.

(TSgt Michael Ward, HQ AFCESA Public Affairs)

National War College:

A Unique PME Opportunity for Senior Civilian Managers

by James Einwaechter, P.E.
Pentagon

Senior civilian managers looking for a unique and challenging opportunity to broaden their insights into national security process, and to enhance their effectiveness as key members of the Department of Defense team, should consider applying to National War College.

NWC is a 10-month, joint-service, professional military education program conducted in-residence at Fort Lesley J. McNair in Washington D.C.

A part of National Defense University, NWC's mission is to prepare future leaders of the Armed Forces, State Department and other civilian agencies for high-level policy, command and staff responsibilities. A senior-level course of study in national security policy and strategy is provided for selected U.S. and foreign military officers (Lt Col and Col) and federal civilian managers (GS-14 and GS-15).

NWC has a unique educational focus and mission, emphasizing joint and interagency perspectives. The fully joint environment and orientation of the NWC program is reflected in the student body, 75 percent of which is composed of equal representation from land, air and sea (including Marine Corps and Coast Guard) components. The remaining 25 percent is drawn from the State Department and other federal departments and agencies, as well as international fellows from a number of countries.

Curriculum

The curriculum is composed of a core program, advanced studies and regional studies.

The core program, which is required of all students, provides grounding in national security strategy and policy and in military strategy and operations. The focus is on the domestic and international contexts in which national security policy is developed, national security organizations and decision-making processes, and the formulation and implementation of military strategy.

The advanced studies program complements the core curriculum, offering a wide range of courses that provides students an opportunity to broaden and deepen their study.

The regional studies program begins soon after the start of the academic year, when students register preferences to study particular regions of the world. The program builds throughout the year, culminating in May with a two-week visit to the region. Students meet with key leaders, foreign affairs officials and senior military commanders to study first-hand their security concerns, military capabilities and perceptions of U.S. policy toward the region.

Upon successful completion of the program, graduates are awarded a master of science degree in National Security Strategy. Additionally, for those students who aspire to work in a joint-service environment, completion of NWC satisfies the requirements of joint "level 1" and "level 2" certification.

Admission

Competition for admission to NWC among both military officers and senior civilian managers is exceptionally keen. At best, the Air Force civil engineer community can hope to send only one civilian civil engineer manager to NWC each year (most likely a current registrant in DLAMP, the Defense Leadership and Management Program).

Those who are selected will find the program extremely demanding. However, they will find the long-term rewards to be great, not only in terms of professional development, but in the establishment of personal, life-long contacts throughout DoD and the federal government at large.

If you are interested in competing for the opportunity to attend NWC, consult either the Civil Engineer Career Program staff (DSN 665-2799, or commercial, 210-565-2799) or your servicing Civilian Personnel Flight.

James Einwaechter, P.E., is a military construction program manager in the Engineering Division, Office of The Civil Engineer, HQ USAF, Washington D.C., and a member of the National War College Class of '99.

Save Energy and Upgrade Facilities with ESPCs

by K. Quinn Hart and Joe Price
HQ AFCESA, and
Kevin Madden
Honeywell, Inc.

Do the facilities at your base need upgrades, but you don't have available funds or manpower to get the work done? Are you tired of listening to complaints about uncomfortable offices and work areas? Are you meeting your energy conservation goals?

An office building at Hill Air Force Base, Utah, was so uncomfortable that maintenance personnel were getting 20 to 50 service calls a month. The solution: award of an Energy Savings Performance Contract (ESPC) task order.

Hill AFB awarded the first base-wide ESPC in the Department of Defense in July 1994, and while that contract provided a solution for the problematic office building, it was also a model for later ESPC efforts, including the new Air Force Regional ESPCs.

To solve the problems at Hill, the ESPC contractor, CES/Way International, used a helicopter to replace a rooftop chiller unit, then installed and balanced the system — all over a weekend. The result: No downtime, new energy-efficient equipment providing a new level of comfort, and service calls down to one or two a month.

ESPC use has increased in recent years as funding for energy projects has dwindled. ESPCs allow bases to "buy now, pay later," making it easy to replace existing energy systems with new, more energy-efficient equipment and cutting-edge energy management technology. Bases benefit from improvements now and pay for them over time out of energy and operational savings. Limited base manpower is required for oversight and savings verification. The contractor does the work, and if guaranteed savings do not materialize, the contractor pays the Air Force.

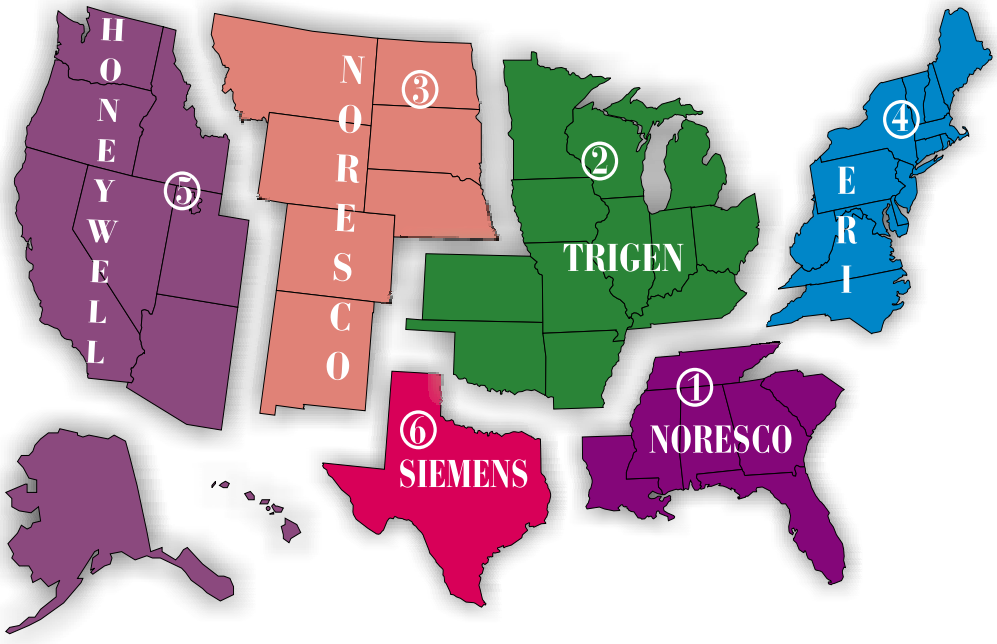
Sound too good to be true? It works, says K. Quinn Hart, Air Force Facility Energy Program Manager, Air Force Civil Engineer Support Agency (AFCESA). AFCESA is promoting ESPCs as the best way to renovate base infrastructure and meet federal energy reduction goals at the same time.

Partnerships that Produce Results

ESPCs were developed as a contracting vehicle to improve base infrastructure and quality of life for base personnel without up-front government investment. They can be used to replace existing lighting, HVAC (heating, ventilation and air conditioning), central plant, airfield lighting and other energy systems with new, high-efficiency equipment.

The program also helps bases comply with the federal mandate to lower energy usage by 35 percent. The Energy Policy Act of 1992 and Presidential Executive Order 13123 encourage federal agencies to make maximum use of ESPCs in meeting mandated energy reductions in all facilities including administrative, military family housing, and research and development laboratories.

ESPCs are a unique type of contract that blends elements of architect & engineering (A&E), construction and maintenance contracts into one long-term contract. An ESPC contractor is part of an emerging market known as Energy Service Companies (ESCOs). ESCOs pay all up-front costs to identify potential energy-saving projects, then acquire, install, operate and maintain the more energy-efficient equipment for the duration of the long-term agreement. The ESCO receives payments from the savings that result from the more efficient equipment and lower operations and maintenance cost. Payments over the life of the task order, which can be 20 years or more, are budgeted and taken from the base utility service account.



AFCESA initiated Regional ESPCs to expedite the availability of these new types of contracts. The country was divided into six geographic regions. A Regional Contracting Office (RCO) that receives engineering, contracting, legal and comptroller support from AFCESA manages each contract.

Regional contracts are available to all Air Force units (active, Reserve and Air National Guard) in the 50 states and on a limited basis at overseas locations. Guam and Korea have contracts in place and plans are to extend the program to units in Europe and Japan by the end of this year.

The ESCOs for the six Air Force

regions are NORESCO (Regions 1 and 3), Trigen Energy (Region 2), ERI Services (Region 4), Honeywell (Region 5) and Siemens (Region 6).

The combined capacity of these six regional contracts makes $1.2 billion in private capital available to the Air Force for energy efficiency enhancements and infrastructure upgrades.

Travis AFB Leads the Way

Travis AFB awarded the first regional contract in September 1998, and subsequently completed the first task order under the regional program. Among the resulting improvements: a lighting renovation to a C-5 hangar and vehicle maintenance shop which, according to the Travis AFB energy manager, has dramatically improved lighting quality, providing C-5 maintenance crews with a better working environment.

Honeywell is implementing a second task order at Travis that will reduce energy costs by more than $190,000 in year one, with $2.5 million saved over 15 years. This includes energy improvements ranging from fine-tuning HVAC systems to water conservation to compressed air upgrades and repairs.

One energy conservation project will upgrade a 50-year-old compressed air system to provide pneumatic tools with more consistent air pressure. A Honeywell team observed excessive leakage from an aging, corroded under-slab piping system. The compressor was short cycling because of restrictions caused by undersized air lines and low-capacity air filters in the mechanical room.

The solution: Abandon the leaky under-slab piping, install a new air line and a right-sized final filter and receiver tank. Move the old receiver tank to the extreme end of the distribution system to minimize air pressure fluctuations, and install a remote compressor on/off control with a timer.

This approach minimizes wasteful air leaks and cuts compressor run-time and equipment wear as energy consumption drops. The new system will also provide more consistent air pressure whenever required by aircraft maintenance technicians. This upgrade will save $16,000 in annual utility costs. The end result? Increased quality of work, longer lasting tools and reduced energy consumption.

Other Region 5 Bases Follow Suit

More projects are underway throughout Region 5 as Luke, Hickam and Elmendorf AFBs have partnered with Honeywell and initiated ESPC audits. A recently awarded $6.34 million ESPC at Luke AFB, Ariz., will provide upgrades to approximately 874 military family housing units, replacing aging lighting with energy-efficient fixtures and modernizing old HVAC systems. It will also provide for major lighting upgrades (including significant day lighting) in eight large commercial buildings, including two aircraft engine maintenance facilities. Other systems being evaluated at Luke include solar hot water heating and a total energy plant.

ESPCs — A Phone Call Away

Implementing an ESPC is simple. To get started, just give AFCESA a call. Once a base is authorized to tap into the regional contract, it handles its own projects in what's basically a three-step procedure.

Phase I is a "back of the envelope" analysis in which the regional ESCO performs a preliminary evaluation of selected facilities to determine the potential for reducing BTUs and saving valuable energy dollars. This phase is completed very quickly, typically in 30 to 60 days, and without a great deal of expense.

Examples of ESPC projects:

Thermal Energy Storage
Variable Speed/Frequency Drives
Distributed Heating Systems
Geothermal Heat Pumps
Energy Monitoring & Control Systems
Propane Air Plants
Ramp/Sports Field Lighting
Boiler/Chiller Replacements
Natural/Day Lighting
Showerheads/Urinals/Toilets

Phase II begins when base personnel give the ESCO the go-ahead for further analysis. Then the ESCO undertakes an intensive energy audit/analysis and develops a proposal that contains an energy savings guarantee. At this point the ESCO completes the project design and obtains financing. Phase II can be very time-consuming and expensive. The time to complete phase II varies depending on project size, but six months is fairly common.

Phase III is the award of the task order, which may run for more than 20 years. This phase includes construction, installation and any agreed-upon operation and maintenance, in addition to an audit validation that savings guarantees were obtained.

Don't Wait for 2009!

Year 2010 is the deadline for complying with the federal mandate to cut all energy consumption by 35 percent. But why wait? Start those ESPCs now and start enjoying the benefits of improved lighting, better environmental controls and reduced energy costs immediately.

Every Air Force base can benefit from the ESPC program. AFCESA's energy staff regularly conducts one-day ESPC training sessions via satellite through the Air Force Institute of Technology and has personnel available to assist with proposal evaluations, issuance of task orders and general contract management activities.

AFCESA is encouraging ESCOs to do as much as possible. With the current shortage of money and manpower, partnering with private industry is the answer to renovating base infrastructures and helping to improve conditions for base personnel.

For more information on ESPCs, call K. Quinn Hart at DSN 523-6361.

K. Quinn Hart is the facility energy program manager, HQ AFCESA, Tyndall AFB, Fla. Joe Price developed and manages the ESPC program at HQ AFCESA. Kevin Madden is vice president and general manager of Honeywell's Home and Building Control Division.

Out With the Old,

Next time you're on Tinker Air Force Base, take a drive by the 507th Air Refueling Wing Headquarters and notice what isn't there anymore …

In With the New

The 507th Air Refueling Wing Headquarters building, before and after power lines were laid underground. ***(Photos courtesy 507th CES)***

by Maj Jeff Hough
Tinker AFB, Okla.

Now you see it. Now you don't.

People who visit the 507th Air Refueling Wing, Tinker AFB, Okla., might not realize there's a difference. Wing reservists arriving for work on a Unit Training Assembly weekend might notice something has changed, but they "aren't able to put a finger on it."

Even the civil engineer team members involved didn't realize the full impact of their labor until looking at "before" and "after" photographs.

The project involved removing three-fourths of a mile of deteriorating, above-ground power lines and poles and routing them underground into concrete-encased conduit. The five-month effort represented a major $500,000 overhaul for this Air Force Reserve campus. Besides improving the campus area, this project presented an exciting opportunity for the 507th Civil Engineer Squadron and the civil engineer specialists from around the country who participated.

The 507 CES's primary objective was to maintain an aging electrical distribution system. What they finally got was a significant improvement in power supply dependability.

The new power system can be fed from multiple directions, so if a portion of the power supply system down the line is damaged, base civil engineers can use alternate routes to maintain power to base facilities.

This additional switching capability allows for a significantly more reliable and flexible electric service to the 507th ARW campus. In Oklahoma, where strong winds and severe thunderstorms are routine, putting this vital piece of infrastructure underground also reduces its vulnerability to damage.

According to SMSgt John Cameron, Air Reserve Technician for the 507th CES, the project was in the planning stages for a number of years.

"We knew the old overhead power lines and utility poles needed work, but it was a struggle to find the best way to correct this problem within the limited construction funds available," he said. "The opportunity to do this as a joint training effort started with the promotion of Col Don Ritenour, a former commander of the 507th CES, to commander of the 307th RED HORSE Squadron at Kelly AFB, Texas," Cameron said.

"Shortly after assuming command, Ritenour saw a chance to provide a unique training opportunity for the electrical personnel in the 307th RHS. He offered the project up to them and they accepted the challenge," Cameron said.

307th RHS electrical personnel made several trips to Tinker AFB to plan and design the project. In early 1998, Maj Andrew MacDonald, lead electrical engineer, gave a formal briefing on their findings. The proposal called for a joint effort between the 507th CES and 307th RHS.

The 307th RHS would provide the engineering design, construction management services, construction equipment, and the majority of the labor. The 507th would be responsible for obtaining approval and funding and would augment the construction team as much as possible, with help from the 72nd

Civil Engineer Group at Tinker AFB. The 72nd CEG provided materials, logistics support and construction inspection.

After funding was approved by Air Force Reserve Command late in fiscal year 1998, the project was underway. Material procurement and schedule development began immediately. May 3,1999, was set as the official starting day. This day, however, turned out to be an infamous one for Tinker AFB — one that demonstrated just how vulnerable overhead electric lines are.

Late that afternoon, strong thunderstorms developed in southwestern Oklahoma, spawning one of the worst series of tornadoes in the state's history. A massive tornado ripped through Oklahoma City, including a portion of Tinker AFB, late that night. The killer tornado didn't directly impact the project site, but many team members saw firsthand one of Mother Nature's most powerful events.

Heavy rains followed, making excavating trenches for underground utilities extremely difficult. As it turned out, the May 3rd storms were just the beginning of what was to be one of the wettest spring and summer seasons on record in Oklahoma. Just when the team would start to make good progress, more rain would come and fill trenches and conduit.

TSgt Paul Cassidy, project superintendent for the 307th RHS, Detachment 1, Barksdale AFB, La., and MSgt Tom Irwin, 507th CES, had their hands full keeping the project on track and doing it safely. The rains ended after a few months — only to be replaced by near-record levels of heat and humidity. What started as a routine training project had turned into a challenge that tested the skills of everyone involved. It was a test they passed with flying colors.

Another unique aspect of this project was the wide variety of members participating. On most civil engineer deployments, you are likely to see electricians helping pavement specialists when it's time to do a large concrete pour, or swinging a hammer alongside carpenters. This time the shoe was on the other foot,

Project team members place the bottom section of a concrete manhole into the ground. This section, weighing roughly 6 to 7 tons, was pre-cast in Texas and shipped to the site. *(Photo by SrA Shannon Collins)*

and all of the various specialties within civil engineering got involved helping the electricians in this large-scale electrical project.

"Our RED HORSE members love their job," said Col Richard Jamieson, who replaced Col Ritenour as the 307th RHS commander. "We will go anywhere and do anything. We really enjoyed this project. And," he chuckled, "we think we have found some potential RED HORSE members here in the 507th."

In addition to the members of the 307th RHS and 507th CES, civil engineer personnel from throughout AFRC came to Tinker AFB to participate. Personnel from a Naval Reserve Seabee unit, the 3rd Brigade's Naval Mobile Construction Battalion 28, stationed at Barksdale, were also involved. Altogether, more than 200 people participated in this "purple suit" effort as they rotated through in annual tour status.

Because heavy rains had set the team back a few weeks, several of the construction crew volunteered to stay on and support the effort in man-day status until it was complete. Altogether, 2,087 man-hours were invested in the effort by the time it was completed on September 15, 1999.

The original goals for the undertaking were all met. A large number of reserve personnel received valuable, one-of-a-kind training while serving their annual tour commitment. Tinker AFB and the 507th ARW were able to get some much needed infrastructure maintenance done at a fraction of the cost of a commercial contract, and an infrastructure improvement was built which will benefit all, maintenance-free, for decades to come. This venture left a permanent mark, or rather, took away a permanent mark, for the betterment of the 507th ARW campus.

Maj Jeff Hough is the 507th CES Operations Flight Chief, Tinker AFB, Okla.

507th CES and 307th RHS members consult project blueprints for a final check prior to encasing the conduit in concrete. Ultimately, laying the power lines underground involved trenching nearly three-quarters of a mile on Tinker AFB. *(Photo by SrA Shannon Collins)*

EOD Operations in Clandestine Drug Laboratories

by SMSgt D.J. Hackenberger
Seymour Johnson AFB, N.C.

Tired appearance. Open sores. Bad teeth. Unclean. Smells like chemicals, medicine, ammonia or urine. Is this the image of you after a good weekend? Those physical characteristics also describe habitual methamphetamine users and manufacturers, a.k.a. "cooks." People exposed to illegal drug manufacturing, like cooks and cops, eventually suffer health problems from the chemicals used in drug production.

Occasionally, explosive ordnance disposal professionals respond with civilian law enforcement agencies into drug labs because explosives are found during or after a bust. Besides evidence preservation and other considerations when working at a crime scene, EOD personnel responding to clandestine drug labs need to be alert to "transparent" dangers. Meth labs are just as deadly as dynamite.

EOD teams are noted for facing grave danger and getting the job done. We're prepared to deal with explosives and tools of terrorism. But when responding to explosives in a drug lab, we're faced with additional hazards that we must consider when planning and conducting our operations. Why?

Drug labs contain hazardous chemicals used for the manufacturing process. For some reason, cooks don't display the chemicals' Material Safety Data Sheets. While the meth (also crank, speed, crystal, ice, etc.) is cooking, chemical vapors fill the room and, over time, permeate the walls, fixtures, furniture and anything and anyone inside. Even long after cooking is completed, exposure to the interior of a drug lab can cause serious health problems.

What does this mean to us if we're called to a suspected drug lab? In the first place, regard any location used to manufacture illegal drugs as a hazardous materials (HAZMAT) site which should be treated as such by trained, equipped HAZMAT personnel. If the situation dictates EOD must enter the lab, consider the following: Is air monitoring being accomplished? Is the location ventilated? Does everyone entering the area understand the chemical hazards?

What level of personnel protective equipment (PPE) must be worn? The likelihood is strong that a self-contained breathing apparatus (SCBA) or other respirator will be required, as well as overgarments that can be discarded or decontaminated.

If you need the bombsuit, you have a problem. Do you degrade explosive safety for chemical safety, or the other way around? You can wear the bomb suit and protect it from chemical hazards, but then you can't wear a respirator. Talk with HAZMAT experts on-scene for their advice then go with your best judgement based on what the operation entails.

A respirator will most likely be required — respond with it! Unless you respond with a SCBA you're trained and certified to use, you might have to borrow a respirator you're not certified on. You'll need a "field fit-test" before it's safe to enter the area.

Don't dress-out and commence your operations until decon stations are established by HAZMAT workers. Any tools and equipment like the dearmers and robot that enter the "hot zone" may need decontaminating also.

As you can see, performing EOD operations in a drug lab requires more coordination and safety consideration than a normal response where the only hazard is the explosive. Talk with all agencies on-scene about the hazards. Be patient. Patience can be a lifesaver in this situation. If possible, wait for the location to be ventilated. The risk of explosion and fire is high because of ether and toxic gases that are easily ignitable — keep that in mind if you're planning a destructive render safe procedure.

Health effects are unpredictable from exposure to chemicals and vapors in drug labs, so take the time to discuss those effects and to protect yourself and your teammates from short- and long-term health problems. Remember that even if a drug lab hasn't been used recently for manufacturing, chemical hazards are still present.

Finally, seek more information on this subject. Colleges and contractors offer seminars on clandestine drug labs from a HAZMAT perspective. Watch for books and videos on this topic. Know your community emergency services officials and see how they respond to suspect drug labs. Be smart and safe — you probably don't want to look any more like a meth maker than you already do.

SMSgt D.J. Hackenberger is the flight superintendent of the Seymour Johnson AFB explosive ordnance disposal team.

Safety Precautions for Clandestine Drug Lab Operations

- Don't enter unless absolutely necessary.
- Limit exposure to the minimum amount of personnel and equipment.
- Limit exposure to a minimum amount of time.
- Be alert for booby-traps.
- Don't create sparks.
- Wear PPE.
- Don't touch anything unless you have to.
- Keep in mind the following hazards: fires, explosions, toxic gases, acids, and fuels.
- Whenever possible, wait for the scene to be ventilated and hazardous materials removed before you conduct your operations.
- Follow prescribed decontamination procedures.
- Pay attention to contamination control.
- Be aware of symptoms of exposure; many symptoms may be delayed for several days.

Views from the Field

Commentary on Issues Affecting Air Force Civil Engineering

Empowerment Works!

by Col Thomas Hayden III
Hickam AFB, Hawaii

Empowerment is one of the most powerful words in today's Air Force. Most of us know what it means, but how many of us actually use it? It is a fundamental tool of supervision — essential to quality improvement, often misunderstood by bosses, and a key to survival in today's environment of diminished resources.

Some supervisors see their jobs as a challenge simply because they don't expect much from their folks. Their subordinates, realizing this, do only what's expected of them, and something called improvement tends to stagnate. These people are underestimating their subordinates, their co-workers and themselves. The most productive work centers foster an atmosphere in which people at all levels are expected to perform.

This idea of empowering individuals has been around for quite some time. Tom Peters and Ed Demming have preached this concept since the early 1970s. If you haven't already, I recommend you read one of the "Excellence" books. They include some startling examples of what can be accomplished.

Essentially, empowerment is *enabling* your subordinates to do their jobs by providing them with the proper training, then giving them the power to make decisions, be creative and, of course, be held accountable. People at all levels must have authority as well as responsibility, and be held accountable for what they accomplish or fail to accomplish.

Risk is an important part of this equation — people must be given the opportunity to succeed or fail, and to learn from their failures. Good ideas exist at every level, and frequently the best ideas are at the lowest levels.

Back in the mid-1980s, Strategic Air Command held an annual "Crystal Shield" exercise. This brought together representatives from all functional areas, all ranks and all bases. I was selected to represent civil engineering. The concept was that the people who did the job day-in and day-out knew what inhibited their ability to do their job smarter, better or more efficiently. They were also likely to be the ones most frustrated with the daily constraints placed on them at work. It's a natural human instinct to want to do well, so how do we foster this instinct for the benefit of the Air Force? Crystal Shield representatives solicited ideas at all SAC bases.

It worked like gangbusters! Dozens of good ideas were generated, from mission to maintenance, from production to quality of life.

In my civil engineer Operations Branch at Loring AFB, Maine, we used this concept repeatedly on process after process, on a trial idea called Readiness and Ownership Oriented Management (ROOM), the forerunner of today's objective CE squadron. After six months, the Ops Branch workforce proved they could do more than twice the facility maintenance work in about half the time. They also scored *higher* than any civil engineer operations branch *in the history* of the SAC Operational Readiness Inspection.

The idea of empowering or enabling your subordinates to do what you've hired and trained them to do is even more important in an era of downsizing, when you are having to do more with less, or even having to do less with less.

In 1996, when I took command of the 77th Civil Engineer Group at McClellan AFB, Calif., I learned they used to have more than 850 military and civilian workers, and had been downsized through various reduction drills to 520. As civil engineer manpower authorizations decreased, base facilities continued to grow. With more than 330 less people, they were actually maintaining more facilities.

Most organizations across the Air Force are in the same boat. And we, as the Air Force, have collectively made a decision to try to do our jobs smarter and more efficiently.

To quote a commander I know, "Leaders who don't learn how to empower or to delegate, or continue to avoid using empowerment, are quickly becoming the dinosaurs of our age."

I encourage supervisors at every level to empower (trust) their employees with the level of authority commensurate with their responsibility, provide them with the training and the resources they need to do their job, provide an environment that encourages participation in guiding and achieving organizational objectives, and encourage them to get the job done. They won't let you down.

Col Thomas Hayden III is the Readiness Division chief, HQ Pacific Air Forces, Hickam AFB, Hawaii.

Pest Control Changes with the Times

From bugs to birds – Today's pest control methods help improve mission performance and quality of life at Air Force bases.

MSgt Gary Wilson, chief of base operations, 51st Operations Support Squadron, Osan Air Base, Republic of Korea, calibrates the BASH (Bird Aircraft Strike Hazard) cannon used to deter birds from the flight line. The BASH cannon is a propane-powered air cannon and bio-acoustic sound system which simulates different noises designed to annoy and frighten away birds. *(Photo by SrA Catherine White)*

by Carl Lahser
Randolph AFB, Texas

Almost 30 years ago, I ran a pest control shop at Homestead Air Force Base, Fla. Mangrove swamp was on the east side of the base while seed crops were being raised on the west. The mangroves were home to a large flock of cattle egrets that flew across the south end of the runway every morning and evening. These mangroves and the nearby Everglades were also breeding grounds for swarms of mosquitoes and sand flies. Herds of roaches, locally called "water bugs," and mice infested housing and other structures on base.

Then and Now: Bird Control

During this time, the 31st Tactical Fighter Wing returned from Vietnam with their F-105 "Thuds." Many mornings I watched as Thuds and F-4 Phantoms from the Reserve 482nd TFW, on their way to "hang the sun up," drove through flocks of egrets. I asked the tower why they didn't tell the pilots to wait until the birds were out of the way. Their answer: It was not the tower's responsibility and, besides, those battle-hardened warriors wouldn't listen. Several of the pilots told me much the same thing and suggested that if I wanted to do something useful I could "get rid of those %$#& birds."

Times have changed. The Bird/Wildlife Aircraft Strike Hazard (BASH) program was organized in 1969 as a Headquarters U.S. Air Forces in Europe civil engineer function, and I had my first BASH inspection at Homestead in 1972. Air controllers now provide warnings of bird activity and can even close an airfield if a bird hazard warrants. Pilots are aware of the damage "banging a bird" can do to the airplanes and themselves. Bird Hazard Working Groups and bird dispersal teams are an integral part of the flying safety program.

Individualized "bird awareness" programs are being employed at Sheppard and Dyess AFBs in Texas.

The area around Sheppard is still rural enough that wheat fields and grazing cattle are visible across the fence while driving the perimeter road. Tim Hunter, the base's natural resources manager, sees this pastoral scene as a possible BASH threat.

"We can keep the grass mowed and the wet spots drained on base, but there's not much we can legally do about our neighbors' land practices," he said.

"Plowing and planting time attract a lot of birds to earthworms and other soil organisms. Birds also flock to freshly planted seed and other seed exposed by turning the soil. Harvest time attracts birds to ripened grain and to mice and snakes injured during the harvest process. Young, green winter wheat attracts feeding flocks of geese from their roosting grounds on the nearby Red River and local lakes," he explained.

Tim tours the back roads around base every couple of weeks to see what local landowners are doing. He found they weren't aware their farming practices could have an impact on the base's flying mission.

"I know that plowing, planting, harvesting and moving cattle can attract birds. I use this information in two ways. First, since I was raised around here, I know many of the farmers and ranchers and can talk to them. I tell them about the BASH program. I might suggest they change to a crop or land use that does not attract so many birds and that may save them money at the same time.

"The other side of the coin is to brief the flying community," he said. "Through the Bird Hazard Working Group, I tell flight safety, the pilots, the airfield manager and the control tower where potential bird problems are off-base. The pilots and tower personnel then know where to keep a special lookout for birds."

A different type of bird problem exists at Dyess AFB, which is located in ranch country.

"Since vultures are among our most frequent and dangerous strikes, I take a weekly check around the outside perimeter for sick, dead or heavily pregnant livestock," says Don Pitts, Dyess' natural resources manager. "I warn ranchers of any present or impending problems, and they appreciate it. I appreciate them doing their part not to attract vultures."

This proactive approach has not yet had specific measurable success but, like mowing grass and firing propane-powered air cannons, it is another tool for fine-tuning the BASH program.

Mosquitoes

Mosquitoes used to be treated by 24-hour fogging, seven days a week. Technology, safety, environmental awareness and budget restrictions have since changed mosquito control for the better.

Surveillance and action level counts are now considered before fogging. New chemicals are more effective and less hazardous to people. Biological agents such as insect diseases and juvenile hormones help keep mosquito populations at a tolerable level. Repellants have improved and can be applied to clothing and tents.

Roaches and Other Pests

Roaches, chinch bugs and other common insect pests used to literally be drowned in pesticides. Mice and rats were trapped or poisoned. Inspection results and routine maintenance for exclusion of pests were not accomplished since chemicals were the answer.

Then Integrated Pest Management (IPM) came of age. Inspection, exclusion and least hazardous chemicals replaced the "spray it" philosophy.

Flashlights, steam cleaners and caulking guns are the new weapons of choice. Sticky traps with pheromone baits are used for both surveillance and control. Jell baits are more effective and less hazardous than surface sprays. Biological controls such as natural predators (like ladybugs), bacteria and fungal spores that attack insect pests are commonly used. Some state extension offices send out pest advisories projecting insect infestations in time to do preventative treatments.

The Future

Products that will soon be in common use include termite bait stations and new pretreatment procedures, and a chemical fog that repels birds from airfields, hangars and warehouses. These and other new strategies, procedures and materials will be adopted for Air Force use as they become available.

For more information on Integrated Pest Management, contact Wayne Fordham, HQ Air Force Civil Engineer Support Agency, at DSN 523-6465, or e-mail Wayne.Fordham@afcesa.af.mil. For more information on the BASH program, contact Maj Pete Windler, Air Force Safety Center, Kirtland AFB, at DSN 246-5674, or e-mail windlerp@kafb.saia.af.mil.

Carl Lahser is the pest management consultant, Environmental Division, Office of The Civil Engineer, HQ AETC, Randolph AFB, Texas.

It's Your Turn!

Submit an article to *The CE*

Writing an article for *The Civil Engineer* magazine is a great opportunity to make a valuable contribution to your profession. Does your unit have a list of lessons learned from a recent deployment that should be shared with others? Has someone in your unit gone "above-and-beyond" but not yet been recognized for their efforts? Did your unit come up with a new solution to an old problem? These are just a few of many possible topics that would make a great article.

If you have an idea for an article, please call and let us know. Help on any aspect of putting it together is available. Simply call the editor at DSN 523-6242 or commercial (850) 283-6242, or send e-mail to cemag@afcesa.af.mil.

Previous issues of *The CE* magazine can be read on-line at www.afcesa.af.mil. While you're there, please take the time to complete the new on-line reader survey. What changes could we make to serve you better? This is your chance to tell us what you think about your magazine.

CE WORLD

RED HORSE Aids Villages in Belize

Drilling water wells in Third World countries is nothing new for RED HORSE teams. They've been involved in lifesaving work such as this as part of New Horizons humanitarian exercises for several years.

This year, members of the 307th RED HORSE Squadron, Kelly Air Force Base, Texas; Det 1, 307th RHS, Barksdale AFB, La.; and the 820th RHS, Nellis AFB, Nev., deployed from January through March to Dangriga, Belize, in a joint active/reserve effort to purge and repair hand pumps on five wells and drill four new ones.

"The big thing is purification; the old wells that were in place had no way to maintain purification," said MSgt Brandon Clark, 49th Medical Group, Holloman AFB, N.M. "They were sealed shut and couldn't be used. RED HORSE opened, flushed out, added chemicals to purify the water, and installed pumps on the wells."

A contingent of medical personnel provided health screenings for local citizens along with limited health care. According to Dennis Peters, chairperson for Pomona Village in the Stand Creek District of Belize, medical personnel indicated that the bad water had caused kidney and gall stones.

"Some health risks they (local citizens) face with bad drinking water are parasites, like worms, and bacterial infections," Clark said. "Depending on the parasite or bacterial infection, it can be fatal."

"For a small country, Belize had advanced thinking on how to develop water and sanitation systems," said Lt Col Stephen McCutcheon, chief of the Operations Branch, Det 1, 307th RHS.

TSgt Willie Daniels, Det 1 307 RHS Power Pro Air Reserve Technician, cleans mud pump spigots which were clogged by sand-sized pebbles during routine mud drilling operations at Pomona, Belize.

"We drilled one well in the middle of nowhere; they are planning to bring the community to the water."

"These people have big plans for the wells," said TSgt Lonnie Anglin, 307th RHS project manager. "One of the sites is a possible location for an airport."

Before a well was drilled at another of the sites, locals had been walking almost a half-mile to a bridge where they climbed down a deep embankment to a river to gather water and wash dishes.

"The well water makes life much better," said Anna Marie Tech, a Pomona Village resident. Residents weren't the only ones who appreciated the new water supplies. Even tourists at the airport offered thanks for the humanitarian efforts the American military made toward the people of Belize.

"There's a great sense of satisfaction when you can leave a product that will be used by generations to come and get great training at the same time." said McCutcheon.

(MSgt Jessica D'Aurizio, 917th Wing Public Affairs)

Dennis Peters, chairperson of Pomona Village in Belize, and 1st Lt Erik Sell, 820th RHS, discuss the location for the Stand Creek District well. *(Photos by MSgt Jessica D'Aurizio)*

AFCAP Used to Help Kosovars Survive Winter

The Air Force Civil Engineer Support Agency, Tyndall Air Force Base, Fla., used the Air Force Contract Augmentation Program to procure lumber for Kosovo residents, protecting them from the area's notoriously cold winter.

Almost 30,000 tons of lumber was provided to Kosovars by the United States Agency for International Development. The lumber was used to repair roofs on concrete block homes burned out by Serbian forces during their campaign of ethnic cleansing against the Kosovars last year.

USAID's Office of Foreign Disaster Assistance called on the Air Force to assist in mid-September. OFDA had arrangements with several nongovernmental humanitarian agencies to provide materials to Kosovar families, however, logistical problems and a rapidly approaching winter spelled a possible disaster. "We had to fill a gap that was not being met," said Sheldon Schwartz, a USAID official. "We decided to look at options."

"I would categorize OFDA's phone call to us as very urgent," said Joe Smith, Air Force AFCAP program manager. Smith said OFDA was in a serious bind because it had an immediate need for 21,000 tons of quality lumber, cut to five different lengths, to be delivered in country within 30 days.

The Air Force turned to AFCAP program manager Readiness Management Support, a subsidiary of Johnson Controls Inc. RMS arranged procurement, transportation and distribution of the lumber through various subcontractors.

"I kind of thought, going in, that we were setting them up for failure by having them deliver in that short of a time," Smith said. "We thought nobody could possibly do that, but they did. It's a feather in their cap, and for all the companies involved."

AFCAP was used this winter to procure emergency lumber for Kosovo residents. *(Photo courtesy Readiness Management Support)*

The lumber was produced by mills in Austria, Germany and the Czech Republic. From there it was shipped to Skopje, Macedonia, then moved by RMS to Pristina, Kosovo, where it was trucked to seven distribution centers throughout the country. The request, which was eventually expanded to 30,000 tons, was completed close to deadline with the last truckload delivered in December. "OFDA is just tickled," Jim Mitchell, RMS logistics coordinator, said. "They had made commitments to help and we got it done."

International humanitarian agencies distributed the more than 2.2 million pieces of lumber. OFDA estimates there will be enough lumber to help more than 10,000 Kosovar families.

"I haven't been over there, but I've seen pictures of people with smiles on their faces, knowing they will have a roof over their heads," Mitchell said. "It makes you feel good knowing that you had a hand in it."

(TSgt Michael Ward, HQ AFCESA Public Affairs)

Lackland's Privatized Housing Unveiled

An Air Force quality of life milestone was reached Jan. 28 at Lackland Air Force Base, Texas, with the ribbon-cutting ceremony for the new Frank Tejeda Estates housing complex.

The privatized housing project, named in honor of late Texas congressman Frank Tejeda, will provide homes for Lackland's enlisted members and their families. It is the Air Force's first housing privatization initiative using the Alternative Authority for Acquisition and Improvement of Military Housing enacted by the National Defense Authorization Act of 1996.

More than 420 new homes for enlisted service members E-3 to E-7 are nearing completion at Lackland AFB. This was DoD's first housing privatization project. *(DoD photo by Linda Kozaryn)*

Frank Tejeda Estates "West" will have a total of 321 units fully occupied by June. Construction will start this summer on Frank Tejeda Estates "East," which will have 99 additional units and should be completed in February 2001.

(37th Training Wing Public Affairs)

(Photo by SSgt Jason Tudor)

New Facility Improves Firefighter Training and Safety

by 2nd Lt Danielle Burrows
355th Wing Public Affairs

The 355th Civil Engineer Squadron's Fire Protection Flight recently purchased and set up a structural fire-fighting training facility in their training area.

The mobile, multi-unit trainer is a self-contained, two-story unit with movable walls and a non-toxic smoke generator that adds realism to firefighter training.

"We waited a very long time after purchase for delivery of this unit but the wait was worth it," said 355th CES commander, Lt Col Marshall Lounsberry. "The trainer provides much more realistic challenges for our firefighters, is tremendously flexible in entry and exit difficulties, fire management and smoke generation, and the safety features are fantastic."

"This unit has been carefully designed to keep firefighters safe, while providing realistic live fire training through a variety of scenarios," said Randy Schryer, 355th CES Fire Protection Flight Assistant Chief of Training.

"During any live fire scenario, if anything out of the ordinary occurs which violates or creates a safety concern, either the safety officer or the controller releases the kill switch, an immediate shutdown occurs, and the exhaust fans remove heat and smoke from the trainer," he said.

"Additionally, there are three emergency shutdown switches located inside the training structure that any of the firefighters can activate if they observe a safety problem."

"In our old facility, you had to extinguish the fire regardless of the circumstances. Now, within seconds you have a safe environment," Schryer said.

Prior to this, the fire protection flight used a two-story cement block burn house, where they ignited wood, hay, straw or tires. However, after several years, the facility was condemned because of the damage caused by excessive heat stress.

The new unit uses propane, which burns clean and is contaminant-free. It also has two movable walls that can be used to change the floor plan during live fire training and search and rescue exercises.

The facility will be used several times a month to train the 82 firefighters on base in structural fire-fighting techniques, search and rescue procedures in a smoke-filled environment, ventilation of smoke and heated gases, ladder drills and confined space rescue situations, among other scenarios, according to Schryer.

A typical training scenario for the firefighters involves fire and smoke coming from the first floor and a missing person inside the building. Crews arrive at the scene wearing full protective clothing, lay hose lines and start attacking the fire. Their goals are to rescue the missing person and put out the fire.

This new training device allows the firefighters to train in more realistic situations under safer conditions, and safety is the concern, Schryer said. "The trainer provides us with training opportunities that we haven't had for more than 15 years, and with proper maintenance and care, it will serve us for 15 to 20 years to come."

Airmen Ken Hannah and Kevin Baird, 355th CES, train in the new fire-fighting simulator at Davis-Monthan AFB, Ariz. *(Photo by A1C Iatonia Brown)*

Exterior views of the new structural fire-fighting simulator, which provides more realistic challenges and more safety features for firefighters. *(Photo courtesy 355th CES)*

CE PEOPLE

General Robbins Pins On Second Star

Brig Gen Earnest O. Robbins II, The Air Force Civil Engineer, was promoted to major general on Feb. 1, 2000.

Gen John W. Handy, then Deputy Chief of Staff for Installations and Logistics, officiated during the general's promotion ceremony, which was held January 28 at the Hall of Heroes in the Pentagon, Washington D.C.

General Robbins took office as The Air Force Civil Engineer in July, 1999. He had previously served as the Air Combat Command Civil Engineer, the Air Force Space Command Civil Engineer, and Director, Plans and Programs, Office of The Civil Engineer, Headquarters U.S. Air Force.

Among General Robbins' awards and decorations are the Legion of Merit with oak leaf cluster, the Meritorious Service Medal with six oak leaf clusters, the Air Force Commendation Medal with oak leaf cluster, and The Society of American Military Engineers Newman Medal.

Kosovo Team Wins Award

Performing humanitarian support on behalf of the Air Force civil engineer community has garnered Readiness Management Support the Johnson Controls 1999 Chairman's Award for Exceeding Customer Expectations.

The award was presented to the Kosovo Readiness Management Support Team for their contribution to improved quality and customer satisfaction within the Integrated Facility Management Division. They were one of 15 team winners throughout Johnson Controls.

The Kosovo Support Team constructed a 20,000-person refugee camp in Albania and began construction on two others during the Kosovo crisis.

RMS is the Air Force Contract Augmentation Program (AFCAP) contractor.

RED HORSE Roundup

The 823rd RED HORSE Squadron will host a 35th Anniversary RED HORSE Roundup Sept. 12-14, 2000, at the Ramada Plaza Beach Resort in Fort Walton Beach, Fla. All present and former RED HORSE members are invited. Official workshops and training will be combined with social events to include a combat dining-in, a RED HORSE Hall of History dedication and a Cajun shrimp boil at the Eglin Air Force Base Beach Club. A schedule of events is available at www.823RedHorse.isthebe.st.

This is a great opportunity to meet with RED HORSE personnel, learn the history of the HORSE and have some working fun. Contact CMSgt Susan Floyd at (850) 881-2189, DSN 641-2189, or Susan.Floyd@823rhs.hurlburt.af.mil.

Brigadier General John E. Catlin Jr.

Retired 1981, Died Dec. 27, 1999

Brig Gen John E. Catlin Jr., USAF (retired), died Dec. 27 in Annapolis, Md., at age 73. General Catlin was a former Deputy Chief of Staff, Engineering and Services, at United States Air Forces in Europe and at Strategic Air Command.

General Catlin served in the Army Air Corps as an aircraft crew chief and flight engineer before entering the Air Force from the Reserve Officers' Training Corps program at the Virginia Military Institute in 1951. He held numerous positions with the 509th Bombardment Wing in the 1950s. In the early 1960s he served in Spain, where he was responsible for operating and maintaining the 500-mile, cross-country Spain Inland Petroleum System, an achievement that earned him his first Legion of Merit.

In the late 1960s, the general helped establish BEAMS (the Base Engineering Automated Management System), and also led a specialized petroleum, oil and lubricants construction Prime BEEF team deployment to Vietnam. In 1975, General Catlin became the first Air Force civil engineer officer to win the George W. Goethals Medal from The Society of American Military Engineers.

General Catlin retired from active duty in August 1981.

Colonel William L. Deneke

Retired 1976, Died Jan. 16, 2000

Colonel William L. (Bill) Deneke, USAF (retired), died Jan. 16, 2000, at age 76, while on vacation in Las Vegas, Nev.

Colonel Deneke was instrumental in the formation of Air National Guard civil engineering as it's known today. As the ANG Chief of Civil Engineering from September 1965 to November 1976, his foresight and vision led the way in developing field and headquarters operations. During his tenure, ANG civil engineering went from a budget of a few million to multi-million dollars and increased force size. The colonel retired from the Air Force in 1976.

Following his distinguished career with the ANG, Colonel Deneke was the shooting venue director for the 1984 Summer Olympics and held several positions in state, national and international shooting organizations. He was a doubled distinguished marksman, a lifelong competitor and an enthusiastic promoter of the shooting sports.

The colonel leaves a legacy of dedication and devotion to civil engineering that will live on through the "Bill Deneke Outstanding Civil Engineer Unit Award," an annual award presented to an ANG Prime BEEF or RED HORSE unit in his name.

1999 Air Force Civil Engineer Awards

Lt Gen John W. Handy, Deputy Chief of Staff for Installations and Logistics, Headquarters U.S. Air Force, has announced recipients of the 1999 Air Force Civil Engineer Awards. Following are the winners and runners-up.

The Air Force Outstanding Civil Engineer Unit Awards

Large Unit Category

49 CES, Holloman AFB, N.M. (ACC)

runner-up—52 CES, Spangdahlem AB, GE (USAFE)

Small Unit Category

56 CES, Luke AFB, Ariz. (AETC)

runner-up—341 CES, Malmstrom AFB, Mont. (AFSPC)

Winners in each category also receive The Society of American Military Engineers Curtin Award, named for former Director of Air Force Civil Engineering Maj Gen Robert H. Curtin.

The Brigadier General Michael A. McAuliffe Award (Housing Flight)

48 CES, RAF Lakenheath, U.K. (USAFE)

runner-up—81 CES, Keesler AFB, Miss. (AETC)

The Major General Robert C. Thompson Award (Resources Flight)

10 CEG, U.S. Air Force Academy, Colo. (USAFA)

runner-up—66 CES, Hanscom AFB, Mass. (AFMC)

The Brigadier General Archie S. Mayes Award (Engineering Flight)

52 CES, Spangdahlem AB, Germany (USAFE)

runner-up—36 CES, Andersen AFB, Guam (PACAF)

The Major General Clifton D. Wright Award (Operations Flight)

82 CES, Sheppard AFB, Texas (AETC)

runner-up—89 CES, Andrews AFB, Md. (AMC)

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

86 CES, Ramstein AB, Germany (USAFE)

runner-up—30 CES, Vandenberg AFB, Calif. (AFSPC)

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

99 CES, Nellis AFB, Nev. (ACC)

runner-up—56 CES, Luke AFB, Ariz. (AETC)

The Colonel Frederick J. Riemer Award (Readiness Flight)

56 CES, Luke AFB, Ariz. (AETC)

runner-up—8 CES, Kunsan AB, ROK (PACAF)

The Air Force Outstanding Civil Engineer Environmental Flight Award

30 CES, Vandenberg AFB, Calif. (AFSPC)

runner-up—52 CES, Spangdahlem AB, Germany (USAFE)

Major General Eugene A. Lupia Award

In July 1999, two Outstanding Civil Engineer Manager of the Year Awards were renamed in honor of Maj Gen Eugene A. Lupia, to recognize his extraordinary efforts as a champion of junior enlisted and commissioned civil engineer personnel. The first of these awards, for candidates in the airman through technical sergeant category and the second lieutenant to captain category, were awarded in this year.

Born in 1946, General Lupia hails from Brooklyn, N.Y. He entered the Air Force in 1967 after graduating from the U.S. Air Force Academy with a bachelor's degree in civil engineering. He received his master's degree in civil engineering from Oklahoma State University in 1968. His first active duty assignment was as operations officer for the 317th CES at Lockbourne AFB, Ohio.

From 1971 to 1972, General Lupia served as an advisor to the Vietnamese base civil engineer at Tan Son Nhut AB, South Vietnam. He then served two assignments at HQ

The Society of American Military Engineers Newman Medal

Col Emmitt G. Smith, HQ USAF, Washington D.C. (USAF)
runner-up—Col Bruce F. Mc Connell, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

The Society of American Military Engineers Goddard Medal

Active Duty
SSgt George A. Waring III, USAFE CTS, Ramstein AB, Germany (USAFE)
runner-up—SMSgt Douglas L. Papineau, 36 CES, Andersen AFB, Guam (PACAF)

Air Force Reserve
TSgt Naomi L. Gabriel, 433 CES, Kelly AFB, Texas (AFRC)

Air National Guard
MSgt John M. Findorak, HQ ANG, Andrews AFB, Md. (ANG)

The Major General William D. Gilbert Award (Staff Action Officer)

Officer Category
Lt Col Steven W. Zander, HQ USAF, Washington D.C. (USAF)
runner-up—Capt Joel N. Holtrop, HQ AMC, Scott AFB, Ill. (AMC)

Enlisted Category
MSgt Kathleen M. Werle, HQ USAFE, Ramstein AB, Germany (USAFE)
runner-up—SMSgt Glenn L. Deese, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

Civilian Category
Mr. John J. Glover, HQ AFRC, Robins AFB, Ga. (AFRC)
runner-up—Mr. James L. Greene, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

Maj Gen Earnest O. Robbins II *(left)* presents Outstanding Civil Engineer Unit Awards to Lt Col Donovan Colman *(above, center)*, commander, 49th CES, in the large unit category, and Lt Col David Brewer *(below, center)*, commander, 56th CES, in the small unit category. Winners also received The SAME Curtin Award. Maj Gen Robert H. Curtin *(right)*, former Director of Air Force Civil Engineering, was on hand to present the award named for him. *(Photos courtesy AF/ILE)*

USAF, as a construction management engineer in the Housing Division, and as a special assistant to three consecutive directors, Maj Gen Maurice "Tex" Riley, Maj Gen Billy McGarvey and Maj Gen Robert Thompson.

He completed Air Command and Staff College in 1977 and Armed Forces Staff College in 1978. From February 1978 to July 1981 he commanded the 381st CES at McConnell AFB, Kan. He then attended the Industrial College of the Armed Forces for a year, and subsequently served as an Industrial College of the Armed Forces mobilization fellow with the Federal Emergency Management Agency, studying nuclear blast protection for critical American industries.

In 1983, General Lupia was assigned as the director of planning and programming for the DCS for Engineering and Services at HQ USAFE, Ramstein AB, West Germany. From 1986 to 1988 he commanded the 377th Combat Support Wing at Ramstein.

In July 1988, he became the DCS for Engineering and Services at HQ SAC, Offutt AFB, Neb. Until his promotion to brigadier general in 1991, he flew aboard the SAC airborne command post "Looking Glass" as an engineering damage assessment officer. From 1991 until joining the Air Staff in 1995, he served as U.S. Strategic Command airborne command post mission director of the "Looking Glass."

General Lupia was Director of Civil Engineering at HQ Air Mobility Command, Scott AFB, Ill., from 1992 to 1995. He was promoted to major general in May 1995 and assumed responsibilities as The Air Force Civil Engineer in July 1995. General Lupia retired from active duty in July 1999. He and his wife Diane make their home in Virginia.

The Major General Joseph A. Ahearn Enlisted Leadership Award

CMSgt Bruce E. Keller, 786 CES, Ramstein AB, Germany (USAFE)

runner-up—CMSgt Fred A. Wagner, 56 CES, Luke AFB, Ariz. (AETC)

The Harry P. Rietman Award (Senior Civilian Manager)

Mr. Freddie L. Beason, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

runner-up—Mr. John K. Carruth, 52 CES, Spangdahlem AB, Germany (USAFE)

Outstanding Civil Engineer Manager of the Year Awards

Outstanding Civil Engineer Senior Military Manager

Lt Col Mark A. Correll, 31 CES, Aviano AB, Italy (USAFE)

runner-up—Lt Col Linden J. Torchia, 15 CES, Hickam AFB, Hawaii (PACAF)

Major General Eugene A. Lupia Award (Outstanding Civil Engineer Military Manager)

Capt Jay D. Glascock, 820 RHS, Nellis AFB, Nev. (ACC)

runner-up—Capt Valerie L. Hasberry, HQ USAF, Washington D.C. (USAF)

Outstanding Civil Engineer Military Superintendent

MSgt Tim C. Bosch, 18 CES, Kadena AB, Japan (PACAF)

runner-up—SMSgt Randall K. Skinner, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

Major General Eugene A. Lupia Award (Outstanding Civil Engineer Military Technician)

TSgt Joseph W. May Jr., 45 CES, Patrick AFB, Fla. (AFSPC)

runner-up—SSgt Coben D. Scott, 314 CES, Little Rock AFB, Ark. (AETC)

Outstanding Civil Engineer Civilian Manager

Mr. Jimmy L. Lindsey, 82 CES, Sheppard AFB, Texas (AETC)

runner-up—Mr. Howard Rudkin, 100 CES, RAF Mildenhall, U.K. (USAFE)

Outstanding Civil Engineer Civilian Supervisor

Mr. Juergen H. Tafel, 786 CES, Ramstein AB, Germany (USAFE)

runner-up—Mr. Tracy W. Young, 27 CES, Cannon AFB, N.M. (ACC)

Outstanding Civil Engineer Civilian Technician

Mr. John A. McParlin, OL-A HQ AFCESA, Dover AFB, Del. (AFCESA)

runner-up—Mr. John C. Paulson, 10 CES, U.S. Air Force Academy, Colo. (USAFA)

Lt Gen John W. Handy, then Deputy Chief of Staff, Installations and Logistics, and Maj Gen Earnest O. Robbins II, The Civil Engineer, at the 38th annual Civil Engineer Awards ceremony.

Outstanding Civil Engineer Individual Mobilization Augmentee Officer Manager

Maj Noel A. Harris, 31 CES, Aviano AB, Italy (USAFE)

runner-up—Maj Greg A. Hall, 37 CES, Lackland AFB, Texas (AETC)

Outstanding Civil Engineer Individual Mobilization Augmentee Enlisted Manager

CMSgt Julio C. Morelos Jr., HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

runner-up—SMSgt James R. McClain, 305 CES, McGuire AFB, N.J. (AMC)

National Society of Professional Engineers' Air Force Engineer of the Year Award

Military

Maj Barry S. Mines, HQ AFCESA, Tyndall AFB, Fla. (AFCESA)

Civilian

Mr. William J. Porr, 81 CES, Keesler AFB, Miss. (AETC)

Maj Gen Robbins addresses the audience during the February 25 awards ceremony.

1999 Air Force General Thomas D. White Environmental Awards

The Air Force recently announced winners of the fiscal year 1999 General Thomas D. White Environmental Awards, which recognize outstanding Air Force efforts to preserve and enhance the environment.

Environmental Quality Award (Industrial)
Patrick AFB/Cape Canaveral AS, Fla. (AFSPC)
Honorable Mention — Hill AFB, Utah (AFMC)

Environmental Quality Award (Non-Industrial)
Fairchild AFB, Wash. (AMC)

Environmental Quality Award (Overseas)
Thule AB, Greenland (AFSPC)

Environmental Quality Award (Reserve Component)
Rosecrans MAP, Mo. (ANG)
Honorable Mention — Grissom ARB, Ind. (AFRC)

Environmental Quality Award for Individual/Team Excellence
Mr. Terry L. Madewell, Shaw AFB, S.C. (ACC)

Natural Resources Management Award (Small Base)
Robins AFB, Ga. (AFMC)

Natural Resources Management Award (Large Base)
USAF Academy, Colo. (USAFA)
Honorable Mention — Eielson AFB, Alaska (PACAF)

Natural Resources Management Award for Individual/Team Excellence
Mr. David Nutt, RAF Mildenhall, U.K. (USAFE)
Honorable Mention — Ms. Nancy E. Read, Vandenberg AFB, Calif. (AFSPC)

Cultural Resources Management Award
Nellis AFB, Nev. (ACC)

"Part of the defense job is protecting the land, waters, timber and wildlife — priceless natural resources that make this great nation of ours worth defending."

— General Thomas D. White, Air Force Chief of Staff, 1957

Cultural Resources Management Award for Individual/Team Excellence
Mr. Robert R. Peterson, Vandenberg AFB, Calif. (AFSPC)
Honorable Mention — Mr. Michael Hastings, RAF Lakenheath, U.K. (USAFE)

Restoration Award
Elmendorf AFB, Alaska (PACAF)

Restoration Award for Individual/Team Excellence
F.E. Warren AFB Team, Wyo. (AFSPC)
Honorable Mention — Mr. Joseph W. Hunter, MacDill AFB, Fla. (AMC)

Pollution Prevention Award (Industrial)
Cape Canaveral AS/Patrick AFB, Fla. (AFSPC)

Pollution Prevention Award (Non-Industrial)
Sheppard AFB, Texas (AETC)
Honorable Mention — Eielson AFB, Alaska (PACAF)

Pollution Prevention Acquisition Team Award
Logistics Environmental Team, HQ AFMC, Wright-Patterson AFB, Ohio (AFMC)

Pollution Prevention Award for Individual Excellence
Mr. Robert R. Tomlinson, USAF Academy, Colo. (USAFA)

Recycling Award (Industrial)
Robins AFB, Ga. (AFMC)

Recycling Award (Non-Industrial)
Grand Forks AFB, N.D. (AMC)

Recycling Award for Individual/Team Excellence
Mr. William R. Meinerding, Wright-Patterson AFB, Ohio (AFMC)
Honorable Mentions — TSgt David J. Berdis, RAF Lakenheath, U.K. (USAFE) and Ms. Cheryl E. Paige, Elmendorf AFB, Alaska (PACAF)

National Environmental Policy Act Award
Luke AFB, Ariz. (AETC)
Honorable Mention – HQ ACC/CEVP, Langley AFB, Va. (ACC)

Air Force Reserve and Air National Guard Civil Engineer Senior Officers

Air Force Reserve Command General Officer

HQ USAF	Brig Gen Enyart, Larry	Pentagon	MA to The Civil Engineer

Air Force Reserve Command Colonels

AFRC	Angel, Edward	Barksdale AFB	Commander, Det 1, 307 RHS
USSPACECOM	Bednar, Byron J.	Peterson AFB	IMA to J4
HQ AFSPC	Bratlein, Michael D.	Schriever AFB	IMA to 50 Space Wing commander
HQ USAF	Burnet, Gilbert N.	Pentagon	IMA to Environmental Division Chief
HQ USAF	Chafin, James T.	Pentagon	IMA to Competitive Sourcing & Privatization Division Chief
HQ AFCEE	Coneway, C. Rick	Brooks AFB	IMA to the Director
AFRC	Eaves, William T.	March ARB	Commander, 904 CEF
HQ USAF	Fadok, Faith H.	Pentagon	IMA to Engineering Division Chief
OSD	Hart, Thomas H.	Pentagon	Deputy Director, Environmental Management
HQ USAF	Hartman, Albert S. III	Pentagon	IMA to Housing Division Chief
AFRC	Haythorne, Thomas	Dobbins ARB	Commander, 628 CEF
AFRC	Jamieson, Richard	Kelly AFB	Commander, 307 RHS
HQ AFRC	Lemoi, Wayne T.	Robins AFB	Chief, Readiness Division
HQ AFCESA	Lopez, Donald T.	Tyndall AFB	IMA to the Commander
HQ AETC	Ritenour, Donald L.	Randolph AFB	Special Asst. to the Commander
AFRC	Rosson, Roark M.	NAS Fort Worth	Commander, 810 CEF
HQ USAF	Sharp, Kerry L.	Pentagon	IMA to Programs Division Chief
HQ ACC	Stephens, Eric L.	Langley AFB	IMA to the Command Civil Engineer
HQ USAFE	Wallace, Donald	Ramstein AFB	IMA to the Command Civil Engineer
HQ PACAF	Weed, John H.	Hickam AFB	IMA to the Command Civil Engineer
HQ AMC	Whitaker, Richard D.	Scott AFB	IMA to the Command Civil Engineer
HQ AFSPC	Zelenok, David S.	Peterson AFB	IMA to the Command Civil Engineer

Air National Guard Colonels

ANG	Cook, Jere	Camp Blanding	Commander, 202 RHS
ANG	Cunningham, Greg	Buckley ANGB	Commander, 240 CEF
ANG	Hobbs, C. Ron	Lambert IAP	Commander, 231 CEF
OASD/RA	Jameson, Stephen A.	Pentagon	Deputy Director, Construction
ANG	Kreidler, Jerold	Martin State Airport	Deputy Commander, 235 CEF
HQ ANG	Lundgren, Samuel G.	Andrews AFB	The ANG Civil Engineer
HQ AFCESA	Moreau, David C.	Tyndall AFB	CE ANG Advisor
ANG	Sprenkle, Dave	Buckley ANGB	Deputy Commander, 240 CEF
SAF/MIQ	Stern, Edmund H.	Pentagon	ANG Advisor to SAF/MIQ
HQ ANG	Willcocks, Raymond H.	Andrews AFB	Deputy ANG Civil Engineer

Civil Engineer Chief Master Sergeants

Ahern, Douglas W.	Hurlburt Field, Fla.	823 RHS (ACC)
Aitken, Ronald L.	Kelly AFB, Texas	668 LS (AIA)
Alt, Jeffrey	Wright-Patterson AFB, Ohio	HQ AFMC
Ambelang, David A.	Minot AFB, N.D.	5 CES (ACC)
Anderson, Johnnie N.	Langley AFB, Va.	HQ ACC
Armstrong, William	Peterson AFB, Colo.	HQ AFSPC
Arsenault, Keith R.	Eglin AFB, Fla.	796 CES (AFMC)
Aton, Mark A.	McConnell AFB, Kansas	22 CES (AMC)
Barker, Brian R.	Langley AFB, Va.	HQ ACC
Barnes, Dann E.	Nellis AFB, Nev.	820 RHS (ACC)
Berube, Marc P.	Osan AB, ROK	554 RHS (ACC)
Binggeli, Kerry C.	Ramstein AB, Germany	HQ USAFE
Blaylock, Dennis V.	Spangdahlem AB, Germany	52 CES (USAFE)
Bock, Jerry L.	Ramstein AB, Germany	786 CES (USAFE)
Bragg, Karen S.	Robins AFB, Ga.	78 CEG (AFMC)
Brautigam, Donald R.	McChord AFB, Wa.	62 CES (AMC)
Brock, Danny M.	Cheyenne Mountain AS, Colo.	721 CES (AFSPC)
Brown, David A.	Tyndall AFB, Fla.	HQ AFCESA
Bubac, Duane J.	Ellsworth AFB, S.D.	28 CES (ACC)
Buckmaster, Roy C. J.	Hill AFB, Utah	75 CEG (AFMC)
Burke, Richard D.	Langley AFB, Va.	1 CES (ACC)
Burney, Garrick	Scott AFB, Ill.	HQ AMC
Cain, Eddie N.	Nellis AFB, Nev.	820 RHS (ACC)
Caldwell, James R.	Dyess AFB, Texas	7 CES (ACC)
Carlson, Darrell D.	Eielson AFB, Alaska	354 CES (PACAF)
Carroll, Charles J.	Beale AFB, Calif.	9 CES (ACC)
Carson, Wayne T.	Altus AFB, Okla.	97 CES (AETC)
Cassidy, Patrick A.	Vandenberg AFB, Calif.	30 CES (AFSPC)
Challis, John V.	Langley AFB, Va.	1 CES (ACC)
Chambers, George J.	Spangdahlem AB, Germany	52 CES (USAFE)
Cherry, Phillip M.	Kadena AB, Japan	18 CES (PACAF)
Clark, Douglas P.	Randolph AFB, Texas	HQ AETC
Clark, Stephen B.	Nellis AFB, Nev.	99 CES (ACC)
Cline, Bert A.	Hickam AFB, Hawaii	HQ PACAF
Colburn, Timothy D.	Kirtland AFB, N.M.	377 CES (AFMC)
Coleman, Rodney E.	Moody AFB, Ga.	347 CES (ACC)
Cook, Melvin R.	Shaw AFB, S.C.	609 CSS (USCENTAF)
Copeland, James A. J.	Dyess AFB, Texas	7 CES (ACC)
Couch, Marvin L.	Tyndall AFB, Fla.	HQ AFCESA
Culliver, Richard O.	Keesler AFB, Miss.	81 CES (AETC)
Delay, Terence L.	Ramstein AB, Germany	86 CES (USAFE)
Dersarkisian, Paul	Holloman AFB, N.M.	49 MMG (ACC)
Dixon, Larry D.	Hurlburt Field, Fla.	823 RHS (ACC)
Dixon, Mary L.	F. E. Warren AFB, Wyo.	90 CES (AFSPC)
Dodson, Daniel S.	Scott AFB, Ill.	HQ AMC
Dogan, Raymond E.	Robins AFB, Ga.	78 CEG (AFMC)
Domme, Henry W. Jr.	Luke AFB, Ariz.	56 CES (AETC)
Doorbal, Norma J.	Ramstein AB, Germany	HQ USAFE
Doris, Michael F. Jr.	Scott AFB, Ill.	HQ AMC
Duffield, Gregory M.	USAF Academy, Colo.	10 CES (USAFA)
Earley, Gregory C.	Hickam AFB, Hawaii	HQ PACAF
Eggers, Jack R.	Tyndall AFB, Fla.	HQ AFCESA
Estep, Donald A.	McGuire AFB, N.J.	305 SVCS (AMC)
Ethington, William	McGuire AFB, N.J.	305 CES (AMC)
Ezell, Michael J.	Randolph AFB, Texas	HQ AETC
Fairey, Robert C.	Minot AFB, N.D.	5 CES (ACC)
Farmer, Franklin H.	Scott AFB, Ill.	HQ AMC
Fedarko, Deborah J.	Langley AFB, Va.	HQ ACC
Fisher, James H.	Holloman AFB, N.M.	49 MMG (ACC)
Foltz, Arthur B. Jr.	Langley AFB, Va.	HQ ACC
Fones, Craig A.	Hickam AFB, Hawaii	HQ PACAF
Force, David G.	Hill AFB, Utah	75 CEG (AFMC)
Ford, Linnard F.	Langley AFB, Va.	ACC Inspection Squadron
Ford, Terry G.	Ramstein AB, Germany	86 CES (USAFE)
Fox, Roger J.	Mountain Home AFB, Idaho	366 CES (ACC)
Frost, Michael E.	Moody AFB, Ga.	347 CES (ACC)
Gelsleichter, Michael	Tyndall AFB, Fla.	HQ AFCESA
Gilbert, Alton J.	Cheyenne Mountain AS, Colo.	721 CES (AFSPC)

Civil Engineer Chief Master Sergeants

Gillin, Kerry B.	Hickam AFB, Hawaii	HQ PACAF
Giuliano, Mark T.	Misawa AB, Japan	35 CES (PACAF)
Glover, Carl B. Jr.	Tyndall AFB, Fla.	HQ AFCESA
Goss, David A.	Nellis AFB, Nev.	820 RHS (ACC)
Grau, Brian G.	Peterson AFB, Colo.	21 CES (AFSPC)
Gray, Richard W.	Elmendorf AFB, Alaska	3 CES (PACAF)
Gray, Thomas L.	Malmstrom AFB, Mont.	341 CES (AFSPC)
Greene, Thomas M.	Kelly AFB, Texas	67 SPTS (AIA)
Groover, Leander W.	Moody AFB, Ga.	347 CES (ACC)
Guidry, James M.	Fairchild AFB, Wa.	92 CES (AMC)
Gustafson, John M.	Eglin AFB, Fla.	796 CES (AFMC)
Gutknecht, Richard	Randolph AFB, Texas	HQ AETC
Haidinger, Steven N.	Randolph AFB, Texas	HQ AETC
Hannan, James J.	Eglin AFB, Fla.	366 TRS Det 3 (AETC)
Hare, Roger D.	McGuire AFB, N.J.	305 CES (AMC)
Harrison, Winfred B.	Yokota AB, Japan	374 CES (PACAF)
Hartman, Jackie K.	Luke AFB, Ariz.	56 CES (AETC)
Heath, Dennis R.	Seymour Johnson AFB, N.C.	4 CES (ACC)
Henderson, Larry G.	Barksdale AFB, La.	2 CES (ACC)
Henry, Trevor A.	Langley AFB, Va.	HQ ACC
Hilliard, Kenneth W.	Davis-Monthan AFB	355 CES (ACC)
Hinegardner, William	Tyndall AFB, Fla.	HQ AFCESA
Hinners, Keith P.	Scott AFB, Ill.	HQ AMC
Hodges, Carl P.	Scott AFB, Ill.	HQ AMC
Hosburgh, Wayne R.	Patrick AFB, Fla.	45 CES (AFSPC)
Howard, Larry J.	Maxwell AFB, Ala.	42 CES (AETC)
Huckabee, Robert L.	Pope AFB, N.C.	43 CES (AMC)
Hudock, Donald S.	Tinker AFB, Okla.	72 CES (AFMC)
Hughes, Jimmey M. Jr.	Jiyanklis AFD, Egypt	ETSS (AFELM)
Ishmael, Tommy L. D.	Scott AFB, Ill.	HQ AMC
Jackson, Delbert C.	Langley AFB, Va.	HQ ACC
Jackson, Larry L.	RAF Mildenhall, U.K.	100 CES (USAFE)
Jackson, Timothy A.	Hurlburt Field, Fla.	823 RHS (ACC)
Jefferson, Lenward	Shaw AFB, S.C.	20 CES (ACC)
Johnson, Arthur L.	Randolph AFB, Texas	HQ AETC
Johnson, Richard N.	Shaw AFB, S.C.	HQ 9TH AF (ACC)
Jones, Douglass P.	Malmstrom AFB, Mont.	819 RHS (ACC)
Jones, Randy F.	Tyndall AFB, Fla.	823 RHS (ACC)
Jones, Ricky A.	Robins AFB, Ga.	78 CEG (AFMC)
Jones, Victor P.	Lajes Field, Azores	65 CES (ACC)
Karls, Jeffrey A.	Hickam AFB, Hawaii	HQ PACAF
Keilholz, James P.	Little Rock AFB, Ark.	314 CES (AETC)
Keller, Bruce E.	Ramstein AB, Germany	786 CES (USAFE)
Kembel, Steven W.	Misawa AB, Japan	35 CES (PACAF)
Kibbe, Myrl F.	Eielson AFB, Alaska	354 CES (PACAF)
Landolt, Robert H.	Edwards AFB, Calif.	795 CES (AFMC)
Lebeau, Jerry D.	Ellsworth AFB, S.D.	28 CES (ACC)
Livingston, Gary E.	Hill AFB, Utah	75 CEG (AFMC)
Lonsford, William E.	Hurlburt Field, Fla.	16 CES (AFSOC)
Lopes, Daryle L.	Eglin AFB, Fla.	96 CEG (AFMC)
Lozano, Gilbert	Vandenberg AFB, Calif.	30 CES (AFSPC)
Lubbers, Edmond H.	Spangdahlem AB, Germany	52 CES (USAFE)
Lukic, Ilija	Langley AFB, Va.	HQ ACC
Marion, Robert G.	Nellis AFB, Nev.	99 CES (ACC)
Martin, Dennis A.	Kadena AB, Japan	Det 1, PACAF-CES
Martone, Thomas	Hanscom AFB, Mass.	66 CES (AFMC)
Maynor, Roger D.	Kirtland AFB, N.M.	377 CES (AFMC)
McClain, Charles O.	Hurlburt Field, Fla.	16 CES (AFSOC)
Mendoza, Alfredo G.	Sheppard AFB, Texas	82 CES (AETC)
Miller, Alfred H. Jr.	Bolling AFB, D.C.	11 CES (11 Wing)
Monell, Dane R.	Travis AFB, Calif.	60 CES (AMC)
Morris, Thomas M.	Robins AFB, Ga.	HQ AFRC
Mortenson, Kevin L.	Minot AFB, N.D.	5 CES (ACC)
Murphy, Michael M.	Peterson AFB, Colo.	HQ AFSPC
Naas, Thomas G.	Dover AFB, Del.	436 CES (AMC)
Niswonger, Robert W.	Whiteman AFB, Mo.	509 CES (ACC)
Noel, Gilbert	Peterson AFB, Colo.	HQ AFSPC
Oakes, Lester M.	Nellis AFB, Nev.	99 CES (ACC)

Civil Engineer Chief Master Sergeants

Olson, Steven T.	Aviano AB, Italy	31 CES (USAFE)
Orozco, Carlos	Ramstein AB, Germany	HQ USAFE
Ostrowski, Thomas J.	Langley AFB, Va.	HQ ACC
Park, Richard D.	Pentagon	HQ USAF
Parks, Jesse F.	Kunsan AB, ROK	8 CES (PACAF)
Patrick, James W.	Ramstein AB, Germany	HQ USAFE
Pattee, John K.	Eglin AFB, Fla.	96 CEG (AFMC)
Person, Antony J.	Kadena AB, Japan	18 CES (PACAF)
Phillips, Ernest V.	Travis AFB, Calif.	60 CES (AMC)
Pitrat, Paul L.	Ramstein AB, Germany	HQ USAFE
Plank, Delbert L. Jr.	Dover AFB, Del.	436 SPT GP (AMC)
Podolske, James E. J.	Tyndall AFB, Fla.	HQ AFCESA
Poliansky, Walter	Andrews AFB, Md.	89 CES (AMC)
Powell, Gary W.	Osan AB, ROK	51 CES (PACAF)
Pratt, Rhea A.	Pope AFB, N.C.	43 CES (AMC)
Quattrone, Wayne E.	RAF Mildenhall, U.K.	100 CES (USAFE)
Rabonza, Anthony M.	Kadena AB, Japan	18 CES (PACAF)
Ramos, Ercilia H.	Randolph AFB, Texas	12 CES (AETC)
Rausch, Gene A.	Hickam AFB, Hawaii	HQ PACAF
Rawls, Brian K.	Lackland AFB, Texas	37 CES (AETC)
Ray, Steve M.	Eglin AFB, Fla.	796 CES (AFMC)
Reinhard, Joel B.	Kirtland AFB, N.M.	377 CES (AFMC)
Reps, Jameson D.	Peterson AFB, Colo.	HQ AFSPC
Reyes, Danny G.	Vandenberg AFB, Calif.	30 CES (AFSPC)
Rice, Jesse J. Jr.	Robins AFB, Ga.	78 CEG (AFMC)
Roberson, Alvis G. J.	Hickam AFB, Hawaii	HQ PACAF
Romig, Gerald D.	Scott AFB, Ill.	375 CES (AMC)
Runnels, Larned E. I.	Scott AFB, Ill.	HQ AMC
Saulnier, Dennis E.	Pentagon	HQ USAF
Savo, Antonio	Nellis AFB, Nev.	820 RHS (ACC)
Scheide, Thomas J. J.	Barksdale AFB, La.	2 CES (ACC)
Schulze, Terry L.	Cannon AFB, N.M.	27 CES (ACC)
Seckinger, Denny N.	Fort Leonard Wood, Mo.	366 TRS Det 7 (AETC)
Seeloff, Jeffrey A.	Wright-Patterson AFB, Ohio	HQ AFMC
Semenuk, Michael S.	Elmendorf AFB, Alaska	611 CES (PACAF)
Seward, Donald O.	Langley AFB, Va.	HQ ACC
Sharpe, Brad A.	Hickam AFB, Hawaii	HQ PACAF
Silas, Earl D.	MacDill AFB, Fla.	6 CES (AMC)
Sivak, Paul J. Jr.	Andersen AFB, Guam	36 CES (PACAF)
Smalls, Joseph	Minot AFB, N.D.	5 CES (ACC)
Smith, Cecil T.	Langley AFB, Va.	HQ ACC
Smith, James K.	Maxwell AFB, Ala.	42 CES (AETC)
Smith, John R. III	Tyndall AFB, Fla.	Det 1, 823 RHS (ACC)
Smith, Peter K.	Kelly AFB, Texas	668 LG SQ (AIA)
Solomon, John L.	Charleston AFB, S.C.	437 CES (AMC)
Soto, Carlos Jr.	Aviano AB, Italy	31 CES (USAFE)
Stevenson, Ken D.	Misawa AB, Japan	35 CES (PACAF)
Stone, Randy A.	Travis AFB, Calif.	60 CES (AMC)
Stoye, Kirk E.	RAF Lakenheath, U.K.	48 CES (USAFE)
Swiechowicz, Steven	Malmstrom AFB, Mont.	819 RHS (ACC)
Tabor, Martin B.	Offutt AFB, Neb.	55 CES (ACC)
Taylor, Carla F.	Hickam AFB, Hawaii	15 CES (PACAF)
Tedford, Patrick A.	Holloman AFB, N.M.	49 MMG (ACC)
Thompson, Cleveland	Schriever AFB, Colo.	50 CES (AFSPC)
Thompson, Joseph C.	SHAPE, Belgium	AFELM NATO
Tiggs, Charles E.	Wright-Patterson AFB, Ohio	88 CEG (AFMC)
Track, Frederick J.	Grand Forks AFB, N.D.	319 CES (AMC)
Vansteenburg, George	Tyndall AFB, Fla.	HQ AFCESA
Vanwinkle, Mark	Randolph AFB, Texas	HQ AETC
Vogel, Daniel L.	Cannon AFB, N.M.	27 CES (ACC)
Wagner, Fred A.	Luke AFB, Ariz.	56 CES (AETC)
Walker, Curtis N.	Maxwell AFB, Ala.	42 CES (AETC)
Walker, Eppie L.	Langley AFB, Va.	1 CES (ACC)
Wallace, Joe B. Jr.	Sheppard AFB, Texas	366 CES (ACC)
Whitehorn, Jimmie E.	Langley AFB, Va.	HQ ACC
Wilkins, John A.	Shaw AFB, S.C.	20 CES (ACC)
Winward, James A.	Ramstein AB, Germany	786 CES (USAFE)
Wuilliez, Raymond M.	Osan AB, ROK	51 CES (PACAF)

SMSgt Dennis Clapp and TSgt Alan Young, 507th CES, guide electrical cable as it's pulled through underground conduits at Tinker Air Force Base, Okla. This joint service project to move power lines underground involved more than 2,087 man-hours and provided hands-on training normally not available to reservists in the electrical career field. Story page 18. *(Photo by MSgt Tommie Clapper)*