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1998

RED HORSE
Rebuilding After Hurricane Mitch

The Civil Engineer - United States Air Force

FROM THE TOP

Readiness Challenge VII Will Test Real-World Skills

Maj Gen Eugene A. Lupia
Air Force Civil Engineer

The countdown to the world's premier contingency support competition has begun. The dates, teams and events have all been selected. Preparations are underway at the Silver Flag Exercise Site at Tyndall Air Force Base, Fla., to host the more than 1,200 competitors, judges, distinguished visitors and others who have been invited to be a part of Readiness Challenge VII.

Each Readiness Challenge competition gets bigger and better, and this one will be no exception. The men and women of Detachment 1, 823rd RED HORSE Squadron, the Air Force Civil Engineer Support Agency, Air Force Services Agency, Chaplain Service Institute and Secretary of the Air Force Public Affairs have worked together to produce what promises to be an outstanding competition. This year we welcome full teams from three of our NATO allies—Canada, Germany and the United Kingdom, along with partial teams from Japan and Norway and observers from Israel and Italy. Readiness Challenge VII will be a showcase of excellence in leadership, teamwork and international cooperation.

The Readiness Challenge competition becomes even more important under the new demands of today's Expeditionary Aerospace Force. To ensure our ability to provide Agile Combat Support under any circumstances and at a moment's notice, we must maintain a responsive expeditionary force capable of routinely operating in a bare base environment with limited infrastructure. Our ability to meet these new demands hinges on readiness. Accordingly, the primary focus of RC-VII events is on preparing forces for expeditionary operations, from warfighting efforts to peacetime crises to Military Operations Other Than War.

Readiness Challenge is more than a competition to see who is the "Best of the Best." It's about real-world skills. The competition provides the opportunity for civil engineering, services, public affairs and chaplain service personnel to build teamwork and camaraderie while focusing on better and faster ways to perform their wartime missions. New procedures, tactics and concepts are refined, improving the Air Force's ability to succeed in today's contingency taskings.

The competition also provides a realistic picture of each team's overall preparedness to perform its mission. Individual and team warfighting capabilities, leadership abilities and home base training programs are improved as a result. One of the highlights of this Readiness Challenge will be a demonstration by the Canadians of their Firefighter Fitness Test, a program that is being evaluated for U.S. Air Force adoption.

Another highlight of Readiness Challenge is the opportunity to meet, share ideas and discuss issues with key civil engineer Founders. We welcome their experience and ideas as we move into the era of the Expeditionary Aerospace Force.

Although the Brigadier General William T. Meredith Trophy, which is awarded to the overall winning team at Readiness Challenge for being the "Best of the Best," will go to only one team, all of the teams are winners, as are the squadrons, units and wings they represent. From the structural technicians to the forklift operators to the electricians, firefighters, services technicians, chaplains, public affairs personnel and other specialties represented at the competition, Readiness Challenge is a key part of our training as we prepare to play a vital role in the 21st century Expeditionary Aerospace Force.

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The Civil Engineer

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On the cover...

Heavy equipment operator SSgt Stevie Wells was part of the 819th RED HORSE team that rebuilt the bridge at Linares, Guatemala. A combined team of 819th and 820th RHS personnel deployed to Central America as part of the ongoing Hurricane Mitch relief effort. Story page 7. *(Photo courtesy 819th RHS)*

Colonel Samuel G. Lundgren is The Civil Engineer for the Air National Guard. In this interview with The CE magazine, he discusses the Guard and Reserve as an integral part of the "Total Force," in a ...

"Partnership that's right for the Air Force"

***The CE* magazine: What are the major differences between civil engineering on the active duty side and civil engineering in the Air National Guard?**

Col Lundgren: The biggest difference is that in peacetime the state governor is in the chain of command. This means that ANG units have both a federal mission, as a reserve component of the Air Force, and a state mission, in support of emergencies or contingencies within the state.

Another thing that is unique about ANG civil engineering, which is also true of the Air Force Reserve, is that a majority of the traditional drill status personnel or "weekenders" not only have prior military service but they also work in the construction trades as their full-time civilian job. We often get a great skills mix from our drill status personnel, because if they are a commercial electrician, plumber or carpenter, they will try to get into a different career field with the unit so that they can learn a skill that is different from their daily work. The ANG has always been big on readiness training, so why not learn something new or different?

As a result, we have some very talented people and some highly diverse units. It sometimes surprises our active duty partners when they see that the ANG is also skilled and experienced in performing high quality construction.

***The CE* magazine: How are competitive sourcing and privatization affecting ANG civil engineering?**

Col Lundgren: We stand ready to assist the Air Force with creative options any way we can. The ANG outsourced base maintenance to the state back in the 1960s when we elected to maintain and operate our base facilities using state employees. Right now, we do not use Prime BEEF to do base maintenance, except for specific skill training of drill status personnel. Our Prime BEEF units are a deployable contingency-tasked team with a primary mission to support the Air Force worldwide. The civil engineering staff at most ANG bases includes an eight-person, full-time cadre to provide supervision and training management, a dozen or so state employees to operate and maintain the facilities, and various service contracts or contractors for special requirements. A typical ANG flying unit has about 950 drill positions. About one-fourth of that number is full-time cadre with about 350,000 square feet of buildings, including hangars, on about 90 acres of land at a municipal airport. A typical ANG civil engineer squadron consists of a follow team, plus eight full-time cadre as part of that follow team. ANG bases are generally austere installations with only operational, mission support and training facilities. With no dormitories, housing or MWR facilities to worry about, the focus is on training and the mission. At most of our bases, local public utilities already own the support infrastructure on or supplying the base. We will do more outsourcing to public utilities where we can save money. Since the ANG is already outsourced to the state, we are ready to help active duty Air Force installations where it makes economic sense.

***The CE* magazine: There has been a large troop drawdown in the ANG units. How do you propose to reduce your drill position numbers and how will this affect ANG civil engineer units?**

Col Lundgren: We've been looking at the current civil engineer force structure in the field versus what's actually funded in the ANG civil engineering program element code. We need to make force structure reductions, but the director of the ANG, Major General Paul Weaver, does not want to close or inactivate ANG civil engineer units, so the corporate decision is to change all ANG civil engineer squadrons to half of a "lead team." General Weaver has received concurrence from the Air Force Civil Engineer to fill existing "lead team" war taskings using two ANG civil engineer units, and of course, the half "lead team" will have no problem with existing "follow team" war taskings for the ANG. We are also adding back some positions for the full-time cadre, plus providing additional drill positions to cover base level training support, a first sergeant, and rotational or upgrade requirements. We expect the final standardized half of the "lead team" to consist of 69 engineer drill positions, plus firefighters. As additional resources become avail-

able, we will try to add explosive ordnance disposal units to some of our civil engineer squadrons to fill a critical Air Force wartime shortfall. By converting all of our squadrons to half lead teams we will standardize manning, equipment, training and employment of all ANG civil engineer squadrons across the United States. In addition, General Weaver feels that keeping ANG civil engineers directly associated with their parent flying unit is wise for unit integrity and makes good business sense.

***The CE* magazine: ANG civil engineers offer strengths and skills specific to their mission. What areas would you like to see improve?**

Col Lundgren: One thing I emphasize to my base civil engineers and squadron commanders is that the ANG, as a reserve component of the Air Force, needs to partner with the Air Force on real-world missions. I think we need to improve our interface with the Air Force by deploying with active duty Air Force teams and assisting in reducing the active Air Force opstempo. We would like to have our civil engineers used the same way the Air Force now uses the ANG flying structure with scheduled deployments to real world requirements, such as Northern or Southern Watch and Bosnia. We want to partner with the Air Force for scheduled participation in the ongoing civil engineer contingency support mission around the world. We can help with some of these deployed contingency missions using ANG civil engineer units that would rotate every 15 or 21 days as their regular annual training requirement. By deploying ANG civil engineer units in scheduled annual training status, we can help relieve the opstempo and give active duty units a break in the mission. Our goal is to deploy about one-third of our ANG civil engineer force structure overseas in direct support of real-world Air Force civil engineer missions on an annual basis. It works with ANG aviation assets and it will work with ANG civil engineers. This kind of partnership is right for the Air Force and it demonstrates the capability of the ANG. This is one more example of the Air Force as a "Total Force," including Guard and Reserve.

***The CE* magazine: The ANG is known for providing aid during federal and state emergencies. How did El Niño and the busy 1998 hurricane season test this ability?**

Col Lundgren: Last winter, part of an ANG RED HORSE Squadron deployed to Guam in response to Typhoon Paka, and during the heavy ice storms that hit the northeast, Prime BEEF teams in Vermont, New Hampshire, Maine and New York were activated to provide support and emergency recovery. Then came the Florida wildfires, where ANG RED HORSE, Prime BEEF and firefighters worked and provided cleanup afterwards. We had ANG engineers from Alabama, Mississippi, Louisiana and Florida on duty recovering after Hurricane Georges. We responded to many different situations last year because of the unusual weather patterns, but I'm not sure it is really that much more than what we typically do around the country during any given year. We have trained and ready infrastructure engineers who can respond quickly to community emergencies such as floods, winter storms, tornadoes, fires, hurricanes and so on. This is the state part of our dual mission.

Every state has a director of state emergency management and National Guard units, with their state affiliation part of this emergency response capability. State emergency management offices also work with FEMA, the Federal Emergency Management Agency, so it is not unusual for ANG units to be called early if infrastructure recovery skills are needed for emergency response. Whatever the emergency, the governor can call the Army and ANG personnel to state active duty, and if the contingency is declared a federal disaster area, FEMA will help pay the recovery costs. El Niño and Hurricane Georges obligated us to provide a little more service to our states and communities, but not much more than usual. Duty with the National Guard means service to our country, state and communities.

***The CE* magazine: The Guard operates primarily out of civilian airports. What is unique about this arrangement and what advantages does it offer?**

Col Lundgren: We have 69 flying units on civil aviation facilities, airports, around the country. The unique arrangement is, we are simply a tenant on a commercial airport, normally with a long-term federal lease for the property. Our units are part of the airport and are comfortable with the way the airports operate. The advantage to the ANG is that we don't pay the full cost of operating and maintaining the runways, taxiways and navigational aids. Typically, our airport joint use costs are between $40,000 and $60,000 annually, which makes operations on an airport very cost-effective for a typical ANG flying unit. Airports are expensive to operate and maintain and since we are generally a smaller user, airlines and commercial aircraft operators pay a larger portion of the airport's maintenance and operations costs. As a part of the community, we are very comfortable with being a tenant at the airport.

Another value to being at an airport is that across the country, we are active as part of the community, showing the American public what their Air Force is doing for them and adding value to airports and civil aviation. For most Americans, when they see an airplane with U.S. Air Force markings, there is a very good chance the ANG is flying that aircraft. We represent the Air Force to the American public.

***The CE* magazine: What challenges does being located at a civilian airport hold for ANG civil engineer units?**

Col Lundgren: The challenge is that when you're a tenant on a civil aviation airfield, you have to remember that you're a tenant. You are not operating the runway. You don't own the runway or the taxiway so there's a certain amount of

partnership that you have to develop with the air commander and the airport director. The base engineer and the airport engineer are going to be partners in whatever is constructed on the airport.

As an example, Phoenix Sky Harbor, the international airport that services the greater metropolitan Phoenix area, is one of the busiest two-runway airports in the Federal Aviation Administration system. Their problem was that they needed to build a third runway to use while the north runway was repaired. The only place for them to construct an additional runway was on the south side, which would go right through our existing property. Right now, the city of Phoenix is reconstructing our ANG installation 600 feet south of its previous location and will relocate the unit when the construction is complete. This will cost the airport more than $50 million, but it is worth it to them for an additional runway. This also means the ANG unit at Phoenix will get brand new facilities for their KC-135 mission. With the assistance of the Air Force General Counsel, we collaborated with the airport to make this process work because we had a vested interest in the continued economic success of Phoenix Sky Harbor International Airport. The busier and more successful an airport is, the more cost-effective it is for the ANG because we make up a smaller percentage of the overall operation. Thus, the ANG has smaller operating costs.

When the city of Chicago decided it was going to obtain the O'Hare Air Reserve Station, the same criteria applied. The city is paying the cost of relocating the ANG unit to Scott Air Force Base, Illinois. We have a similar situation happening at the Reno-Tahoe Airport in Reno, Nevada, and at Lambert International Airport in St. Louis, Missouri. To prepare for the future, they need to develop the airport, so they are going to relocate our units to the other side of the cross-runway. It is kind of an ongoing process. Because we're part of the airport operations, we have to be part of the development. If the development of the airport means relocating the ANG unit, then we get in there and work with the airport on the most cost-effective way to do that.

***The CE* magazine: The ANG works within 50 states in four different regions. How do the various state regulations and laws affect ANG civil engineer operations?**

Col Lundgren: First, the ANG is either on Air Force property or on a long-term federal lease. Either way, the ANG is always located on land with a federal interest, with all of our real estate actions, acquisitions, or transfers under the authority of the Deputy Assistant Secretary of the Air Force for Installations. The ANG is sanctioned under Title 32, United States Code, while active duty forces are sanctioned under Title 10. The biggest difference between Title 10 and Title 32 is that Title 32 places the governor in the chain of command for the military members. During peacetime, the governor is the commander-in-chief within the state and he is represented by the senior military commander, called the adjutant general, but the property on which we are located is federal and all of the major equipment assets remain under federal control.

The governor is in a position to call his National Guard personnel to state active duty, however, he does not have access to federal equipment, specifically Air Force construction equipment or aircraft, without permission from the federal government, or in this case, the Air Force. The way we are sanctioned presents no problem or conflict. The only time you see a difference is when the governor calls the personnel in the ANG to state active duty.

***The CE* magazine: The integration of Montana ANG civil engineers with active duty civil engineers at Malmstrom AFB resulted in the first associate RED HORSE unit of its kind. How is this novel combination working?**

Col Lundgren: I think the 819th RED HORSE at Malmstrom is an example of General Lupia's visionary leadership. This is an excellent opportunity for the ANG because the unit is two-thirds active duty and one-third Guard. Our guardsmen, who are in the 219th RED HORSE Flight, are fully integrated with the 819th RED HORSE Squadron. The active duty guys know what a drill is, because they see our guys performing their normal weekend drill once a month. In addition, they're available to do annual training, deployments and exercises fully integrated with the 819th, their parent unit.

This is an excellent opportunity for the ANG, partnered with the active duty RED HORSE unit, to provide much more timely support to the worldwide mission. The Montana Adjutant General visits the 819th because he is very concerned about the health and welfare of not only the 219th but also the 819th. The state's governor has also visited the unit. Occasionally they also receive some congressional interest, because this is a unique Air Force Civil Engineer version of effective teamwork—and it is a partnership that works. The 819th RHS is a perfect example of how combining the strengths of ANG and active duty Air Force personnel make the best of a unit. We'll see some good things coming out of the 819th RHS.

Recently, General Weaver sent a letter to the Pacific Air Forces vice commander asking to partner with the 554th RHS at Osan Air Base, Korea. He proposed that the 554th RHS partner with both the Guard and the Reserve as the most cost-effective way to bring the unit up to full strength in a contingency, and to train with the Guard and Reserve during peacetime to keep the required skills sharp and ready. The responses from PACAF have been most positive, so active duty, Guard and Reserve are working together to make this happen. It's a good deal for both the Guard and Reserve, and it is a unique vision of the future.

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RED HORSE

Deploys for Hurricane Mitch Relief

by A1C Dylan Laurie
341st Space Wing Public Affairs

In October 1998, Hurricane Mitch caused floods and landslides that left more than 10,000 people dead and destroyed the homes of millions more in El Salvador, Guatemala, Honduras, Nicaragua and Belize.

As part of a worldwide effort to provide relief to these areas, the Department of Defense sent an engineering-medical task force into the region in November to see how the U.S. military could help the people of the afflicted nations.

Michael Aimone, the deputy Air Force Civil Engineer, headed the Air Force contingent to Central America. Aimone, former commander of the 819th RED HORSE Squadron at Malmstrom Air Force Base, Mont., was a member of a 30-person, joint-service advance team sent to the area to assess damage and begin planning the logistical process that would bring Army heavy combat construction battalions and Air Force RED HORSE squadrons to El Salvador, Guatemala and Nicaragua to perform essential infrastructure repair.

Aimone's team primarily found problems with roads and bridges. Repairing bridges or building temporary ones would be crucial in Central America where the structures are a vital part of the region's transportation system. Bridges were also necessary for the distribution of food and other necessities to isolated areas.

The 400-person combined RED HORSE unit that deployed to tackle the road and bridge-building projects in Guatemala and El Salvador was a composite of the 819th RHS and its Reserve component, the 219th RED HORSE Flight at Malmstrom, and the 820th RHS at Nellis AFB, Nev.

TSgt Darrin Small, SSgt Debra Small and SSgt Stevie Wells, all from the 819th RHS, rebuild a Hurricane Mitch-damaged bridge at Linares, Guatemala. *(Photo courtesy 819th RHS)*

The bulk of the team departed for Central America in mid-December and returned in February.

"Things went very well," according to Lt Col Sean Saltzman, the 819th RHS acting commander. "Altogether they completed over 30 projects including fixing roads and bridges, drilling wells and repairing schools. Particularly with respect to bridge work, the people living there were very thankful for the work that was completed. When you wipe out a bridge, it can turn a one-mile walk into a 15-mile walk."

"We helped reestablish their lines of communication with their families and neighbors," said MSgt Scott Harper, 819th RHS C-Flight superintendent and Iztapa project manager, "as well as their infrastructure, including water and electrical distribution. And we restored their transportation capabilities so supplies could get back into these areas.

"We also built a 275-foot long, 10-foot high sea wall using 400 tons of two-foot diameter boulders to help protect from future storms," Harper said.

SrA Chris Huff of the 820th RHS guides a rotary saw along a chalk line during construction of a base camp at Comalapa AB, El Salvador. *(U.S. Navy photo by PH2 Leland B. Comer)*

819th RHS members, TSgt Tom Lehotsky and A1C Dustin Burkhart, attach steel I-beams to the bridge supports at Las Marias, Guatemala. *(Photo by MSgt Rod Madison)*

The 819th RED HORSE Squadron's deployment to help rebuild Guatemala and El Salvador was more than a successful mission; it was a significant event in RED HORSE history. It was the first full-fledged mission for this unique unit since it reached full manning in October 1998.

The 819th activated in August 1997 as the first associate RED HORSE unit of its kind in the Air Force, made up of approximately two-thirds active duty and one-third Montana Air National Guard personnel.

RED HORSE members were able to see the impact their presence made on these people who had lost so much, so quickly.

"The people were happy for our help," said TSgt Dennis Deforest, 819th RED HORSE structural planner and project manager of Las Marias and Paraiso. "We put in a temporary bridge so they could get their grains to the local mill to be made into tortillas. They showed their gratitude by offering us gifts of food and drinks, which is a lot when you've lost everything you own."

"We made good friends and a lasting impression," Deforest said.

"After filling in a gaping hole at an intersection," said MSgt Eric Hester, 819th RHS superintendent of E-Flight and project manager of Guiscoyol, "a lady came up to me with tears in her eyes to thank us because her 2-year-old daughter had fallen in it and almost drowned."

Realization came for many who had no previous exposure to the conditions of life experienced by such impoverished communities.

"It was a culture shock because their daily lives, which consisted of maintaining survival, were so much different from ours, at levels we could never understand," Hester said.

Though the mission had its hardships, including blistering heat and humidity and the threat of disease, the benefits made everything else seem unimportant.

"I didn't mind missing Christmas for something as worthwhile as this," Deforest said. "The roads we constructed helped them get their lives back together."

"We gave the local residents the land back to rebuild their homes," Harper said.

"With each hole that got filled, smiles got bigger and waves were longer," SSgt James Pope, 819th RHS structural technician and medical augmentee, recalled. "They would flash peace signs and display painted signs that read, "Americans, our friends."

"It was like being in a parade every day," Hester said.

Gil Dominguez, Air Force Center for Environmental Excellence public affairs, contributed to this report.

Reservists TSgt Carl Jones (left) and MSgt Greg Gonzales, 452nd CES, lay pipe for a U.S. military base camp being built near El Progreso, Honduras. *(Photo by SSgt Rick Sforza)*

CEs continue relief efforts under New Horizons '99

Civil engineers stationed with the 452nd Air Mobility Wing at March Air Reserve Base, Calif., are participating in the humanitarian exercise New Horizons '99. This joint service effort will help Hondurans affected by flooding and mudslides from Hurricane Mitch. The engineers are tasked with building a 480-man beddown facility for U.S. military units, along with building three schools and three medical clinics and repairing a bridge. The joint service effort is comprised of members from the U.S. Air Force Reserve and Air National Guard, and the U.S. Army and Army National Guard.

1998 CE Worldwide Conference

by Gil Dominguez
HQ AFCEE Public Affairs

The 1998 Air Force Civil Engineer Worldwide conference brought together leaders in Air Force civil engineering for a week's worth of deliberations on issues that affect the way CEs do business.

Maj Gen Eugene A. Lupia, the Air Force Civil Engineer, presided over this annual meeting of senior civil engineering officials and Air Staff representatives, which was hosted by the Air Force Center for Environmental Excellence at Brooks Air Force Base, Texas, Nov. 30 through Dec. 4, 1998.

The theme for this year's conference, "Expeditionary Aerospace Forces: A Better Way of Doing Business," provided the framework for briefings presented by the Air Force Civil Engineer division chiefs and other staff.

Briefings dealt with a wide a range of topics, including: environmental programs, operations and readiness issues, the Air Force Family Housing Master Plan, fire protection, competitive sourcing and privatization, enlisted matters and manpower issues.

Some conference highlights:

▪ Lt Gen John W. Handy, Deputy Chief of Staff for Installations and Logistics, paid a brief visit to the conference and told attendees about the "need to baseline the Air Force." He added that in the face of funding changes, it was necessary to tell the service's corporate leadership what the installations and logistics community needed and what "we can do without."

The general, who has been in his new assignment since October, also said he was supportive of civil engineering programs and would be "an aggressive junk-yard dog" in advocating them. "We're all working installations issues together," he said. "Use the office of the IL (installations and logistics deputy chief of staff) to your advantage."

▪ Housing programs received a lot of airing at the conference. The Air Force goal is to fix "inadequate housing" by the year 2010. Currently, the service has 110,000 units, of which 61,000 are considered inadequate, according to a briefing presented by Col Emmitt Smith, Housing Division chief. As a result, 60 percent of Air Force families must live off base. The total funding required to "fix" the military construction program adds up to $7 billion, according to the colonel's report.

The dormitory program for enlisted personnel was hailed as a "good news story," with funding being allocated by Congress and the Secretary of Defense to make quality of life improvements to airmen housing. Improvements include renovations of dorms and fitness centers.

▪ In CMSgt Richard Park's manning briefing, the chief of enlisted matters pointed out how the good U.S. economy had limited the Air Force's ability to recruit and retain civil engineer troops. He explained that retention is hampered by a number of factors, including long duty hours, uncertainties connected with competitive sourcing and privatization, and early retirement opportunities.

The civil engineer career field is now undergoing review, and reenlistment bonuses are being considered as fixes for the retention question. Improved training and communication are important to the recruiting-retention process, and implementation of the expeditionary force concept will improve deployment concerns, the chief noted in his report.

▪ Finding new ways to perform the Air Force's environmental mission was the focus of Teresa Pohlman's briefing. The Environmental Division chief pointed out in her presentation, titled "Investment Strategy into the New Millennium," that it was vital to make "smart business decisions and look at the smartest way to do some things."

Pohlman advised conferees to reduce their vulnerability to regulatory violations. One way to do that, she said, is to perform assessments and site inventories in vulnerable areas such as storage facilities.

Deputy Air Force Civil Engineer Michael Aimone gave a briefing on Air Force relief efforts in Central America following devastation of the region by Hurricane Mitch. Before retiring as a colonel in the Air Force Reserve, Aimone commanded the 819th RED HORSE Squadron, which played an important role in providing assistance to the afflicted countries (story on page 7).

In other conference business, the Air Force Reserve and Air National Guard teams for Readiness Challenge VII were randomly selected. Readiness Challenge, the Air Force's premier combat support competition, will be held at the Silver Flag Exercise Site at Tyndall AFB April 24-30, 1999 (story on page 14).

Integrating the Environment into Utilities Privatization

by Patricia Vaught
Pentagon, Washington D.C.

One of the hottest buzzwords around the Department of Defense is *utilities privatization*. What does it mean for the Air Force and what are civil engineers and environmental experts doing about it?

The Secretary of Defense has defined utilities as electric, water, wastewater and natural gas utility systems. The Secretary of Defense has further defined privatization as the transfer, to a utility company or other qualified entity, of the responsibility of utilities system ownership and the obligation to provide quality service to all installation facilities. That's the utilities privatization mission. Integrating the environmental requirements into this mission requires advance planning, hard work and a cohesive CE team.

The privatization process requires civil engineer privatization experts to work hand-in-hand with the environmental community. Air Force Instruction 32-7066, *Environmental Baseline Surveys (EBSs) in Real Estate Transactions*, instructs us to identify, evaluate and quantify the environmental condition of property the Air Force plans to acquire or divest. The current Air Force plan is to conduct a phase I EBS for utilities privatization projects. A phase I EBS includes an environmental records search, categorization and analysis of the environmental condition of the real property and associated real estate, and regulatory review and concurrence. A phase II EBS will be conducted if the phase I EBS determines further study is required before an assessment of the environmental condition can be made. It includes surface and subsurface to identify and quantify contamination.

The EBS implementation strategy will reap big benefits and economies for the Air Force. To meet the Defense Department's aggressive utilities privatization execution schedule, HQ USAF/ILEI is centrally programming and funding EBSs. Environmental contracts have been established with the Air Force Center for Environmental Excellence, and generic statements of work have been formulated. From the initial preparation of the solicitation documents to the final negotiations, the EBS will be an integral part of a successful privatization deal.

The Air Force must also analyze utilities privatization initiatives for potential environmental impacts before privatization is implemented. This is implemented by Air Force Instruction 32-7061, *Air Force Environmental Impact Analysis Process (EIAP)*.

EIAPs are being centrally funded by HQ USAF/ILEI and contracted through the Air Force Civil Engineer Support Agency. They contain three levels of environmental analysis: Categorical Exclusion (CATEX), Environmental Assessment (EA) and Environmental Impact Statement (EIS). A federal action can be a CATEX if it does not individually or cumulatively have a significant environmental impact. An EA is prepared if impacts are significant enough to warrant further analysis. An EA will result in either a Finding of No Significant Impact or a requirement to prepare an EIS.

When do we commence the environmental portion of the utilities privatization program? Aggressive, early planning is critical. After the feasibility determinations indicate a "Go" decision, typically four to six months after the privatization analysis begins, the EBS and EIAP efforts begin.

Four pilot projects are collectively building the foundations of the environmental requirements for utilities privatization from ground zero. Accomplishing these projects will set the stage for Air Force installations worldwide.

The following provides an overview of some of the lessons learned from the on-going utilities privatization pilot projects' EAs and EBSs.

Scott AFB, Ill., Wastewater (WW) Treatment Plant and Collection System

The Scott WW Treatment Plant currently operates at 40-50 percent capacity. After privatization, it is anticipated the new owner will operate the plant at 100 percent capacity, selling the excess capacity to the private sector. The EA is evaluating the cumulative impacts of the excess capacity and growth inducement potential it may cause, future installation WW requirements, the newly constructed Mid-America Airport, and the recent Chicago Air National Guard beddown. Items identified during preparation of the EBS include installation restoration projects (adjacent landfill, fire training pit), sludge drying beds, asbestos and lead-based paint verification, and the collection system's high infiltration and inflow rate. A phase II EBS was warranted to quantify the contamination. Had these items not been identified up front, the privatization deal might have been substantially delayed or canceled.

Langley AFB, Va., Bethel Manor Housing Area Electric and Natural Gas Distribution Systems

Gas and electric distribution systems are considered "clean" utilities compared to water or wastewater systems. However, the EBS and EA for the Bethel Manor Housing Area identified many items which needed to be disclosed to the prospective new owners. Items analyzed within the EA and EBS included the overall condition of the systems, an Installation Restoration Program (IRP) site, PCBs, wetlands, large adjacent water reservoir, old and existing gas stations, air quality and economics. Savings were realized due to ongoing IRP contracts to remove

PCB contamination and to clean up the gas stations.

Edwards AFB, Calif., Electrical Distribution System

The EBS and EA for this project were huge undertakings due to the sheer size of the installation. The electrical distribution system included over 800 miles of above and below ground lines. During preparation of the EBS and EA, it was discovered that approximately 250 miles of lines had never been surveyed for cultural resources. Considering other cultural surveys completed for Edwards, it is probable that Native American cultural sites may exist within the 250 miles of electrical lines. Again, this case demonstrates that early commencement of the EBS and EA is critical to meeting project execution milestones and identifying environmental requirements that may need further analysis.

Hill AFB, Utah, Industrial Wastewater (IWW) Treatment Plant and Collection System

Like Scott AFB, the Hill IWW Treatment Plant currently operates at 50 percent capacity. After privatization, it is anticipated the new owner will operate the plant at 100 percent capacity, selling the excess capacity to the private sector. The EIAP is evaluating the cumulative impacts of the excess capacity, the growth inducement potential it may cause, and future installation IWW requirements. The Hill IWW Treatment Plant and Collection System are in very good shape, having approximately $12M in MILCON upgrades completed in 1995-97. A number of previous environmental deficiencies were resolved by this MILCON. Given the potential liabilities that are inherent to treating and collecting industrial wastewater, the EBS and EA have proven invaluable in establishing a benchmark prior to the transfer of this facility and operations.

The utility privatization pace is fast and furious. Thanks to the major commands' participation in the utilities privatization pilot projects, environmental requirements are being established first-hand by experts in the field. The teaming of the privatization and environmental communities is another shining example of how installations, major commands and Air Staff offices can deliver projects on time, within budget, and right on target.

Patricia Vaught is the former environmental program manager for the office of The Civil Engineer, Environmental Planning Branch. She is currently working the Aviano construction program at USAFE. For more information on this subject, contact Stephanie Stevenson, HQ USAF/ILEVP, DSN 664-0551, Commercial (703) 604-0551.

Utilities Privatization Update

by Maj Richard Doran and Capt Bill Owens
HQ AFCESA, Tyndall AFB, Fla.

In accordance with Defense Reform Initiative Directive #9, the Air Force utilities privatization process is now in full swing. Air Force utility systems have been screened for readiness impacts, and Headquarters U.S. Air Force has submitted the Execution Plan for privatizing utilities to all major commands.

After the readiness validations were completed, all bases were identified and programmed for utilities privatization. Check the Execution Plan (HQ USAF/ILE letter dated Dec. 18, 1998) to see where your base falls on the list.

What's next?

Each major command is responsible for establishing a point of contact to coordinate headquarters support. Each installation must establish a "base champion" who is responsible for their utilities privatization program and must set up a base integrated process team (IPT). The IPT should have representatives from civil engineering (operations, real property, engineering and environmental), contracting, legal, security, finance, civilian personnel and public affairs, and any others with relevant interests. This team approach is essential for success, because utilities privatization is not just a civil engineer issue.

The first task the base champion will accomplish is to review the generic statement of work (SOW). The SOW must be tailored to include all systems at each installation, including any systems at support sites tied to the installation (such as recreation sites, auxiliary fields or geographically separated units). A system is all the components of the utility (electric, natural gas, water and wastewater) involved in either collection, distribution, generation, or treatment up to the "five-foot line" of the facility. Contracting strategies should benefit through the bundling of similar systems. To meet the aggressive Air Force schedule, bases need to provide completed SOWs to AFCESA by the "SOW Need Date" identified in the Execution Plan milestones.

Attached to the SOW is a detailed data request that is quite extensive. The data requested includes real property records, operation maintenance records, cost data, projects and updated utility maps. Each installation will be required to provide this data at a project kickoff meeting to be held no later than 30 days from the award of the utilities privatization analysis contract. The sooner each base starts the data collection, the better. AFCESA is postured to perform the analysis contracts and has a team dedicated to support the program.

Bases can contact Mr. Rick Baker at AFCESA at DSN 523-6238, or e-mail, bakerr@afcesa.af.mil, with any questions.

Maj Richard Doran and Capt Bill Owens are utilities privatization project managers at the Air Force Civil Engineer Support Agency, Tyndall AFB, Fla.

The 52nd CES performs emergency repairs to the primary runway at Spangdahlem AB, Germany. *(Photos courtesy 52nd CES)*

Team Eifel Performs "RAPID RUNWAY REPAIR"

by Lt Col Kim Traver
Spangdahlem AB, Germany

The Good News … I assumed command of the 52nd Civil Engineer Squadron at Spangdahlem Air Base, Germany, on July 1, 1998. The squadron had recently won an Air Force 1997 Outstanding Civil Engineer Unit Award, the base had just won the 1998 Commander-in-Chief's Award for Installation Excellence, and the runway had received a major overhaul the previous summer. Life couldn't be better for a brand new base civil engineer.

The Bad News … I was soon informed about what was described as "a little problem" with the runway's new porous friction surface. The July 9, 1998, headline in the *Stars & Stripes* exclaimed, "Base Runway Falls Apart." In fact, every time the temperature on base rose above 80 degrees Fahrenheit, the surface softened considerably, with an apparent breakdown of the asphalt binder and corresponding release of aggregate. This presented a serious potential for foreign object damage. I had my first private meeting with the new wing commander that same afternoon.

The Rest of the Story … The 1997 airfield upgrade at Spangdahlem had included new storm drainage, airfield lighting and aircraft arresting barriers. Additionally, the asphalt runway was milled and overlayed, making it suitable for sustained heavy aircraft operations. The project had received $17 million in NATO funds with an additional U.S. share of about $3 million. The work was completed through the Staatsbauamt (the German equivalent of the U.S. Army Corps of Engineers). However, the U.S. Air Forces in Europe Construction and Training Squadron out of Ramstein AB, Germany, had installed the top four centimeters of pavement, including two centimeters of porous friction surface (PFS). They had installed this type of pavement for years throughout USAFE, without any of the problems we were experiencing with the Spangdahlem runway.

The solution was obvious and simple (or so it seemed)—mill off the top course and replace it with a similar mix design. A German contractor would perform a warranted installation, with strict adherence to material specifications and a strong quality assurance inspection program. Lab tests were ordered to determine the cause of failure of the PFS.

In the meantime, 52nd CES personnel implemented a system whereby the runway temperatures were closely monitored using the runway ice detection system to predict softening. This gave them time to spray down the runway using water trucks in an attempt to cool the surface. This slowed the softening process and reduced the potential for foreign object damage, but did nothing toward solving the problem.

The plan to mill and overlay was scheduled to coincide with planned aircraft deployments to Keflavik, Iceland, and Zaragoza, Spain, during the month of August. Work began as scheduled on Aug. 3, 1998, and was expected to take approximately three weeks. The weather was perfect—hot and dry. Milling off the surface went smoothly and the first hot mix overlay was placed on Aug. 6, ahead of schedule. Saturday, Aug. 8, a few isolated blisters had formed in the new pavement and some were seeping water. They were documented for spot repair as required. By the following Monday, dozens of blisters up to 8 inches in diameter and nearly 6 inches high had formed throughout the entire portion of new pavement. Work was stopped immediately to determine their cause.

The civil engineers at Spangdahlem quickly realized they were dealing with

Water seeping from the pavement in a test cut on Aug. 11,1998.

a unique situation. Core samples taken through the blisters and at random locations throughout the runway revealed significant amounts of water trapped within the pavement cross-section. This water was vaporizing under the hot asphalt and causing the blisters to form.

Technical expertise was sought immediately and began arriving within 48 hours. Mr. Jim Greene from the Air Force Civil Engineer Support Agency responded, along with Dr. Ray Rollings from the U.S. Army Waterways Experiment Station. Mr. Al Fraga, USAFE Pavements Engineer, and Dr. Georg Meyer from Aachen Technical University, Germany, also joined the team working with 52nd CES and Staatsbauamt engineers. The urgent objective was to get the Spangdahlem runway back in service as quickly as possible. This necessitated a cost-effective means to resume construction while eliminating water from the pavement cross-section.

The selected plan called for additional milling, followed by installation of a special drainage layer. This would provide a lateral conduit to get water out of the runway and over to the other key feature of the design, in-board drains adjacent to the relatively impermeable concrete gutters along the pavement edges. The in-board drains extended down the full depth to the underlying concrete base. A perforated pipe was installed the entire length and connected to the drop inlets in the existing storm drainage system. The drains were then filled with a uniformly graded crushed aggregate and bound together with a cement slurry mix. This provided structural integrity while preserving the open drainage feature.

Another important aspect was the decision to use a grooved asphalt surface rather than a porous friction or open matrix pavement. It was felt that the porosity of the PFS greatly contributed to the buildup of water in the pavement cross-section. Additionally, there were growing concerns about the long-term effects of deicing chemicals retained within the PFS rather than running off the surface. There was also a strong suspicion that the heat-laden moisture vapor present within the asphalt was contributing to the softness of the surface pavement, perhaps in conjunction with a yet-to-be-determined material property deficiency of the bitumen itself.

Construction of the in-board drain system.

During an intense three-week period, the 52nd CES, in cooperation with its USAFE counterparts, simultaneously designed the repair project, negotiated a contract and lobbied for funds to complete emergency repairs that would allow Europe's premier fighter base to resume full flight operations. Multinational cooperation between USAFE, the German Ministry of Defense and the NATO committee structure was crucial. The time-critical task was to devise a plan that was affordable and technically sufficient and that would allow the quickest resumption of normal flight operations.

Construction resumed on Sept. 5, 1998. It was a race against time as fall set in and the weather became progressively colder and wetter. The asphalt drainage layer proved to be extremely successful. It provided continuous de-watering of the runway cross-section. An unexpected side benefit was that it accommodated paving in weather normally too wet to achieve full bonding. Every quality assurance test, even from those areas where paving operations were caught in strong rains, indicated full bonding of the asphalt. Amazingly, large quantities of water continued to seep from the in-board drains despite being fully sealed off by the overlying new pavement. The build-up of water, over what must have been a very long period of time, was caused by the "bath tub" created by the concrete side gutters over the concrete base with no lateral relief. The reconstruction completed in 1997 carried the same profile over the increased depth and thus perpetuated the condition. The result was the creation of a shallow aquifer that was defined by numerous perched lenses of water, some of which would fill a 6 inch core, 18 inches deep, in about 20 minutes!

Fully satisfied with the technical sufficiency of the new design, engineers at Spangdahlem turned their attention to the next difficult aspect of completing the project—the early onset of winter. Near the end of October, after the completion of paving operations, daily average temperatures plummeted to between 32 and 45 degrees Fahrenheit, accompanied by nearly constant rain. This greatly hampered paint striping efforts, slowed joint sealing operations and nearly prevented the re-installation of flush-mounted lighting due to the minimum temperatures and dry conditions required for the epoxy adhesive and quick-set cements to cure properly.

With time running out and pressure

See Runway Repair, page 16

READINESS CHALLENGE *Set to Begin*

April 24 - May 1, 1999

CE Staff Report

It's time for another Readiness Challenge—time to find out who will win the competition and take home the Brigadier General William T. Meredith Trophy recognizing the "Best of the Best" in civil engineer, services, public affairs and chaplain service contingency operations. Seventeen teams will compete this year, representing the U.S. Air Force's nine major commands, the Air National Guard, the 11th Wing from Bolling Air Force Base, the United States Air Force Academy and five international allies.

The Air Force Reserve Command and Air National Guard teams were selected by random drawing during the CE Worldwide conference in December 1998. One active-duty team from seven of the major commands was later selected by random drawing on Feb. 23 at the National Engineers' Week Luncheon in Washington D.C. The other active-duty teams were previously known since they are from one-base commands. The early selection date for the Reserve component teams was intended to provide equal training days for their units before the competition.

Air Force Reserve Command will present a combined team led by the 927th Air Refueling Wing's civil engineer squadron from Selfridge Air National Guard Base, Mich. The other primary units contributing personnel to the AFRC team are the 934th Airlift Wing, Minneapolis-St. Paul International Airport/Air Reserve Station, Minn., and the 910th Airlift Wing, Youngstown-Warren Regional Airport/Air Reserve Station, Ohio. As in past competitions, the Reserve lead team was able to select personnel from other units with the Air Force specialty codes needed to round out their team.

The international scope of the competition has increased, as full teams from Canada, the United Kingdom and Germany will compete. This will be Germany's first Readiness Challenge team, the second for the United Kingdom and the fourth for Canada. Canada and the United Kingdom will each sponsor a competition event representing their country's specialized equipment and training. Five-person teams from Japan and Norway will compete in selected events. Observers will attend from Italy, Israel and the previously mentioned five countries.

The competition events test each team's readiness skills in four main categories—Prime BEEF, Prime RIBS, Public Affairs and Chaplain Services. The 25 events selected for RC-VII will be published in the last edition of the Competition Book, which will be distributed once all teams have arrived at the Silver Flag Exercise Site, Tyndall Air Force Base, on April 23, 1999. Since in a real-world scenario troops would not know exactly what to expect until arrival in-theater, Readiness Challenge VII replicates this realism by waiting until all the teams have arrived to announce which events will be competed. Teams must prepare for any of a possible 47 events.

The CE looks forward to announcing the winners of this premier competition in the next edition of the magazine. Good luck to all teams, and may the "Best of the Best" win!

Readiness Challenge VII Competitors

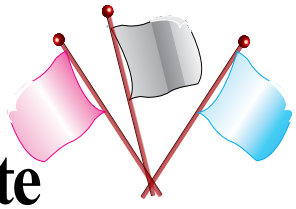
U.S. Air Force Teams

Air Combat Command	355th Wing, Davis-Monthan AFB, AZ
Air Education & Training Command	81st Training Wing, Keesler AFB, MS
Air Force Materiel Command	75th Air Base Wing, Hill AFB, UT
Air Force Reserve Command	927th Air Refueling Wing, Selfridge ANGB, MI
Air Force Space Command	90th Space Wing, F.E. Warren AFB, WY
Air Force Special Operations Command	16th Special Operations Wing, Hurlburt Field, FL
Air Mobility Command	60th Air Mobility Wing, Travis AFB, CA
Air National Guard	174th Fighter Wing, Syracuse, NY
Pacific Air Forces	3rd Wing, Elmendorf AFB, AK
United States Air Force Academy	10th Air Base Wing, USAF Academy, CO
United States Air Forces in Europe	48th Fighter Wing, RAF Lakenheath, UK
11th Wing	11th Wing, Bolling AFB, DC

International Competitors

Canada	14 Wing,Greenwood, Nova Scotia
United Kingdom	34 Field Squadron (Air Support), Waterbeach Cambridge
Germany	Ground Combat and Support Battalion, Wittmund AFB
Norway (Partial Team)	Base Defense Group, Camp Kolsås
Japan (Partial Team)	Kouku-Sisetsutai (*means* Air Civil Engineer), Tokyo

A History of Tyndall's Silver Flag Exercise Site



by Dr. Ron Hartzer
Ramstein AB, Germany

Air Force civil engineering contingency training has developed through several stages since the creation of the Air Force in 1947. During the Korean War, the Aviation Engineer Force trained combat engineers organized as Aviation Engineer battalions. This unit was charged with providing centralized control over aviation engineer battalions operating and training in the continental United States to assure a suitable level of readiness to perform their overseas mission of airfield construction and repair. After a successful period of training management, the Aviation Engineer Force was phased out by 1956.

Contingency training during the Vietnam War was accomplished at the home station for Prime BEEF team members. With the establishment of the Civil Engineering Center (the forerunner of the present Air Force Civil Engineer Support Agency) at Wright-Patterson Air Force Base, Ohio, in 1968, limited contingency training was conducted at Wright-Patterson and at nearby Camp Perry, Ohio.

One of the considerations for the move in 1972 of the Civil Engineering Center to Tyndall AFB, Fla., was the availability of space for contingency training. Training for both Prime BEEF and RED HORSE personnel began on the east end of Tyndall AFB, coincidentally at almost the exact location of the current Silver Flag Exercise Site. The curriculum included work party security, specialized construction activities and contingency equipment operations.

In 1978, Prime BEEF implemented a new training concept that expanded the curriculum to provide CONUS forces with hands-on exposure to contingency repair procedures. The five-day curriculum included Prime BEEF Orientation, Harvest Eagle Force Beddown, Harvest Eagle Equipment Familiarization, Bomb Damage Repair, Explosive Ordnance Reconnaissance, Chemical Warfare and Rapid Runway Repair.

The following year, contingency training moved to Field 4, Eglin AFB, Fla., because of a requirement for runway cratering under the new curriculum. (Limited work party security and demolition training continued at Tyndall for a few years.) The site became Operating Location E of the Air Force Engineering and Services Center (AFESC) until 1985 when it became Detachment 2, AFESC. The first class attended training at Eglin in April 1979. The 20-person cadre taught 45 classes (approximately 4,200 students) during the site's first 12 months of operation. However, a unit's training cycle of 76 months between visits to the site was unacceptable and led to an expansion of the site and cadre to double the training load.

The facilities, curriculum and number of classes greatly expanded during the 1980s. New construction, completed by the 823rd RED HORSE Squadron and the cadre, added a new administrative building, latrines, and a septic system. A new schedule of 77 classes per year began on Jan. 3, 1981, and allowed approximately 7,000 students to complete training annually. The next year another new schedule was initiated that brought 11,000 students to the site for training. At this point the cadre had grown to 57 personnel.

In October 1985, a major curriculum change incorporated other specialties: disaster preparedness, explosive ordnance disposal, fire fighting, services (Prime RIBS—Readiness in Base Services) and commissary specialties (Prime FARE—Food and Readiness) in an integrated Base Recovery After Attack (BRAAT) scenario. This focused the training on integrating individual functional areas for a coordinated base recovery effort in a realistic wartime environment. These changes brought an increase of 20 instructors and about 40 vehicles, and two classroom buildings were added to the site. The new program trained a total of 10,640 students annually (7,904 Prime BEEF, 380 each explosive ordnance disposal and disaster preparedness, and 1,976 Prime RIBS and Prime FARE).

The Eglin training site hosted the first Readiness Challenge competition in June 1986. Eleven teams competed in seven different civil engineer events. The Air Force Logistics Command team from Wright-Patterson AFB won the overall competition. From that modest beginning, Readiness Challenge evolved into the Air Force's premier combat support contingency skills competition. By 1997, Readiness Challenge incorporated civil engineering (now including EOD and disaster preparedness), services, public affairs and chaplain service events. It also became an international competition in 1994 when Canada first sent a team and in 1997, when the United Kingdom joined the competition.

In 1987, the first class of Officer Field Education was held at the Eglin site, renamed the Air Base Combat Support Training Complex. Officer Field Education was the final week of the Air Force Institute of Technology's Air Base Combat Engineering course. It offered young officers the opportunity to gain hands-on experience with some of the equipment and procedures used to accomplish their wartime mission.

By the late 1980s, the Air Base Combat Support Training Complex

was outgrowing its home at Eglin. During discussions with Eglin officials in 1978 to bed down training operations at Eglin, AFESC officials agreed to keep the facilities temporary and at a minimum. The site was partially within Accident Potential Zone II and the munitions test safety footprint of the base. In 1987, as a result of growing safety concerns and mission changes at the host base, Eglin officials decided it was time to move the combat support training site elsewhere. The location selected was at the eastern portion of Tyndall. Construction on the new site began in November 1989 and continued until its official opening on Aug. 3, 1993. The final event held at the Eglin site was Readiness Challenge IV. Between 1979 and 1993, nearly 150,000 personnel were trained at the Eglin training site.

Along with the physical move from Eglin to Tyndall, an organizational change occurred. In 1991, Gen Merrill A. McPeak, Air Force Chief of Staff, told Col Marshall W. Nay, the AFESC commander, that training was the responsibility of the major commands, and not of a field operating agency. McPeak agreed that responsibility for the training site should be transferred to Tactical Air Command. Therefore, coincident with the move from Eglin to Tyndall, Detachment 2, AFESC, became Detachment 1, 823rd RED HORSE Squadron. This was a return to the tradition of the 560th RED HORSE Squadron that trained RED HORSE replacement personnel at Eglin from 1966 to 1970. The new location at Tyndall was renamed the Silver Flag Exercise Site.

The end of the Cold War, the Gulf War experience, and changing technologies brought about an important change in the mission of the site. The new overall training plan for civil engineering called for continued emphasis on home-station training, improved contingency training at all levels, and implementation of the new Silver Flag program. The Silver Flag program featured specialty crew-size exercises including task certification for personnel filling critical positions on Prime BEEF and RIBS teams. Also, the emphasis shifted from BRAAT activities to a balanced recovery/beddown approach in the curriculum. The new program concentrated on key contingency equipment and assets not available at technical training schools or home station. The Silver Flag program was designed to ensure that each Prime BEEF team would have a core of highly trained and capable individuals with the most current readiness training on mobile basing assets.

Today, the Silver Flag Exercise Site offers quality training and realistic exercises on a wide range of critical assets and equipment to ensure civil engineers and services troops will continue to provide agile combat support to the Air Force of the 21st century.

Dr. Ronald Hartzer is the United States Air Forces in Europe Deputy Command Historian, Ramstein Air Base, Germany.

Runway Repair

continued from page 13

mounting to get the runway open as soon as possible, in-house forces teamed with the contractor to "create our own weather" on the runway. Civil engineer troops constructed more than 30 plywood re-locatable shelters to provide a dry environment in which to install the lights. Additionally, 27 flight-line heaters were borrowed from aircraft generation equipment to provide around-the-clock heat for the expedient shelters. With outside temperatures near freezing and periodic glimpses of snow flurries, CE troops provided 24-hour assistance over a four-day period to finally complete the last installation of 163 lights by the morning of Nov. 6, 1998.

Again, civil engineers teamed with the contractor to remove construction barricades, replace signs and sweep the entire runway and adjoining taxiways to allow full resumption of flight operations. A scheduled Instrument Landing System re-certification flight was completed, a wing-wide "foreign object damage walk" was conducted, and all airfield navigation aids were reinstalled.

The 52nd Fighter Wing resumed flight operations on the new runway Nov. 9, 1998. The 52nd CES had successfully completed "Rapid Runway Repair" and was already moving on to the next challenge. Their lessons learned are being applied at other USAFE airfield pavement projects.

52nd CES personnel had to "make their own weather" on the runway in order to create a dry environment for the re-installation of the flush-mounted lighting system.

Lt Col Kim Traver is commander of the 52nd Civil Engineer Squadron at Spangdahlem AB, Germany.

Moving Maintenance City

The Mission: Plan, Design, Construct, Dismantle, Move and Reassemble More than 80 Facilities Comprising the 4404th Provisional Wing Maintenance City, Prince Sultan Air Base, Kingdom of Saudi Arabia.

by 1st Lt John Schuliger
Robins AFB, Ga.

Partially relocated Maintenance City. ***(Photos courtesy 78th CEG)***

It's been almost three years since the first civil engineer teams arrived at a desolate and remote Saudi Arabian air base called Prince Sultan. Their mission was to construct a tent city that would accommodate the relocation of more than 4,000 service members following the terrorist bombing of the Khobar Towers housing complex at Dhahran. Prince Sultan was chosen due to its isolated location, which allowed it to be more easily defended against terrorist threats.

Prince Sultan went from bare base to working installation in minimum time. Surrounded by an 8-foot fence, tons of barbed wire, and vast expanse of desert, security has remained tight at this desert outpost for the Operation Southern Watch coalition troops who enforce the U.N.-mandated no-fly zone over southern Iraq. Since the build-up began in August 1996, there have been continuous efforts to improve the base's "force protection" posture and accommodate planned expansions, including the construction of a second runway and connecting taxiway. The key to these flightline improvements was the moving of the Aircraft Maintenance Complex, or "MX City."

SSgt Charles Hogan, TSgt Matthew Hampton, TSgt Thomas Anthony, and SrA David Hyson prepare to connect a seconsdary distribution center.

Planned and approved as one of the projects in the Prince Sultan Air Base Contingency General Plans, U.S. Central Command Air Forces and the 4404th Provisional Wing (now the 363rd Air Expeditionary Wing) established it as their top priority. In response, engineers from the 78th Civil Engineer Group at Robins Air Force Base, Ga., developed an execution strategy and project documentation to carry out the effort during a spring 1998 deployment.

This mission was similar to other engineer taskings, yet it provided a significant challenge because throughout the duration of the project the Wing had to continue to maintain its vigilance and execute the air tasking orders for Operation Desert Thunder.

Planning constraints for the overall project were developed through extensive coordination with the aircraft maintenance unit commanders and their project officers. Representing approximately 2,000 troops, each move was carefully developed and organized into discrete phases. The area development plan and site plans for each of the more than 80 facilities that comprised MX City were then finalized and the construction sequencing developed. Each facility move was then captured on a DD Form 1391 with a project scope, rationale and cost

estimate. The collective set of projects was finalized into the mission statement.

Making It Happen

With the physical planning complete and the projects approved, two 50-person Prime BEEF teams from the 78th CEG volunteered for the tasking. The mission was then refined into activity sets and tied to the yearly readiness training program of the 78th CEG.

The training deployment was organized into phases. The first and most critical was the Team 1 Advanced Party. A planning engineer re-deployed along with the team officer in charge and non-commissioned officer in charge to expand the approved execution strategy into a time-sequenced work breakdown plan. Material requirement lists were refined and equipment needs finalized to begin the work.

A vital task of the advanced party was completion of a topographic map of the beddown site to ensure accurate facility siting and crush and fill quantities. Drainage of the beddown area was a main concern to the Host Nation. The topographic map created by the site developers enabled the engineers to properly plan the drainage. This included raising part of the area as much as 3 feet and installing 330 feet of 24-inch storm drainage culvert.

TSgt Bill Elliot, MSgt Rick Lowe, and 1st Lt John Schuliger discuss drainage during the initial site survey.

Erecting a COTS facility at the new location of Maintenance City.

Team 1

The main body of Team 1, comprised of 43 engineers, fell in with minimum down time and began the massive task of hauling, filling and compacting five facility sites with over 20,000 cubic meters of limestone and sand crush.

Working around the clock, the new MX site was soon ready for finish grade work and slab construction. Concurrently, utility crews began trenching for and installing the primary and secondary power circuits.

A separate but integral project was relocation and beddown of the U.S. Navy's EA-6B mission. Structures crews moved and set up six modular facilities and one 30 x 100 commercial off-the-shelf fabric structure to beat the Navy's mission deadline by five days. With all planned facility sites prepared, primary power in place and the Navy moved, Team 1 focused the final three days of their deployment on passing lessons learned and project knowledge to the advanced party from Team 2.

Project continuity, a crucial step, was maintained with an updated and further refined work breakdown plan. All "as-built" drawings were completed. Materials, tools and equipment were inventoried and handed off. The final task for the advanced party was to lock down the work scope with the project management team.

Team 2

Team 2's main body arrived and Team 1 departed on the same aircraft. After a good night's rest, Team 2 hit the ground running with a full day of tasks. The work plan for Team 2 was overlaid with two other functional teams: a Bare Base team from the 49th Materiel Maintenance Squadron, Holloman AFB, N.M., and a Combat Communications Installation team. The Bare Base team, integrated with 78th CEG Prime BEEF, began the massive task of dismantling, moving, reassembling and reconstituting the facilities. A wide variety of facilities made up MX City including TEMPER tents, modular buildings and expandable shelter containers. The Combat Communications Installation teams began the arduous task of running fiber optic cable to all of the new facility sites. Coordination between the teams was imperative to complete the project on time and meet the needs of the aircraft maintenance squadron.

The central and most critical aspect of the project was to make the facilities available at the right time and the right place to allow a near seamless maintenance transition. Using

Bird's-eye view of completed Maintenance City.

one new 8K Frame Supported Tension Fabric Structure, the domino effect on the sequence of events led to a total elapsed move time of 18 days, versus the planned 36 days.

Made It Happen

Once the construction was complete, the project documents and costs were finalized and turned over to the base civil engineer squadron. The last step in the deployment was to inventory and palletize both team kits and all equipment then redeploy to Robins.

1st Lt John Schuliger was the planning engineer for the deployment, and currently is the SABER chief for the 78th Civil Engineer Group, Robins AFB, Ga.

78th CEG Prime BEEF team installing culvert to improve site drainage.

RED HORSE

Paves the Way to New Housing Complex

by CMSgt Douglas Ahern and Capt Kurt Bergman
Hurlburt Field, Fla.

Thirty members of the 823rd RED HORSE Squadron from Hurlburt Field, Fla., were called to help move Air Force personnel at Prince Sultan Air Base, Saudi Arabia, out of tents and into a new Friendly Forces Housing Complex by completing construction on an access road.

This was a homecoming of sorts for the 823rd RHS, who helped re-build Prince Sultan AB from the sand up after the Khobar Towers bombing in 1996. When that 200-member 823rd RED HORSE team arrived, Prince Sultan was nothing but 10 square miles of sand with an immense 15,000-foot runway and a "bone yard" of vehicles left over from Operation Desert Storm. But at the rate of 40-50 tents a night it didn't take long for RED HORSE to turn the bare base into a working installation with living quarters, dining facilities, restrooms, showers, and administration areas. In addition, the squadron's vehicle maintenance team brought more than 100 vehicles back to life from the bone yard.

These days, Prince Sultan is changing again with the addition of a Friendly Forces Housing Complex built by the Kingdom of Saudi Arabia. This 4,257-person housing area amounts to an oasis in the desert for the 363rd Air Expeditionary Wing (formerly the 4404th Provisional Wing) and other Coalition Forces. Besides living quarters, the complex includes a gymnasium, in-ground swimming pool, base exchange, dining halls and more. But before the new complex could be inhabited, a road needed to be constructed from Tent City to the Charlie Gate. The new, nearly 8-mile stretch of road was also needed to clear a site for the Royal Saudi Air Force to construct a new runway on their airfield.

(Above) **The 823rd RED HORSE Squadron cuts in the new Prince Sultan Air Base road.** ***(Photo by MSgt Mike Weston)***

Laying in the base course for the new road. ***(Photo by MSgt Mike Weston)***

The road had been under construction for five months before the RED HORSE team arrived in July for a 90-day deployment. Thirty members of the 823rd teamed with 12 Royal Engineers from the 53rd Field Squadron (Air Support) to construct the road. RED HORSE and British engineers and one Australian engineer endured extreme heat, blowing sand and long hours to complete the project, which consisted of two roads leading to the gate, one for contract vehicles and one for shuttles to transport people to and from the complex.

Huge scrapers were used to remove layers of sand and make way for the gravel foundation. Surveyors worked the site daily to keep the road straight and on track. The crew used five rock dumps, five 10-ton dumps, three scrapers, two bulldozers, one excavator and four loaders to complete the project.

Repair and extension of the contractor access road was straight-forward: grade the site, install base course and build a contractor parking

area away from the main gate cantonment area to queue vehicles awaiting access inspections.

The Coalition Village road required a much more concerted effort due to numerous dips and a large hill located in the middle of the site. The RED HORSE crew ended up removing 10,000 cubic yards of fine desert sand to prep the site. Being in the desert many assumed that fill material would be readily available, but it was actually hard to come by. Locating acceptable areas for borrow pits was a daily challenge for 1st Lt Josh Strickler, 823rd RED HORSE project engineer and officer in charge of the deployment. He would travel through the area searching for places where the sand had a reddish color with black aggregate, which usually signified a layer of compactable clay. Scrapers were deployed to the borrow areas, where they would excavate until the vein was exhausted. Some pits ran out after only 4 to 5 feet of depth, while others ran to depths of 20 feet or more. When all was said and done, the crew had excavated and laid 8,000 cubic meters of clay fill.

The desert environment aided greatly in the final compaction and strength of the roads. The fill material was wetted and compacted during the night. During the day, 140-degree temperatures would bake the fill material into a large brick-like surface. The 30,000 cubic yards of base course purchased on the local economy was rich in limestone content, creating a concrete-like material when wetted, compacted and "cured." Wetting the road would not have been feasible had the team not decided to use the Tent City's grey water supply for construction. Currently the Kingdom of Saudi Arabia supplies water to Coalition Forces under the existing Status of Forces Agreement. Waste of this precious commodity in this desert environment would be irresponsible. Reuse of the waste water was appreciated and helped maintain good relations with our Saudi Arabian hosts.

Working 3 a.m. to noon and 4 to 8 p.m. shifts daily enabled the majority of the crew to avoid daytime temperatures and traffic. During night hours, in excess of 1300 cubic meters of concrete serpentine barriers were formed and poured. To prevent improper curing, wetted burlap was draped over the barriers to maintain moisture content. Teams actually had to buy sand—in the desert—to mix concrete because the sand there is very fine. Technically, it classifies as a "silt" because of its small grain size.

RED HORSE and British engineers prepping for a night pour. ***(Photo by MSgt Mike Weston)***

The joint team works together to form serpentine barriers at the front gate. ***(Photo by 1st Lt Josh Strickler)***

At the request of the base commander the team took on another task—constructing a bermed area for the delivery of bulk water and fuel. Due to tight security requirements at Prince Sultan, all water and fuel is downloaded at the gate and then loaded into Air Force trucks at a later date for delivery onto the main base. The heavy equipment used during this project was all war reserve materiel equipment that had been stored in the open since Operation Desert Storm. Operators found dried-out gaskets and worn belts, hoses and lines. A dedicated crew of six RED HORSE vehicle mechanics worked seven days a week to repair equipment and keep it in working order.

At Prince Sultan the environment was tough on everything—people and equipment. The 140-degree daily temperature, the desert scorpions and asps, the terrorist threat, the wind/dust storms, the language barrier and the 14-hour workdays, six days a week, combined to provide quite a challenge—but RED HORSE was up to it. With less than two weeks notice, the 823rd RED HORSE deployed to an extreme environment and completed a Herculian task in 90 days, showing that when you need the job done, the men and women of the 823rd RED HORSE Squadron live up to their motto:

CAN DO... WILL DO...
HAVE DONE!

CMSgt Douglas Ahern is deputy chief of the operations flight and Capt Kurt Bergman is commander of the engineering flight at the 823rd RED HORSE Squadron, Hurlburt Field, Fla.

Powering Maintenance City

by Gary Tyree
HQ AFCESA, Tyndall AFB, Fla.

Power for the Aircraft Maintenance Complex (MX City) at Prince Sultan Air Base may soon be provided by the local Saudi utility company. The 363rd Air Expeditionary Wing (AEW) civil engineer squadron is working with the host nation to make it happen. In the meantime, a cooperative project between the 363rd AEW and the Air Force Civil Engineer Support Agency (AFCESA) to construct an electrical substation helped move the process several steps closer to completion.

Since the build-up at Prince Sultan began in mid-1996, all electrical power for MX City, as well as the rest of the base, has been supplied by Harvest Falcon (HF) generators that operate around-the-clock. Several power plants of varying sizes feed different areas of the base. MX City is served by Power Plant 3, which has twelve 750kW HF generators serving an average connected load of approximately 4.5 megawatts. Now, after years of continuous operation in the harsh desert climate, the HF generators are starting to wear out and maintenance costs continue to rise. For Plant 3, which normally has 8 to 10 units on line at all times, fuel consumption alone is several hundred thousand gallons per year.

Power outages were scheduled at night to tie in the new vacuum switches. *(Photos courtesy CEMIRT)*

Needless to say, converting to commercial power and reducing the O&M cost and the opstempo on personnel and equipment is a top priority at Prince Sultan. However, making that conversion isn't as simple as one might think. Until recently, Plant 3 didn't have the equipment required to accept 13,800 volts from the Saudi system and step it down to 4,160 volts. In addition, there was no switching capability to revert to generator power when necessary.

Concrete incased 6-inch PVC conduit was installed inside the plant compound to protect the 13,800-volt conductors.

Building a typical utility-grade substation was originally perceived as cost prohibitive and was not considered an option—but that didn't stop base engineers. They developed a basic configuration proposal using standard transformers, switches and the existing HF distribution equipment. Then U.S. Central Command Air Forces and Air Combat Command engaged AFCESA to review the design, buy the equipment and construct the system.

AFCESA's civil engineer maintenance, inspection and repair team (CEMIRT) took on the project. The design, approved by the 363rd Expeditionary Civil Engineer Squadron (ECES) and AFCESA electrical engineers, was finalized in June 1998. By late October 1998, most of the material and equipment was purchased and delivered and a seven-person combined team from CEMIRT operating locations at Travis Air Force Base, Calif., and Dover Air Force Base, Del., deployed to construct the system.

Everyone involved in the project invested considerable time and energy in the planning phase, which paid off in a big way when the CEMIRT team arrived at Prince Sultan. Each team member knew exactly what needed to be done, and had the materials needed to accomplish their mission. The 363rd ECES jumped in and took care of the trenching and concrete work and stayed involved in every other phase of the project

Team members roll off a 2,100-foot continuous run of 750MCM cable.

as well. In all, a highly versatile system consisting of several 15kV circuit breakers, transformers and switches and over 20,000 feet of cable was installed in only 45 days.

There is still work to be done in conjunction with the Saudis before connecting to their system. However, Plant 3 is now ready to accept and distribute up to 7.5 megawatts of commercial power to MX City.

Gary Tyree is the director of CEMIRT (civil engineer maintenance, inspection and repair team) at the Air Force Civil Engineer Support Agency, Tyndall AFB, Fla.

Safety Program Compliance Improves Readiness

by SMSgt Dennis Hackenberger
Seymour Johnson AFB, N.C.

Programs! Programs here! Get your new and improved programs!

While that sounds like a day at the ballpark, it actually describes a day in the shop. There are security programs (physical, computer, communications and personal), hazardous waste management programs, mobility and readiness programs, training programs, hazard communication programs, quality assurance programs, nuclear certification programs, etc. And then there are safety programs.

Every CE unit with Explosive Ordnance Disposal (EOD), a Readiness Flight with a stockpile of war reserve ammo or training munitions, an Operations Flight that uses cartridge-actuated tools, or a fire department that could respond to a fire involving bombs and bullets, should have an explosives/weapons safety program.

And, of course, every organization has a ground safety program that looks at electrical hazards, housekeeping, fire safety and all those other good things on our AF Form 55s.

However, there are two more programs in the safety and health arenas that warrant attention.

Word has been slow getting out that all units using respirators must have a Respiratory Protection Program. See AFOSH Standard 48-1 or OSHA Standard 29 CFR 1910.134, which is available on the Internet. Shops must have a Respiratory Protection Program in place before a self-contained breathing apparatus or other type of respirator can be worn. CEs must be trained, certified and medically tested to wear each of the respirators their job requires.

This is where we encounter a problem with readiness. The lack of standardization between major commands and even individual units means personnel from different bases and commands go TDY to a base in Southwest Asia, for example, and some of them can't rightfully wear the respirators at the TDY location. It happens every rotation—personnel either haven't been part of a respiratory protection program, or they're certified to wear different respirators than the ones in place. Respirators aren't interchangeable, according to the program.

At remote sites where there aren't any bioenvironmental engineers, it is difficult to have people fit-tested, trained and certified to wear respirators. In addition, Respiratory Protection Programs take time to administer. Readiness improves when the requirements to wear the respirators are met *before* deployment.

Let's move on to a program that takes very little time to administer, and while not "required" for most people, is the right thing to do. It's called a Blood-Borne Pathogens Program, and information on it can be found at your public health office and from OSHA Standard 29 CFR 1910.1030.

The purpose of this program is to help minimize potential exposure to blood and bodily fluids by people who are exposed to these things as a routine part of their job. Granted, most CEs are not routinely exposed to human blood. Sometimes we respond to plane crashes or explosives-related accidents where we work amidst human fluids, but not often enough to have to have a program, right?

Have you ever rendered first aid to a bleeding accident victim? Cleaned up blood from an injured co-worker? *Are you in the military and likely to find yourself on the battlefield or at a forward air base some day performing buddy care?* Are you sure the blood you encounter is disease-free? Seriously consider learning how to protect yourself from the hazards of blood-borne pathogens.

This program requires some training, Hepatitis B shots, an exposure control plan and other administrative actions, in addition to a kit containing items to have handy whenever and wherever one may be exposed to blood and body fluids.

It sounds like a lot, but the program is easy to manage. Yes, it's *another* program, but blood-borne pathogens awareness training by itself is worth an hour a year during Prime BEEF training. It just makes good sense to learn about health hazards.

SMSgt Hackenberger, 4th CES, is the flight superintendent of the Seymour Johnson AFB Explosive Ordnance Disposal team.

Outside the Box

by Capt Matthew Conlan
Hurlburt Field, Fla.

Operation Southern Watch, a long-term contingency operation meant to ensure Iraq's compliance with U.N. resolutions, was established Aug. 2, 1992, in response to Iraqi bombing and strafing attacks on Shiite Muslims in southern Iraq. The mission, carried out by Air Force active, Reserve and National Guard units, enforces a no-fly zone below the 32nd parallel for Iraqi fixed-wing aircraft and helicopters. U.S. Air Force units fly in conjunction with British, French and other U.S. forces while on patrol.

In February 1998, the U.S.-led coalition began a build-up of military forces in support of possible military action in the Persian Gulf. Dubbed Operation Desert Thunder, civil engineers from several units gained valuable experience in supporting bare base contingency operations.

One of these units, the 16th Civil Engineer Squadron (Commando Engineers!) from Hurlburt Field, Fla., was tasked with fielding a Prime BEEF Lead Team. Their lessons learned offer a wealth of information to units supporting subsequent deployments.

A typical utility corridor in Commando Village. A Bobcat was essential for maintenance operations. *(Photo by Capt Matthew Conlan)*

Call 911 Prime BEEF!

Hurlburt Field furnished 101 personnel of the 132 required to fill the Prime BEEF Lead Team. The remaining members were sourced from other Air Force bases including Whiteman, Nellis, Cannon and Minot. The Prime BEEF team arrived at their deployed location in Kuwait in mid-February. Full beddown operations began at 6 a.m. the first morning, and coalition forces began moving into the tent city, named Commando Village, the next day. Commando Village soon grew to house more than 1,600 personnel from the four U.S. services as well as two coalition nations. Combined with a collocated U.S. Army encampment and the original units, the total population supported was nearly 2,600 personnel. The majority of the beddown was complete eight days after it started, when services personnel began serving breakfast in the field kitchen.

Thinking "Outside the Box"

During the beddown, the team encountered many unique requirements and limitations requiring them to think "outside the box." All activities were performed with force protection requirements in mind—in this case U.S. Central Command OPORD 97-01.

The first limitation was the extremely small amount of land area available for beddown. The U.S. site, currently home to the 9th Air Expeditionary Group, was located on a large hill on the northeast side of the Kuwaiti base. The overall size of the site was 3,000 ft. by 6,000 ft. with little to no tree and brush cover. Force protection measures provided a major impact because the team needed to construct facilities while maintaining an adequate standoff distance to the camp perimeter. Traffic lanes and equipment/utility corridors were substantially reduced in size to fit the TEMPER tents into the available area. This would later affect maintenance operations and force procurement of a Bobcat-type forklift for moving large items like environmental control units. Even with reduced traffic lanes and utility corridors, the team was forced to seek host nation approval to move the countermobility berm farther from the camp to maintain adequate standoff. A new 8,000-linear foot berm with vehicle ditch was constructed in eight hours. As a side note, the reduced size of traffic lanes mandated the highest priority on fire prevention. The Army encampment later experienced a fire resulting in the loss of 19 contracted Bedouin-style tents. Fortunately no personnel were injured.

Another limitation was the scarce availability of heavy equipment. Due to the camp's location on the hill, the team needed to create a series of level tiers or terraces on which to erect more than 150 TEMPER tents. The team needed to cut and fill more than 31,000 cubic yards of rock and dirt to prepare the site, making heavy equipment one of the most highly tasked assets. Local heavy equipment was leased to help alleviate the shortage, but problems with the leased equipment arose immediately because it was typically in poor shape and was

frequently unusable. The team was able to borrow a limited number of heavy equipment pieces such as front-end loaders and bulldozers from the Army, but the loans were temporary due to the Army's own requirements for its use.

Keeping vehicles fueled during beddown was another challenge. On at least one occasion, all but one piece of equipment sat idle for several hours after running out of fuel. Following refueling, operations continued until midnight to make up the lost time. The team resorted to using JP-8 more often than diesel. Since JP-8 runs hotter, the equipment did not function as it normally would have.

A critical concern from a health and hygiene standpoint as well as from a force protection view, was the proper disposal of raw sewage and grey water from showers. In order to satisfy both requirements, the team used a combination of Harvest Falcon (HF) assets and commercially acquired materials to construct an enlarged forced-main sewer system and a gravity-fed grey water disposal system. HF assets used included 4-inch PVC piping and the 180-gpm capacity grinding lift station. Commercial assets included eight 7,500-gallon capacity fiberglass holding tanks, pipe fittings and valves. In several cases, required parts were shipped from home station via military airlift. Sewage was piped from the HF latrines to the holding tanks, which were located outside the countermobility berm as a force protection measure (no tanker trucks inside the perimeter). These holding tanks were emptied daily by a local national contract funded by the Kuwaiti government. Grey water from the shower units was piped separately to a grey water evaporation lagoon also located outside the berm. Finally, the team tied the Army encampment latrine and shower trailers into the HF sewer and grey water disposal systems. These tie-ins required HF assets, Army equipment and locally procured materials.

The team's HF equipment had been in near-continuous use for the last several years. Although it received depot-level refurbishment in Oman, much of it was worn out or approaching the end of its useful life. This, combined with the harsh environment of Southwest Asia, resulted in the team experiencing a high rate of equipment failure. As equipment items failed, team members were frequently tasked to find and implement contingency work-arounds to bring the equipment back into service. In many cases, these work-arounds were accomplished with non-standard parts procured on the local economy. It was never a perfect repair, but it got the job done. As an example, the team experienced many problems with the shower/shave pump controllers in particular. The pumps use a consolidated switch/motor controller to activate the motors controlling water flow to the shower facilities and latrines. As the switches wore out, craftsmen rigged replacement switches with parts procured though local electrical supply outlets.

Overall, the beddown operation was a stunning success, primarily through the efforts of many dedicated, well-trained craftsmen. Teamwork and a high level of morale enabled this team to overcome many significant and challenging hurdles. The 16th CES put its motto, "Always There, Anywhere," into action, and redeployed with pride in a job well-done. Team members were awarded the Air Force Achievement Medal in recognition of their many accomplishments during this beddown.

The 16th CES Prime BEEF team redeployed in small groups over the next few months as replacements arrived from other bases. The author, Capt Matthew Conlan, remained on as BCE to run sustainment operations until the last of the original team redeployed at the end of June after 132 days in theater.

16th CES Prime BEEF Lessons Learned

- All team members should deploy with job-specific tools and supplies such as hot sticks, Hilti drills, and zip ties. Ensure that all personnel are instructed in proper pallet build-up procedures, including proper use of netting and other material handling equipment. Units should deploy with a redeployment package, including load list, packing list and hazardous declarations (Haz Decs). Finally, ensure that deploying personnel are qualified to sign Haz Decs to facilitate redeployment of assets back to home station.

- Ensure all personnel deploy with training records and study materials. Some of the teams' personnel did not bring theirs, so they were unable to certify any of the trainable tasks accomplished by these personnel during the beddown and sustainment phases.

- A civil engineer ADVON team should arrive as early as possible before the main body to perform requisite planning and site layout work, and to evaluate critical items such as availability of electrical power, potable water and wastewater. This team's ADVON team arrived on site only two days prior to arrival of the remainder of the Prime BEEF team. This late arrival limited what the ADVON team was able to accomplish.

- Effective communications are vital during beddown operations—get land mobile radios into use as soon as possible. The team was without radios for the first two days, making it difficult to coordinate and track work. Once the radios were located in the consolidated team kit, unpacked, programmed and allocated, they were able to more accurately and efficiently manage personnel and other resources. Additionally, remember to include Fire Protection and Disaster Preparedness when developing radio requirements.

- Photograph everything. Photographs are useful for recording the locations and configurations of most systems, especially underground systems. Digital photographs are especially useful since images don't require traditional chemical development and can be imported into documents, saved to disk, or electronically transferred.

- Take the time to make accurate drawings and maps during construction. This will prove to be invaluable to

See Outside the Box, page 29

FORCE PROTECTION Through Engineering

by MSgt Scott Melton
Lackland AFB, Texas

They report for duty at 6:30 a.m. for 2 ½ hours of physical training. They're tested against both the Air Force Ergometry system and the Army Physical Fitness Test at 70 percent of their age. The rest of their day includes: training on and researching force protection measures for current locations and possible rapid deployment sites, working with the Air Force's Force Protection Battle Lab on initiatives to improve or enhance force protection capabilities, and fielding questions from other bases on force protection issues.

These may not be traditional civil engineer duties … but these are not traditional CEs. They are part of a unique unit—the 820th Security Forces Group at Lackland Air Force Base, Texas. The 820th SFG is the first force protection unit of its kind in the Air Force. Composed of personnel from 16 different disciplines, the 820th SFG provides the Air Force a totally dedicated composite unit for force protection. Its members are trained, organized and equipped for missions ranging in scope from Military Operations Other Than War to major regional conflicts. Their primary focus is providing force protection for the aerospace expeditionary forces (AEFs).

The framework to establish and conduct effective force protection procedures around the world takes place at the group's headquarters at Lackland. The 820th SFG oversees seven security forces flights (five active duty, one Air Force Reserve and one Air National Guard flight which provides heavy weapons support).

The 820th SFG's 80 members are drawn from security forces, administration, combat arms training and maintenance (CATM), civil engineering, communications, intelligence, logistics and supply, medical, personnel and transportation (vehicle mechanics) career fields, and the Air Force Office of Special Investigations. The synergism of these experts provides "first-in" force protection at any operating location.

The 820th SFG's mix of talent, training and readiness includes six CE troops—one engineering craftsman, three explosive ordnance disposal (EOD) personnel and two readiness personnel—who contribute to the unit's capability to assess any threat and act accordingly. They are responsible for providing engineering input during the planning phase of AEF deployments. They always work as a team to develop the force protection plan. As CEs, they are responsible for all issues concerning force protection from an engineering standpoint. They work closely with the deployed CE unit to ensure force protection requirements are met. This sometimes means obtaining equipment and doing the job themselves when the deployed CE unit is unable to provide manpower for force protection support.

Activated in March 1997, the 820th Security Forces Group is the first composite unit built to focus solely on security and force protection. Its activation was part of the acceleration of Air Force efforts to protect forces following the June 1996 bombing of the Khobar Towers complex in Saudi Arabia. This unit was a key component of a new force protection program that integrated antiterrorism, physical security and personal protective measures in all locations and situations. According to 820th SFG commander, Col Larry Buckingham, what differentiates them from Special Operations is that their mission is purely force protection. Members of the unit examine all threats, from medical needs to water quality to the local population's attitude toward the U.S. They look at the whole environment.

The engineering craftsman provides real-time assessment and site development during deployments and contingencies by performing facility assessments (including airfields, utilities and buildings), engineering support, mapping, surveying, drafting and beddown planning, including helping develop barrier plans and providing follow-on elements with accurate maps.

The EOD personnel provide rapid assessment of force protection requirements during the initial stages of deployments and contingencies. They provide a blast effects and infrastructure vulnerability assessment to assist in determining the safe separation distance for establishing a physically secure perimeter to maximize protection of the cantonment area. They also coordinate with host nation EOD personnel to determine possible locations of munitions storage and munitions disposal areas.

The readiness personnel perform rapid readiness assessment of force protection requirements during the initial stages of deployments and contingencies. They assess whether a Prime BEEF readiness team or disaster preparedness High Threat Augmentation capability is required. They request and/or advise headquarters on the requirement for additional unit type codes at the deployment location, provide vulnerability assessments, determine if an NBC (nuclear, biological and chemical weapons) or hazardous material threat exists, and determine how to detect and protect against it.

How do you train a CE to wear a beret? To begin with, everyone in the unit is trained in all combat operations needed to secure an area. Team personnel attend just about any career related or enhancing school or symposium that can be found. Between school, training and deployments, these CEs spend about 180 days on the road annually.

Within 6 months of the group's activation in March 1997, the 820th SFG saw its first real-world action in support of Operation Bright Star and Air Expeditionary Force V.

Designed for rapid movement, units from this group are capable of being on the ground at a deployed location within 24 hours of notification. When the 820th SFG arrives at a forward location, it conducts an immediate assessment of force protection requirements to ensure a secure operational environment for personnel and resources. This environment may include operations beyond the defined boundaries of the base. The 820th SFG has organic command, control, communications, computer and intelligence capability. Its members are able to work without support for up to 20 days—and sometimes they have to.

When the 820th SFG deployed for Operation Desert Fox in December 1998, the unit arrived at its assigned location and immediately deployed security forces personnel to the post. Meanwhile, headquarters personnel began building the Base Defense Operation Center (BDOC) and support facilities that would be needed to operate until the follow-on support element arrived. Meanwhile, the three CEs on the team began to set up temporary power to the BDOC facilities and construct the search area. The build-up took almost 48 hours of non-stop work. The CE team maintained the base electrical system, performed trash hauling escort details, operated equipment and performed every other job normally assigned to the deployed CE unit. They even made two P-19 fire trucks operational to provide a limited fire fighting capability to the billeting area and the flight line. The follow-on support element never arrived. In short, they were a three-person CE squadron for the 107 people at the site. They even changed a few light bulbs.

Operation Desert Fox provided the 820th SFG's first real-world experience as a self-sustaining force, and offered a glimpse of a new era of "force protection through engineering."

MSgt Scott Melton is the engineering superintendent of the 820th Security Forces Group, Lackland AFB, Texas.

A-76 Help Desk in Full Operation

by Patricia Coyle
HQ AFCESA, Tyndall AFB, Fla.

The Air Force Civil Engineer Support Agency's A-76 Help Desk is in full swing, providing technical assistance to major command and base civil engineers as they implement their A-76 programs.

An A-76 program (named for the Office of Management and Budget Circular A-76) is a competitive sourcing process whereby the Air Force determines the most efficient way to provide support services by cost-comparing the use of in-house staff versus private contractors.

AFCESA's A-76 Help Desk staff, a civil engineer, a manpower specialist and a contracting specialist, started fielding questions as soon as the Desk was established in August.

Although the A-76 process is not new, bases are dealing with the process on a much larger scale. In the past only small functions were cost compared; today, major functions within civil engineer squadrons (i.e., flights) and even entire civil engineer squadrons are being cost compared. As a result, many questions arise as engineers strive to ensure the process is followed correctly and to learn from past experiences.

One of the main components of the Help Desk is an electronic library of current A-76 documents. Performance work statements, technical performance plans and transition plans are available on the web for everyone to use. To make this effort successful, bases that have completed a cost comparison study are asked to send their documents to the Help Desk for inclusion in the library. To complement the A-76 document samples, the Help Desk completed a draft civil engineer checklist that details all actions required as civil engineer squadrons move through the A-76 process. The goal of the checklist is to prevent major actions from "slipping through the cracks."

The Help Desk has also created generic Technical Performance Plans and a Transition Plan, which are available on AFCESA's web site.

To provide current information about A-76 cost comparison studies, the Help Desk created the Civil Engineer Commercial Activity Management Information System (CE-CAMIS) Report as a subset of the CAMIS Report produced by the Air Force Center for Quality and Management Innovations. This report contains all completed and in-progress cost comparisons. The CE-CAMIS Report lists, by function, the important dates of the cost comparison and the number of military and civilian full-time equivalents. CE-CAMIS is sorted by project and by major command. This report is also available on the A-76 web page.

Many people ask how they can make their Most Efficient Organization (MEO) more competitive; therefore, the Help Desk is also gathering lessons learned from past cost comparisons. As lessons learned are collected, benchmarks in civil engineering operations are also being researched.

Competitive sourcing remains an important subject in Air Force civil engineering. Whatever your question or need, the A-76 Help Desk is there to assist you in dealing with this process. Call the Help Desk at DSN 523-4970 or send e-mail to A-76Desk@tynfl.trw.com.

Patricia Coyle is the contract specialist/advisor at the Air Force Civil Engineer Support Agency, Tyndall Air Force Base, Fla.

Visit the A-76 page on AFCESA's web site at www.afcesa.af.mil

CE WORLD

RAF Lakenheath engineers meet the Royal Engineers

by Capt Mark Sloan
RAF Lakenheath, United Kingdom

Sixty-nine civil engineers from the 48th Civil Engineer Squadron, Royal Air Force Lakenheath, United Kingdom, met their British counterparts, the 39th Royal Engineers, at the 48th CES' annual bivouac at Waterbeach Barracks, near Cambridge, England, in October.

The 39th Royal Engineer Regiment, Lead Air Support Squadron, rolls damage repair mat in place over the filled crater. *(Photo courtesy 39th Royal Engineer Regiment, Waterbeach, England.)*

The bivouac, a CE training requirement, was used to share the differing methodologies used by these two units to perform the same wartime tasks.

The 48th CES was able to demonstrate the Air Force standard folded fiberglass mat crater repair method for accomplishing rapid runway repair. The Royal Engineers were able to share their "3-crater repair" method under time pressure.

The Royal Engineers are a British Army unit that meets the engineering needs of the Royal Air Force, which does not have a unit equivalent to a U.S. Air Force civil engineer Prime BEEF Team. The Royal Engineers are a flexible unit that can perform many specialized engineering tasks. Their capabilities include building bridges that can support heavy vehicles in only four hours installation time.

Included in the demonstrations was a joint operation of the Royal Engineers' launch and recovery equipment. Several U.S. airmen assisted the Royal Engineers in laying down a 30-meter long metal road used to support 30-ton vehicles in poor off-road conditions such as mud and soft sand. These "portable roads" are often used to gain access to remote aircraft accident sites where roads to support heavy vehicles do not exist. Maj Joe Ballard, Prime BEEF camp commander, observed, "this was a great opportunity to share training ideas with our British counterparts as well as get a lot of our necessary training completed. It was a huge cooperative success."

Pavement team responds to airfield emergencies

by Maj Barry Mines
HQ AFCESA, Tyndall AFB, Fla.

The Air Force Civil Engineer Support Agency's Airfield Pavement Evaluation (APE) Team supported base and major command CEs with fast responses to unique problems recently at Robins Air Force Base, Ga., and at Augusto César Sandino International Airport at Managua, Nicaragua.

At Robins AFB, on Oct. 29, a large high-pressure water main under the JSTARS Apron ruptured, releasing more than 500,000 gallons of water and resulting in visible damage to the pavement. AFCESA was contacted on Nov. 3 and the APE team was on site Nov. 5 to quantify pavement damage. It was apparent that approximately 30 slabs were affected, evidenced by severe cracks and upheaval. However, there was a great concern that due to the quantity of water and the velocity of the flow, slabs at much greater distances may have been affected.

By Nov. 6, with the use of both a heavy weight deflectometer and a coring machine, the APE team determined that the damage was strictly limited to the general area of the break.

This solid information allowed an emergency repair estimated at $300,000 to proceed with confidence.

On Dec. 1, AFCESA received a call from Headquarters Air Mobility Command requesting a pavement evaluation be performed at the International Airport at Managua, Nicaragua. AMC had a Tanker Airlift Control Element member on site at Managua who had noticed slippage cracks at the touchdown zone of the runway. He thought it might be caused by U.S. Air Force aircraft making 180 degree turns at the end of the runway before back-taxiing. AMC was concerned that the cracks might limit their ability to support humanitarian efforts following Hurricane Mitch.

Less than 48 hours later, a pavement evaluation team engineer was on site at Managua. The engineer determined that the slippage cracks were not a severe structural problem and would not pose a safety problem to U.S. Air Force aircraft. It was also determined that the slippage cracks were fairly old and not due to recent U.S. Air Force operations at this location. The assessment allowed AMC to continue its humanitarian efforts as planned.

EOD school consolidated at Eglin

CE Staff report

Construction is complete on the $16.2 million expansion and consolidation of the Explosive Ordnance Disposal School complex at Eglin Air Force Base, Fla. The bulk of the move of the U.S. Navy Explosive Ordnance Disposal School, from the Naval Surface Warfare Center, Indian Head, Md., to Eglin Air Force Base, Fla., was commemorated with a ribbon cutting ceremony on Jan. 29, 1999.

The U.S. Navy is the single service manager for common EOD training and technology. The Navy-managed EOD school is jointly staffed by approximately 185 Army, Marine Corps, Navy and Air Force personnel. It provides specialized EOD training to officer and enlisted personnel of all services, active-duty, Guard and Reserve, and to selected civilian officials and foreign service members.

Fifty-three Air Force permanent party instructors and staff members are assigned to the school. Lt Col Greg K. Mittelman, USAF, is dual-hatted as the Air Force Liaison Officer to the school and commander of the 366th Training Squadron, Detachment 3.

The EOD school is expected to graduate as many as 800 U.S. soldiers, sailors, marines and airmen a year from its six-month (12 for Navy) basic course. In fiscal year 1999, the Air Force will send 211 students through EOD training. In fiscal year 2000, the number will increase to 267. More than 100 non-U.S. students graduate each year and at least 63 countries have EOD technicians who have been trained at the school.

The new training complex was named for and dedicated to the late Rear Admiral Draper L. Kauffman, who organized and established the first bomb disposal schools and radiological safety schools for the Navy and Army. Learn more about the new EOD complex by visiting the school's web site at http://www.eglin.af.mil/navscoleod/.

Lt Col Greg Mittelman with a formation of students and staff from 366th TRS, Det. 3, during the dedication ceremony of the new Explosive Ordnance Disposal School at Eglin AFB, Fla. ***(Photo courtesy 366th TRS, Det. 3)***

Outside the Box

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following sustainment forces. Remember that someone will have to maintain all of the facilities and systems you install. Also, keep a log of all work to maintain a permanent record. Ensure computers are loaded with software to support these activities.

- Siting of tent city utility corridors must include enough room (15 to 20 feet) behind TEMPER tents to allow a Bobcat-sized (stick-steer) forklift to remove and replace Environmental Control Units. Spacing should be 20 foot minimum if only a 10k all-terrain forklift is available.

- Civil engineers must have dedicated vehicles and equipment in order to complete the beddown in a timely manner. Leased and general-purpose vehicles should go to units that need them most early on (such as CE, LG, etc.). For the first 10 days of the beddown, civil engineers had only one vehicle (3/4 ton pickup truck) available for transporting materials, small equipment, and work crews between work sites.

- Procure and issue items such as dust goggles, scarves and back-pack style water bottles. These items make life in the field a lot more comfortable.

Civil Engineer Award Winners

Lt Gen John W. Handy, Deputy Chief of Staff for Installations and Logistics, Headquarters U.S. Air Force, has announced the recipients of the 1998 Outstanding Civil Engineer Unit Awards, the 1998 Air Force Civil Engineer Awards, and the 1999 National Society of Professional Engineers' Air Force Engineer of the Year Awards. Following are the winners and runners-up (listed respectively). Congratulations to all on their outstanding achievements and contributions to the Air Force mission.

1998 Outstanding Civil Engineer Unit Awards

Large Base Category
86 CEG, Ramstein AB, GE
1 CES, Langley AFB, VA

Small Base Category
92 CES, Fairchild AFB, WA
366 CES, Mt. Home AFB, ID

Nominees for this annual Outstanding Unit award are selected based on their achievements and exemplary performance in readiness, resources management, environmental and resources conservation, community relations, quality Air Force initiatives and assessment.

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.

1998 Air Force Civil Engineer Awards

Outstanding Civil Engineer Senior Military Manager
Lt Col Tracey A. Walker, 89 CES, Andrews AFB, MD
Lt Col Bobbie L. Griffin, 86 CES, Ramstein AB, GE

Outstanding Civil Engineer Military Manager
2d Lt Jason T. Reinhardt, 49 MMS, Holloman AFB, NM
Capt Christian J. Knutson, 100 CES, RAF Mildenhall, UK

Outstanding Civil Engineer Military Superintendent
MSgt William D. Huls, 49 MMS, Holloman AFB, NM
MSgt Joseph Tarro, 16 CES, Hurlburt Field, FL

Outstanding Civil Engineer Military Technician
SrA Ted L. Wicker, 90 CES, F.E. Warren AFB, WY
TSgt Kevin J. Mauer, USAFE CTS, Ramstein AB, GE

The Harry P. Reitman Award (Senior Civilian Manager)
GS-15 Teresa R. Pohlman, HQ USAF, Washington DC
WS-15 Charles L. Giddens, 305 CES, McGuire AFB, NJ

Outstanding Civil Engineer Civilian Manager
GS-8 Edward B. Lawson, 62 CES, McChord AFB, WA
WS-10 Lloyd Ingram, 30 CES, Vandenberg AFB, CA

Outstanding Civil Engineer Civilian Supervisor
TG-1 David A. Rolph, 100 CES, RAF Mildenhall, UK
WS-6 Randall A. C. Smith, 354 CES, Eielson AFB, AK

Outstanding Civil Engineer Civilian Technician
WG-9 Gary G. Throm, 9 CES, Beale AFB, CA
WG-10 Donald L. McCraney, 796 CES, Eglin AFB, FL

Outstanding Civil Engineer Individual Mobilization Augmentee Officer Manager
Maj Steven W. Anderson, 62 CES, McChord AFB, WA
Lt Col Brian J. Lally, HQ USAF, Washington DC

Outstanding Civil Engineer Individual Mobilization Augmentee Enlisted Manager
MSgt Jimmy M. Sinks, 314 CES, Little Rock AFB, AR
MSgt Leonard B. Howard, HQ AFCESA, Tyndall AFB, FL

Major General Joseph A. Ahearn Enlisted Leadership Award
CMSgt Robert C. Fairey, 36 CES, Andersen AFB, Guam
CMSgt Alfred J. Gonzales, 795 CES, Edwards AFB, CA

Major General William D. Gilbert Award (Officer Category)
Maj John W. Laviolette, HQ ACC, Langley AFB, VA
Maj Frederick L. Williams, HQ AMC, Scott AFB, IL

Major General William D. Gilbert Award (Enlisted Category)
CMSgt Ricky A. Jones, HQ ACC, Langley AFB, VA
MSgt Dan Red Cloud, HQ AFCESA, Tyndall AFB, FL

Major General William D. Gilbert Award (Civilian Category)
GS-13 Steven T. Rose, HQ USAFE, Ramstein AB, GE
GS-13 Michelle A. Linn, HQ AFSPC, Peterson AFB, CO

Society of American Military Engineers (Newman Medal)
Col David M. Cannan, HQ AETC, Randolph AFB, TX
Col Scott L. Smith, 86 CEG, Ramstein AB, GE

Society of American Military Engineers (Goddard Medal)
Active Duty
MSgt James D. Stilwell, 21 CES, Peterson AFB, CO
MSgt Paul D. Taylor, 56 CES, Luke AFB, AZ

Air Force Reserve Command
SSgt Laurie C. Stensland, 916 CES, Seymour Johnson AFB, NC

Air National Guard
TSgt William J. Pullar, 105 CES, New York ANG, Newburgh, NY

Brigadier General Michael A. McAuliffe Award (Air Force Civil Engineer Housing Flight)
354 CES, Eielson AFB, AK
86 CES, Ramstein AB, GE

Major General Robert C. Thompson Award (Air Force Civil Engineer Resources Flight)
31 CES, Aviano AB, IT
347 CES, Moody AFB, GA

Brigadier General Archie S. Mayes Award (Air Force Civil Engineer Engineering Flight)
8 CES, Kunsan AB, ROK
5 CES, Minot AFB, ND

Chief Master Sergeant Ralph E. Sanborn Award (Air Force Civil Engineer Fire Protection Flight)
314 CES, Little Rock AFB, AR
3 CES, Elmendorf AFB, AK

Senior Master Sergeant Gerald J. Stryzak Award (Air Force Civil Engineer Explosive Ordnance Disposal Flight)
86 CES, Ramstein AB, GE
314 CES, Little Rock AFB, AR

Colonel Frederick J. Reimer Award (Air Force Civil Engineer Readiness Flight)
52 CES, Spangdahlem AB, GE
90 CES, F.E. Warren AFB, WY

Major General Clifton D. Wright Award (Air Force Civil Engineer Operations Flight)
52 CES, Spangdahlem AB, GE
509 CES, Whiteman AFB, MO

Environmental Flight Award
86 CES, Ramstein AB, GE
30 CES, Vandenberg AFB, CA

1999 National Society of Professional Engineers' Air Force Engineer of the Year Award

Military
Capt Thomas A. Bongiovi, 820 RHS, Nellis AFB, NV

Civilian
Mr. Gary M. Erickson, HQ Air Force Center for Environmental Excellence, Brooks AFB, TX

The awards were presented Feb. 23 at the 37th Annual Civil Engineer Awards Luncheon at Bolling AFB, Washington, D.C.

It's Your Turn … Submit an Article to The CE

Air Force civil engineers do amazing work, often under difficult circumstances or in the face of great adversity. From structural engineers to utilities specialists, heavy equipment operators, firefighters and EOD technicians—their missions are as varied as the specialties that make up the career field. And their jobs take them all over the globe: to accomplish bare base beddowns in Southwest Asia, natural disaster relief in Central America, humanitarian assistance in Eastern Europe, and so on. The mission of *The Civil Engineer* (*The CE*) magazine is to help Air Force civil engineers perform their mission. Whether it be an article on emergency runway repairs, flood relief efforts, new safety programs, educational opportunities, or policy changes, *The CE* magazine is for and about Air Force civil engineers.

We welcome articles about Air Force civil engineers. Writing an article for *The CE* 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 solution to a seemingly impossible problem? These are just a few of many possible topics that would make a great article for *The CE* magazine. If you have an idea for an article on a particular career field or engineering topic, please call our office and let us know. We need your help to make *The CE* the most useful publication possible.

All submissions will receive full consideration. However, it's a good idea to call the editor first to make sure that the subject is appropriate.

To submit an article, follow these simple guidelines. Putting words on paper is as easy as telling someone a story. Write in simple, conversational language. Assume the reader has an engineering background but is unfamiliar with your particular topic. Avoid acronyms and technical jargon as much as possible. Spell out all proper names, units of assignment, equipment items, etc. This will help make your article interesting to everyone.

Photos are a great addition to a story, especially photographs of engineers "in-action." Color slides or prints work best for the magazine. High-resolution digital images can sometimes be used, too. Include photo captions that explain the action, identify the subject(s) and credit the photographer. Do not staple, paper clip, or mark on the photo.

Regarding length—articles of approximately 1,000 to 1,500 words will normally result in a 2-page layout with a couple of photographs. However, longer or shorter is fine. Use whatever length is necessary to tell the story. When your draft is complete, clear it with the appropriate person(s) in your unit and e-mail it to us. Once an article is received in our office, it is then prepared for publication. Expect your article to be edited for space and clarity, and according to Associated Press (newspaper/magazine) style guidelines. Articles will be printed in the next issue on a space-available basis.

The CE staff is always available to help with any aspect of an article. Call the editor at DSN 523-6242 or commercial (850) 283-6242, or send e-mail to cemag@afcesa.af.mil.

TRAINING

On Track

by MSgt Ron Brown
HQ AFCESA, Tyndall AFB, Fla.

In recent years, civil engineer training has seen the advent of computer-based training to augment both classroom and on-the-job education. The result has been significant cost savings and other training successes. We are now on the verge of being able to offer more time and cost savings, along with a high quality product that is convenient, flexible and effective. Introducing … COVER Train!

COVER Train (Contingency, Operations and Vocational Engineer Review Training) is a quick, flexible, inexpensive and simple way to deliver training to the field. The Air Force Civil Engineer Support Agency (AFCESA) developed this innovative approach in response to the need to consolidate subject and task knowledge training tools. COVER Train also aims to maintain trainee/trainer motivation as well as improve information retention. AFCESA is currently coordinating with other Air Force training agencies to facilitate implementation of the record-keeping feature of COVER Train.

With civil engineer education and training's relatively short shelf life (one to three years) and "intra-disciplinary diversity", AFCESA has been striving to develop a delivery platform that increases standardization in training, and one that helps eliminate high printing and distribution costs. The answer—consolidating all training tools, devices and instruments into one delivery system. In other words, *one-stop-shopping*. COVER Train will be used as a singular platform for civil engineer training instruments, i.e. Career Field Education Training Plans, Career Development Courses, Air Force Qualification Training Packages, etc. This platform is designed for use at home, in the field, or on deployments, and will offer Internet links to quickly and efficiently capture the most current information.

Although initial releases of COVER Train will be delivered exclusively in CD-ROM format, AFCESA is considering DVD (i.e. digital versatile disk) technology. The greater data density of DVD, versus CDs, would allow the entire COVER Train program to be shipped on one disk.

COVER Train will be field-tested by selected units beginning this summer. Worldwide distribution is expected to be complete before the year 2000.

New version of CerTest released

CerTest 3.0, the latest version of AFCESA's computer-based certification testing program, is now available. Over the last few years, the CerTest program has shifted from "optional" to "required" use in the operational Air Force Specialties. Accordingly, this new version contains all of the most current tests for Qualification Training Packages, as well as several new and revised tests, including Certification Course Review Exercises and Hazardous Materials tests. The new version of CerTest is Y2K-compliant and Windows NT compatible. Other new features include updated procedural guides, improved test editor navigation and enhanced site-specific test capabilities, along with an on-line question challenge form and toolbar tool tips.

This latest release of CerTest was accompanied by a live training broadcast Mar. 18, 1999, on the Air National Guard Warrior Network. Viewers were able to call in and ask questions during the hour-long program. For those who missed the live broadcast—stay tuned. The live program was recorded and will be rebroadcast throughout the year. Check local broadcast schedules for times.

For any questions or concerns regarding these products, please contact MSgt Ron Brown at DSN 523-6380 or via e-mail, Ronald.Brown@afcesa.af.mil.

CE PEOPLE

Aimone aboard as Deputy Air Force Civil Engineer

Michael A. Aimone, P.E., is the new Deputy Air Force Civil Engineer, Headquarters U.S. Air Force, Washington, D.C.

Aimone is a member of the Senior Executive Service, and a retired colonel in the Air Force Reserve. He comes to his new position from Malmstrom AFB, Mont. where he served on extended active duty from July 1997 through December 1998 as commander of the 819th RED HORSE Squadron.

Aimone entered the Air Force as a civil engineer officer in 1970 and served on active duty until 1979. His active duty assignments included the 554th RED HORSE Squadron at Da Nang, Republic of South Vietnam, and the Air Force Institute of Technology at Wright-Patterson AFB, Ohio, and the Air Force Engineering and Services Center, Tyndall AFB, Fla. While on active duty, he earned a master of science degree in electrical engineering at the University of Florida, Gainesville, and completed Squadron Officer School.

Aimone joined Federal Civil Service as a project electrical engineer at Headquarters Air Force, Washington, D.C. in 1980. He was the Assistant Deputy Chief of Staff for Engineering and Services, Air Force Communications Command, Scott AFB, Ill., from 1986 through 1990. He served in various supervisory capacities in the Department of the Air Force and the Office of the Secretary of Defense until 1993 when he left federal civil service. From 1993 until his recall to active duty in 1997, Aimone was the Vice President of Engineering at SKM Systems Analysis, Inc., Manhattan Beach, Calif.

He is a distinguished graduate of the Industrial College of the Armed Forces, and completed Air Command and Staff College and Air War College. He is a registered Professional Engineer in the states of Virginia, Ohio, Wisconsin and California.

AFCESA earns Air Force award

The Air Force Civil Engineer Support Agency received the Air Force Organizational Excellence Award for the eighth time in the agency's history Oct. 9. The award is presented to military units that distinguish themselves during peacetime, hostilities, or contingency operations. AFCESA received the award for exceptionally meritorious service for providing "unparalleled professionalism and technical expertise … to civil engineers everywhere," during the period Jan. 1, 1995, to Dec. 31, 1996.

AFCEE greets new executive director

Col C. Rick Coneway is the new executive director of the Air Force Center for Environmental Excellence. He succeeds Col Jerrold Harrington who retired in October, 1998. Coneway, a member of the Air Force Reserve, was previously assigned as AFCEE's senior individual mobilization augmentee.

Coneway's military experience includes more than 30 years cumulative service with the Navy, the Texas Air National Guard and the Air Force Reserve. As a civil engineer officer, Coneway has served at the squadron, group and numbered Air Force levels.

CEs contribute to AMC's "Year of the Family"

by A1C C. Todd Lopez
436th Airlift Wing Public Affairs

For the ninth year in a row, members of the 436th Civil Engineer Squadron provided toys to the children of CE airmen. The effort was especially significant this Christmas since Air Mobility Command declared fiscal year 1999 as the "Year of the Family."

Mary-Lou Hagelberg, coordinator of the "Adopt-A-Child" program, and her husband, MSgt. (ret.) Paul Hagelberg came up with the idea nearly a decade ago. "We both work at CE. This was a way for him to give something back after 27 years of active duty," said Hagelberg.

"The entire squadron participates," said MSgt. Ricardo Rodriguez, 436th Civil Engineer first sergeant, "Every flight volunteers to sponsor a child."

"We want to spread the Christmas cheer and take care of each other around the squadron," said Rodriguez. "You know, this is just a small thing we can do for our families here in CE. We've done this for nine years, and it's funny that Year of the Family is coming about just this year, because we've had Year of the Family here in CE for nine years."

Air Force Civil Engineer Senior Officers and Civilians

HQ USAF	Maj Gen	Lupia, Eugene A.	Pentagon	The Air Force Civil Engineer
HQ USAF	Brig Gen	Enyart, Larry	Pentagon	IMA to The Civil Engineer
HQ AMC	Brig Gen	L. Dean Fox	Scott AFB	Command Civil Engineer
HQ ACC	Brig Gen	Robbins, Earnest O., II	Langley AFB	Command Civil Engineer
HQ AFMC	Brig Gen	Stewart, Todd L.	Wright-Patterson AFB	Command Civil Engineer
Senior Officers				
AFMC	Col	Alston, Lavon	Kirtland AFB	Commander, 377 CEG
AETC	Col	Amend, Joseph H., III	Wright-Patterson AFB	Dean, CE & Svc. School, AFIT
HQ USAF	Col	Baldwin, Carey	Pentagon	Chief, Operations Div.
HQ AFMC	Col	Ballog, Dennis F.	Wright-Patterson AFB	Chief, Engineering & Construction Div.
HQ AFCESA	Col	Bartel, H. Dean	Tyndall AFB	Commander, AF Civil Engineer Support Agency
HQ PACAF	Col	Barthold, Bruce R.	Hickam AFB	Chief, Programs Div.
AMC	Col	Bird, David F., Jr.	Travis AFB	Commander, 60 SPTG
AFSPC	Col	Boyce, Steven C.	Vandenberg AFB	Commander, 30 CES
HQ PACAF	Col	Bradford, Don-Michael	Hickam AFB	Chief, Operations Div.
PACAF	Col	Bradshaw, Joel C., III	Elmendorf AFB	Eleventh Air Force Civil Engineer
HQ AMC	Col	Brangenberg, Gerard A.	Scott AFB	Chief, Operations & Readiness Div.
HQ AFCESA	Col	Brendel, Lance C.	Tyndall AFB	Director, Technical Support
HQ ACC	Col	Brown, Fred	Langley AFB	Chief, Base Support Div.
HQ PACAF	Col	Burns, Patrick A.	Hickam AFB	Deputy Command Civil Engineer
HQ AETC	Col	Cannan, David M.	Randolph AFB	Command Civil Engineer
HQ ACC	Col	Carmody, Cornelius J.	Langley AFB	Chief, Programs Div.
AFMC	Col	Charles, Jeffrey	Wright-Patterson AFB	Commander, 88 CEG
HQ AFCEE	Col	Coke, Ronnie	Brooks AFB	Chief, Environmental Restoration
HQ AFCEE	Col	Coneway, C. Rick	Brooks AFB	Executive Director
FL ANG	Col	Cook, Jere	Camp Blanding	Commander, 202 RHS
AFMC	Col	Cook, Michael J.	Hill AFB	Commander, 75 CEG
HQ USAFE	Col	Coullahan, Patrick M.	Ramstein AB	Chief, Environmental Div.
AFMC	Col	Cuddihee, Michael A.	Tinker AFB	Commander, 72 CEG
CO ANG	Col	Cunningham, Greg	Buckley ANGB	Commander, 240 CEF
HQ USAF	Col	DeFoliart, David W.	Pentagon	Chief, Programs Div.
HQ PACAF	Col	Destadio, Frank J.	Hickam AFB	Command Civil Engineer
AETC	Col	DiRosario, Joseph P.	Maxwell AFB	Commander, 42 SPTG
SAF/MII	Col	Drake, William J.	Pentagon	Director, Facilities Mgmt
AMC	Col	Elliott, Gus G., Jr.	Fairchild AFB	Commander, 92 SPTG
HQ USAF	Col	Eng, William F.	Pentagon	Chief, Engineering Div.
HQ AFSOC	Col	Estes, John H., IV	Hurlburt Field	Command Civil Engineer
AETC	Col	Eulberg, Delwyn R.	Randolph AFB	Commander, 12 SPTG
AFMC	Col	Fernandez, Richard	Eglin AFB	Commander, 96 CEG
HQ AETC	Col	Fink, Patrick	Randolph AFB	Chief, Environmental Div.
ACC	Col	Fisher, C. Brian	Holloman AFB	Commander, 49 Materiel Maintenance Group
ACC	Col	Fitz, Michael S.	Shaw AFB	Commander, 20 SPTG
PACAF	Col	Formwalt, William	Osan AB	Seventh Air Force Civil Engineer
AFSOUTH (NATO)	Col	Garcia, Samuel E.	Naples, Italy	Chief, NATO Security Investmt Prgm
HQ AETC	Col	Gilbert, Russell L.	Randolph AFB	Deputy Command Civil Engineer
HQ AFMC	Col	Griffith, Thomas M.	Wright-Patterson AFB	Chief, Operations Div.
PACAF	Col	Guy, Homer L.	Yokota AB	Fifth Air Force Civil Engineer
HQ USAFE	Col	Haggstrom, Glenn D.	Ramstein AB	Command Civil Engineer
PACAF	Col	Hansen, Kevin P.	Elmendorf AFB	Commander, 3 CES
MO ANG	Col	Hart, Darrell E.	Lambert IAP	Commander, 231 CEF
AFMC	Col	Hayden, Thomas F., III	McClellan AFB	Commander, 77 CEG
HQ AFRC	Col	Heiniger, Gordon	Robins AFB	Chief, Readiness Div. (IMA)
MO ANG	Col	Hobbs, Ron	Lambert IAP	Deputy Commander, 231 CEF
OSD	Col	Horsfall, John D.	Pentagon	Asst. Director, Installation Mgmt Policy
HQ ACC	Col	Hrapla, Michael F.	Langley AFB	Assistant Command Civil Engineer
ACC	Col	Hutchinson, Darrell B.	Nellis AFB	Commander, 558 CES
PACAF	Col	Ingenloff, Richard	Hickam AFB	Commander, 15 SPTG
OSD/RA (M&F)	Col	Jameson, Stephen A.	Pentagon	Deputy Director, Construction
HQ ACC	Col	Janiec, Gordon	Langley AFB	Commander, 1 CES
HQ USAFE	Col	Jeffreys, John R.	Ramstein AB	Chief, Operations Div.
AFMC	Col	Judkins, James E.	Edwards AFB	Commander, 95 CEG
HQ PACAF	Col	Kahler, James W.	Hickam AFB	Chief, Environmental Quality Div.
HQ AFMC	Col	Kennedy, James R.	Wright-Patterson AFB	Chief, Organization & Privatization Div.
HQ AMC	Col	Kloeber, Peter K.	Scott AFB	Deputy Command Civil Engineer
HQ PACAF	Col	Korslund, Per A.	Hickam AFB	Chief, Readiness Div.
MD ANG	Col	Kreidler, Jerold	Warfield ANGB	Commander, 235 CEF
AFMC	Col	Lancaster, Louis K.	Kelly AFB	Commander, 76 CEG
HQ AFCESA	Col	Lopez, Donald T.	Tyndall AFB	IMA to the Commander
HQ AMC	Col	Love, Francis E.	Scott AFB	Chief, Planning and Programming Div.
HQ ANG	Col	Lundgren, Samuel G.	Andrews AFB	The ANG Civil Engineer
ACC	Col	Mayfield, Edward D.	Prince Sultan AB	Commander, 363 ESPTG
HQ AFCESA	Col	McConnell, Bruce F.	Tyndall AFB	Director, Contingency Support
HQ AFMC	Col	McDonald, Thomas J.	Wright-Patterson AFB	Director, Installation Support
HQ AFRC	Col	Meister, Donald J.	Robins AFB	Command Civil Engineer
HQ ACC	Col	Minto, Paul E.	Langley AFB	Chief, Readiness Div.
AFMC	Col	Mogge, John W., Jr.	Robins AFB	Commander, 78 CEG
HQ AFCESA	Col	Moreau, David C.	Tyndall AFB	Director, Executive Support
AMC	Col	Norrie, Michael	Travis AFB	Commander, 60 CES
ACC	Col	Parker, Richard	Nellis AFB	Commander, 820 CES
HQ ACC	Col	Patrick, Michael R.	Langley AFB	Chief, Environmental Programs Div.
HQ AFSPC	Col	Perry, Gilbert	Peterson AFB	Deputy Command Civil Engineer

HQ ACC	Col	Peters, Robert L., II	Langley AFB	Chief, Privatization Div.
AMC	Col	Pokora, Edward J.	Andrews AFB	Commander, 89 CES
PACAF	Col	Quinn, William	Kadena AB	Commander, 18 CEG
HQ USAFE	Col	Riggs, Gregory E.	Ramstein AB	Assistant Command Civil Engineer
ACC	Col	Rojko, Paul M.	Pope AFB	Commander, 43 SPTG
AMC	Col	Ryburn, James T.	McGuire AFB	Commander, 305 SPTG
HQ AFSPC	Col	Schmidt, Michael H.	Peterson AFB	Chief, Programs Div.
HQ AFCEE	Col	Seely, Gregory	Brooks AFB	Director, Environmental Quality
OSD	Col	Selstrom, John	Pentagon	Dir, Env. Restoration Program Mgmt
HQ AETC	Col	Singel, Kenneth R.	Randolph AFB	Chief, Programs Div.
USFK	Col	Skrypczuk, Oleh	Yong San, Korea	DACOS, Engineer
HQ USAF	Col	Smith, Emmitt	Pentagon	Chief, Housing Div.
USAFE	Col	Smith, Scott L.	Ramstein AB	Commander, 86 CEG
CO ANG	Col	Sprenkle, Dave	Buckley ANGB	Deputy Commander, 240 CEF
HQ AFMC	Col	Stanley, Tad A.	Wright-Patterson AFB	Deputy Command Civil Engineer
HQ ACC	Col	Stephens, Eric	Langley AFB	IMA to the Command Civil Engineer
HQ USAF	Col	Streifert, Scott	Pentagon	Deputy Chief, Programs Div
HQ AFCEE	Col	Strom, Randie	Brooks AFB	Chief, Environmental Conservation & Planning
HQ USAF	Col	Sweat, David A.	Pentagon	Chief, Comp. Sourcing & Privatization Div.
USAFA	Col	Swint, David O.	USAF Academy	Professor & Dean of Fac., Civil & Env. Eng.
HQ AFSPC	Col	Tickel, J. Carlton, Jr.	Peterson AFB	Command Civil Engineer
HQ AETC	Col	Turner, Randall L.	Randolph AFB	Chief, Operations Div.
ACC	Col	Wallington, Cary R.	Moody AFB	Commander, 347 SPTG
USAFA	Col	Waylett, Susanne M.	USAF Academy	USAFA Civil Engineer & Commander, 10 CEG
ACC	Col	Woods, Clinton C.	Hurlburt Field	Commander, 823 RHS
Senior Civilians				
HQ USAF	SES	Aimone, Michael A.	Pentagon	Deputy Air Force Civil Engineer
HQ AFCEE	SES	Erickson, Gary M.	Brooks AFB	Director, AF Center for Env. Excellence
AFBCA	SES	Lowas, Albert F., Jr.	Arlington VA	Director, AF Base Conversion Agency
AFMC	GM-15	Bailey, Lawrence O., Jr.	Kelly AFB	Deputy Director, Environmental Mgmt
HQ AFCEE	GM-15	Bakunas, Edward J.	Brooks AFB	Supervisory Community Planner
HQ USAF	GS-15	Barrett, Robert C., III	Pentagon	Chief, Programs & Analysis Branch
HQ AFSPC	GS-15	Bratlien, Michael D.	Peterson AFB	Chief, Engineering Div.
AFMC	GM-15	Brunner, Paul G.	McClellan AFB	Environmental Manager
AFBCA	GS-15	Carr, John	Arlington VA	Program Manager, Div. B
AFMC	GM-15	Clark, Michael J.	Eglin AFB	Deputy Director of Civil Engineering
HQ ANG	GM-15	Conte, Ralph	Andrews AFB	Command Supervisory General Engineer
AFBCA	GS-15	Corradetti, John J., Jr.	Arlington VA	Program Manager, Div. A
HQ USAF	GM-15	Corsetti, William V.	Pentagon	Deputy Chief, Installations Development Branch
AFMC	GS-15	Dalpais, E. Allan	Hill AFB	Supervisory Environmental Manager
HQ AFMC	GS-15	Daniels, Ralph F.	Wright-Patterson AFB	Director, Programs Div.
HQ AFCESA	GM-15	Daugherty, Patrick C.	Tyndall AFB	Chief, Mechanical/Electrical Div.
USSOCOM	GS-15	Dwight, Stephen F.	MacDill AFB	Command Civil Engineer
AFREA	GS-15	Edwards, William E.	Bolling AFB	Director, AF Real Estate Agency
HQ USAFE	GS-15	Ferguson, Kathleen I.	Ramstein AB	Chief, Programs Div.
HQ AFCESA	GS-15	Firman, Dennis M.	Tyndall AFB	Executive Director, AF Civil Eng. Spt. Agency
AFBCA	GS-15	Frank, Joyce K.	Arlington VA	Deputy Director, AF Base Conversion Agency
HQ USAF	GS-15	Franklin, George H., Jr.	Pentagon	Chief, Facility Privatization Branch
HQ AFMC	GS-15	Garcia, Marvin L.	Wright-Patterson AFB	Chief, Environmental Div.
AFMC	GS-15	Hagood, Jean R.	Robins AFB	Director, Environmental Mgmt
AFMC	GM-15	Hector, Richard G.	Edwards AFB	Dir, Environmental Protection & Planning Ofc
AFBCA	GS-15	Jackson, Dale O.	Arlington VA	Program Manager, Div. D
AFMC	GS-15	Johnson, Gary K.	Wright-Patterson AFB	Deputy Base Civil Engineer
AFCEE	GM-15	Lammi, Phillip E.	San Francisco CA	Supervisory Community Planner
SAF/MII	GS-15	Leehy, Lawrence R.	Pentagon	Director for Installations Mgmt
HQ AFCEE	GS-15	Leighton, Bruce R.	Brooks AFB	Supervisory General Engineer
AFCEE	GM-15	Lopez, Edward	Dallas TX	Supervisory Community Planner
AFSPC	GM-15	Lowsley, James P.	Vandenberg AFB	Deputy Base Civil Engineer
HQ AMC	GS-15	Mack, Robert D.	Scott AFB	Director, Housing
HQ ACC	GS-15	Moore, Robert M.	Langley AFB	Deputy Chief, Programs Div.
AFMC	GS-15	Napoli, Albert L., Jr.	Tinker AFB	Environmental Protection Officer
HQ AFCEE	GM-15	Nelson, Glenn E., Jr.	Brooks AFB	Supervisory General Engineer
HQ ACC	GS-15	Parker, Paul A.	Langley AFB	Chief, Operations Div.
HQ AFCEE	GS-15	Perritt, Rolan M.	Brooks AFB	Chief, Architecture Div.
HQ USAF	GS-15	Pohlman, Teresa R.	Pentagon	Chief, Environmental Div.
AFMC	GM-15	Polce, Ronald L.	Arnold AFB	Technical Director for Facilities
HQ USAF	GM-15	Reinertson, Kenneth L.	Pentagon	Chief, Environmental Planning Branch
HQ AFCEE	GM-15	Ritenour, Donald L.	Brooks AFB	Director, Design Group
AFBCA	GS-15	Sailer, Gilbert E.	Arlington VA	Special Assistant for Real Property
HQ AFMC	GM-15	Sculimbrene, Anthony F.	Wright-Patterson AFB	Director, Environmental Mgmt
HQ AFCEE	GS-15	Shebaro, Bassim D.	Brooks AFB	General Engineer
AFCEE	GM-15	Sims, Thomas D.	Atlanta GA	Supervisory Community Planner
AFBCA	GS-15	Smith, John Edward B.	Arlington VA	Chief, Environmental Programs and Plans
AFMC	GS-15	Stephens, Eric L.	Brooks AFB	Supervisory General Engineer
HQ USAFE	GM-15	Thompson, John D.	Ramstein AB	Chief, Engineering Div.
AFMC	GS-15	Tuss, Margarita Q.	Wright-Patterson AFB	Chief, Engineering Div.
HQ AMC	GS-15	Van Buren, John L.	Scott AFB	Chief, Project Engineering Div.
HQ ANG	GM-15	Vangasbeck, David C.	Andrews AFB	Chief, Environmental Div.
HQ AFMC	GS-15	Whitney, Richard G.	Wright-Patterson AFB	Director, Acquisition Environmental
HQ ANG	GM-15	Whitt, William B.	Andrews AFB	Command Supervisory General Engineer
HQ AFCESA	GM-15	Wilson, Edward E., Jr.	Tyndall AFB	Chief, Civil Engineering Div.
AFMC	GS-15	Wood, Richard A.	Edwards AFB	Director, Environmental Protection
HQ PACAF	GM-15	Yasumoto, Stanley Y.	Hickam AFB	Chief, Engineering Div.
SAF/MIQ	GS-15	Yonkers, Terry A.	Pentagon	Deputy for Resource Mgmt.
HQ AETC	GM-15	Zugay, Anthony	Randolph AFB	Chief, Engineering Div.

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