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Leading The Change

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On the Cover

Mr. Joe Sciabica provides remarks after becoming the first director of the Air Force Civil Engineer Center during the unit's activation ceremony Oct. 1 at Joint Base San Antonio-Lackland, Texas. (photo by Ms. Robbin Cresswell)

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Initial Operating Capability

When I became the Civil Engineer in 2009, CE Transformation had been underway for two years. Our change occurred at a deliberate pace, with various processes and organizational structures changing when it was natural to do so. Change took time, but we knew that we were on the right path. When we began accelerating our transformation November 2011, we did so in response to the current period of resource austerity. This gave us the opportunity to make rapid changes across our community.

Today, nearly one year after we began CE Transformation ... Accelerated (CET-A), and five years since we embarked on the transformation journey, our community is making tremendous progress. On Oct. 1, 2012, we achieved initial operating capability (IOC), which marks the beginning of a new era within Air Force Civil Engineering. With the signing of Program Action Directive 12-03, we can move forward assigning responsibilities and changing many of our processes.

On the same day we reached IOC, we activated the Air Force Civil Engineer Center, or AFCEC, in San Antonio, Texas. I had the honor of presiding over the ceremony that inactivated two legacy field operating agencies — the Air Force Center for Engineering and the Environment (AFCEE) and the Air Force Real Property Agency (AFRPA) — and redesignated the Air Force Civil Engineer Support Agency (AFCESA) as the Civil Engineer community's premier FOA, providing flexible, full-spectrum engineering services to installations and MAJCOMs. You can read more about our new FOA on p. 8 of this issue of CE Magazine.

While IOC and AFCEC's activation mark significant milestones for the Civil Engineer community, there is still much more work that needs to be done. In other words, we're at half-time, and our team needs to drive toward the end goal and execute our Installation Campaign Plan. That goal is full operating capability, scheduled for Oct. 1, 2014. This is the day we must have our transformation-related changes implemented. We're already well underway, with reorganization efforts in progress at major command and squadron levels, all with the goal of centralizing or standardizing program management and execution, processes, and support requirements. The overall objective is to continue to deliver the same outstanding support to installations and to the warfighter, but smarter, faster, better, and cheaper.

Our new, systematic approach to preventive maintenance, discussed on p. 14, is one example of how our squadrons will conduct the business of installation support in the future to focus efforts, reduce mission risk, and standardize maintenance tasks across our enterprise. Our asset management approach is key to all of CET-A efforts and fundamental to our continued success despite the challenges of constrained resources and reduced manpower. In his article on p. 4, the Deputy Civil Engineer, Mr. Mark Correll, underscores the importance of good data management to effective asset management.

Thank you all for the hard work and commitment you have brought to our efforts. I am excited about our future: together, we are building an enterprise that enables us to Build Ready Engineers, Build Great Leaders, and Build Sustainable Installations now and in the future.

Timothy A. Byers
Major General, USAF
The Civil Engineer

Data Management: Key to Asset Management

Mr. Mark A. Correll
AF/A7C-2

In our fast-paced Air Force, we engineers take pride in our ability to provide installation management and expeditionary combat support worldwide. We've earned the respect of our fellow Airmen as well as our joint and coalition partners because of our ability to get the job done. We have a "Find a Way or Make a Way" attitude that defines all Air Force Civil Engineer Airmen and civilians.

We love to get the job done so much that we generally hate the required paperwork and promise to get to it later. In fact, the incredible demands placed upon us to get more work done have often made it necessary and even easy to put "later" off indefinitely. When resources were decentralized and asset management was at the shop foreman level, we used data calls to gather and develop Air Force-wide requirements. Using "just-in-time" manual inputs allowed us to put off the paperwork until somebody asked for it. However, we will no longer be able to use these past practices as we centralize resources, focus on enterprise-wide asset management, and accept auditability responsibility.

Your first question is probably, "What is the paperwork we are talking about?" Well, for starters, it isn't necessarily really paper. It is "paperwork" in the form of central, electronic databases from which decisions will be made on how much, if any, money and manpower your installation receives — the supporting documentation we use to justify what we want to do and more. It is the data we use to track what we have, what condition it is in, what we have done or want to do to it, and how much we have spent or want to spend on it. It includes real property records that must be up to date not just in terms of whether facilities really exist but also are accurately listed in size, type, age and all the other elements that make up a real property record. It also includes accurate programming documents (with justifications), cost estimates, energy data, environmental data and more. It means accurately accounting for the labor and materials used to maintain a building — actually charging time and materials where work was done —and not using generic collection work orders because it is easier.

Your next questions are probably, "Why should I care if this is right? What happens if I just keep doing what I've always done?" The answers are, "You won't get the money or manpower you need, and you will waste a significant portion of the money you do receive." Bottomline, you will limit your ability to meet the installation's mission.

Some funds —MILCON, environmental quality, and environmental restoration — are already centralized. But beginning Oct. 1, 2013, the Air Force will centralize a portion of the sustainment funds you rely on for daily operations and all of the restoration and modernization funds that pay for large facility renovations and upgrade. We will now begin distributing funds across the Air Force on a "mission critical, worst first" rather than a "fair share" basis. If your data says your base is in good shape, we will send funds to a base in less good shape. This is why your data needs to be right; inaccuracies greatly impact our ability to determine where we need to apply our funds.

All of this is really a discussion of our asset management approach, with the important message, "We've moved from talk to implementation and your data is the basis of our asset management decisions." Asset management principles form the foundation of our accelerated transformation and we have in fact been focusing on the worst problems first at the installation level for years. Now we plan to use these principles at all levels to decide where our Air Force facility dollars go. Civil Engineer squadrons will focus

on operating and sustaining our installations and providing expeditionary combat support. MAJCOMs and the Air Force Civil Engineer Center (AFCEC), the new Civil Engineer field operating agency, will support our squadrons using the same asset management principles to inform their activities.

Accurate and comprehensive data is the key to effective asset management. It enables us to apply our austere resources to critical requirements with enough flexibility to ensure smart decision making. However, in order for this approach to be effective, we must collect and maintain accurate data in our IT systems.

Enabling Situational Awareness of Assets

Civil engineers manage more than 600 million square feet of real property, all of which must be inventoried and documented. Engineers must also know the right details about our assets, such as age, use, and condition. We must also know if an asset is nearing the end of its service life, and the impact on the mission if the asset fails. This information will help us make smarter resourcing decisions. This need for knowledge is also what makes asset management a data-centric endeavor. We must have standardized, accurate, high quality data; anything less affects our ability to effectively and efficiently manage Air Force assets.

Data and the systems that manage it allow us to conduct performance analysis at all levels. At the base level, we can determine where we should invest the sustainment dollars and put them to the best use. At the Air Force level, we will analyze our infrastructure by comparing standardized, enterprise-wide data to base resourcing decisions on the best use of available funds. To provide a clear, comprehensive Air Force portfolio that allocates resources effectively, in a way that best mitigates risks to mission and to Airmen, we must maintain diligent data collection and sustainment methods.

How Data Informs Decision Making

Accelerated transformation is resulting in the centralization of many responsibilities once conducted at the installation level. These include resourcing, planning, and programming responsibilities, all of which require accurate and comprehensive data to make smart, effective decisions.

For execution year planning, we will continue to use our Comprehensive Asset Management Plans as a tool to make smarter decisions, documenting prioritized requirements based on the data we collect at the installation level. Civil Engineer squadrons will develop Base Comprehensive Asset Management Plans (BCAMPs) and BCAMP requirements will be consolidated into respective MAJCOM Comprehensive Asset Management Plans (MCAMPs). AFCEC will then consolidate requirements from the MAJCOMs and develop an Air Force Comprehensive Asset Management Plan (AFCAMP), which will prioritize requirements from across the Air Force. Our real goal is to fully utilize the Air Force Asset Management Program (AFAMP), built from the MAJCOM Asset Management Programs, or MAMPs, to direct long-term investment. The AFAMP is an essential advocacy tool we will use to determine which requirements get programmed and when. Therefore, to enable centralized investment planning, we must advocate for our most critical requirements based on real-time, accurate, and complete data provided by our Civil Engineer units.

Collecting and Maintaining Data

Today, we use a number of IT tools to collect and maintain asset data, including legacy systems such as the Automated Civil Engineer System-Real Property (ACES-RP), ACES-Project Management (ACES-PM), Interim Work Information Management System and Enterprise Environmental Safety and Occupational Health-Management Information

A member of the 22 CES horizontal shop uses a skid steer loader with a hammer attachment to demolish a building on McConnell AFB, Kan. *(photo by A1C Jose L. Leon)*

System, also known as IWIMS and EESOH-MIS, respectfully. All of these legacy systems have their advantages and shortcomings, but in today's resource-constrained environment, civil engineers need a tool that better identifies our worst-first requirements.

NexGen IT is a system encompassing an interconnected collection of commercial and government off-the-shelf software solutions that can access a single, central, authoritative database. This will replace many of our legacy IT systems that currently have their own, and in many cases duplicative, databases. NexGen IT will help us realize data efficiencies by providing one authoritative source per data element, ensuring accuracy and eliminating duplications. This will enable us to better track performance metrics, deliver precise reports, and save time collecting and analyzing data. That data will then be used as an advocacy tool to shift our focus toward a requirements-based program. This answers questions such as "What will happen if we cut 'XX' millions from facility programs?" with factual data. From the shop chief in the field to The Air Force Civil Engineer, we will be linked by data-shaping informed funding decisions.

When will this happen? We anticipate fielding the first wave of NexGen IT capabilities (real property, work management, supply management, project management, and energy) at JB Andrews, Md., in October 2013, with full implementation by December 2014. (These dates are our best estimates and subject to change.) Just beyond that, we intend to field housing and furnishings management, with Dover AFB, Del., fielding the dorms portion, followed about three months later by Spangdahlem AB, Germany fielding dorms and family housing. Financial management, contract management, and environmental capabilities will follow.

However, we must make data collection and management a top priority now and as well as during NexGen IT's full implementation. Civil Engineer personnel at the installation level must take a disciplined approach toward collecting, inputting, and managing their data with an emphasis on accuracy and comprehensiveness. Air Force missions depend on the installation support civil engineers provide based on the data that is collected. Undisciplined data input practices will put at risk an installation's facilities sustainment, restoration and modernization funding or even worse, its mission. While installations carry the majority of data collection responsibility, MAJCOMs' Civil Engineer staff and AFCEC must standardize, review, and provide quality control for our data. We must have the right data to advocate for the right projects at the right time.

Finally, accuracy is more important than ever. Environmental reporting obligations, permit compliance tracking, and hazardous material reporting will be validated by our data set. As squadrons collect and maintain this data, subject matter experts at AFCEC will review, question, and provide

The old base exchange at Ramstein AB, Germany, is torn down using an excavator with a hydraulic shear attachment. *(photo by SrA Caitlin O'Neil-McKeown)*

quality control before approval and submission to stakeholders. This is a critical responsibility; attention to detail at the base and AFCEC levels will ensure the Air Force is not left vulnerable to enforcement actions.

Imperatives for Audit Readiness

Maintaining accurate and complete information has numerous implications for our Civil Engineer community. Most notably, it affects our ability to obtain infrastructure funding. In a video address released this year, Secretary of Defense Leon Panetta noted that the DOD is the only federal agency that has not met auditability requirements. Congress has threatened to withhold funds from the DOD because of their difficulty in accounting for how funds are spent. Because of these concerns, Secretary Panetta has made audit assertion a top priority. Diligent data collection and management will help us maintain and reduce risk to audit readiness, which in turn reduces risk to Airmen and the mission.

As we continue our accelerated transformation effort, our community will work towards asserting audit readiness. Accurate and comprehensive data collection and management will help us meet this goal. We will be held accountable through process and data readiness reviews using Financial Improvement and Audit Readiness (FIAR) plan guidance. We will also begin internal reviews conducted by Civil Engineer staff at our installations and MAJCOMs to ensure our records are complete, current, and accurate. This process will help us identify and address potential problems and ensure we are ready for future audits.

Looking Ahead

As accelerated transformation reshapes the Air Force Civil Engineer community, we must focus on ensuring we prioritize the Air Force's facility requirements in a mission-critical, worst-first strategy. Centralized asset management is just a tool to that end. Accurate and timely data will provide a clear picture of our infrastructure and its condition. Management of that data is the responsibility of the entire Civil Engineer community and will drive smart resourcing decisions. The converse is also true. Inaccurate data will result in unacceptable risks to the mission and our Airmen. With discipline and focus, we will collect and maintain quality data that will help us build sustainable installations to last!

MILCON funds are already centralized and beginning Oct. 1, 2013, R&M funds will be, making accurate data management at all levels important for decisions on distributing funds for projects such as a ramp renovation at McEntire Joint NGB, S.C. ***(above)*** and building renovation at Sheppard AFB, Texas ***(below)***. *(photos by TSgt Caycee R. Watson and 2Lt Meredith Dilley)*

Forging a Stronger CE FOA

Mr. Michael Briggs
AFCEC/PA

Air Force leaders activated a single unit responsible for providing worldwide responsive, flexible full-spectrum installation engineering services during a ceremony on Oct. 1, at JB San Antonio, Texas.

The Air Force Civil Engineer Center (AFCEC), a new Civil Engineer field operating agency (FOA), merges the Air Force Center for Engineering and the Environment and Air Force Real Property Agency, both based in San Antonio, with the Air Force Civil Engineer Support Agency at Tyndall AFB, Fla., to form a more than 1,600-person-strong unit.

Some members of major command and installation Civil Engineer units also join AFCEC, which will support operations and provide expertise to execute Civil Engineer functions in the areas of construction, energy, environment, housing, operations, planning, real property, and readiness and emergency management.

The agency is subordinate to The Air Force Civil Engineer, Maj Gen Timothy Byers, who presided over the activation ceremony in historic Hangar 1610 on the former Kelly AFB flightline.

"This ceremony is much more than an organizational change," said Maj Gen Byers. "This is the debut of the next generation of installation and expeditionary support capabilities that will help us build ready engineers, build great leaders, and build sustainable installations. We're forging the future of Air Force Civil Engineering today."

The general first announced the formation of the new FOA agency in November 2011 when he laid out plans for a CE Transformation ... Accelerated program designed to advance at a faster rate civil engineering restructuring and efficiencies underway since 2007. The accelerated program helps the Air Force meet its Civil Engineering mission re-

Maj Gen Timothy Byers, The Air Force Civil Engineer (left), passes the Air Force Civil Engineer Center's flag to Mr. Joe Sciabica, the new field operating agency's first director, during an activation ceremony Oct. 1, 2012, at JB San Antonio, Texas. *(photo by Ms. Robbin Cresswell)*

Held in historic Hangar 1610 on the former Kelly AFB, Texas, flightline, the AFCEC activation ceremony merged three existing field operating agencies — AFCEE, AFCESA, and AFRPA — into one. *(photo by Ms. Robbin Cresswell)*

sponsibilities while working within a constrained budget environment.

"These efforts reexamine our processes and capabilities, and centralize, standardize, and streamline our core activities and services across the enterprise," Maj Gen Byers said of Civil Engineering's transformation. "From the major commands to the installations, civil engineers will take a more focused and centralized approach to installation management that prioritizes requirements across the service, aligns our scarce resources with the Air Force's highest priorities, and minimizes the risk to Airmen and the mission — all while maintaining expeditionary combat support and efficient, yet effective, installation support."

AFCEC will make its headquarters in Building 171 on the Kelly Annex of Lackland, where the former AFCEE and AFRPA workforces, which had been neighboring units, will physically merge. Four of AFCEC's seven directorates — the Environmental Center of Excellence, Facility Engineering Center of Excellence, Installations Center of Excellence, and Planning and Integration Directorate — will operate at the headquarters in San Antonio. At Tyndall AFB, the former AFCESA becomes AFCEC Detachment 1 and houses the Energy Directorate, Operations Directorate, and Readiness and Emergency Management Directorate.

In accepting the unit flag and his role as AFCEC's leader, Mr. Joe Sciabica said his focus is on support to the warfighter and the people executing the mission in the field.

"Our leaders recognized that while the Air Force flies, fights, and wins in air, space, and cyberspace, it executes its operations at installations and airfields kept mission-ready by civil engineers," he said. "Those engineers and real property professionals need resources and capabilities at the ready to provide training, guidance,e and support to the warfighters."

Mr. Sciabica acknowledged the legacy AFCEC inherits from the Civil Engineer professionals at the former FOAs, MAJCOMs, and installations who are coming together to form the new unit.

"Civil engineers have excelled at their installation support mission for decades — in garrison and on the battlefield," he said. "It will be priority number one at AFCEC that we not only carry on this tremendous legacy we inherit today, but that we also improve our capability to elevate Air Force mission readiness."

Information about AFCEC is available on the Web at www.afcec.af.mil.

Mr. Joe Sciabica, AFCEC director, (center) talks with AFCEC leadership and team members, including (left to right), Col David Reynolds, Mr. David Bek, Col Andrew Lambert, Mr. Robert Gingell, and Mr. Tarone Watley, during a visit to the Civil Engineer Maintenance and Repair Team building at Det. 1, AFCEC at Tyndall AFB, Fla., on Oct. 2. *(photo by Mr. Eddie Green)*

AFCEC

AIR FORCE CIVIL ENGINEER CENTER

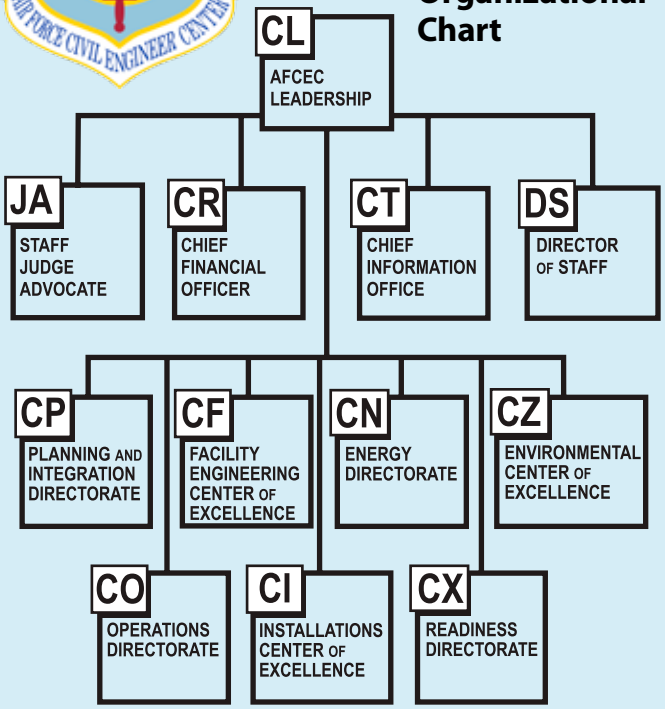
Mission

The mission of the Air Force Civil Engineer Center is to provide ready engineers, engineering and real property solutions and emergency response services that enable sustainable, highly effective power projection platforms to support the warfighter.

Vision

The Air Force Civil Engineer Center will be a trusted and indispensable mission partner to support major command, combatant, and installation commanders by ensuring installations have the full capability to execute assigned missions. We will deliver agile, efficient and innovative engineering and real property products and services that enable execution of Air Force priorities.

AFCEC Organizational Chart



Mr. Joe Sciabica, a member of the Senior Executive Service, is Director, Air Force Civil Engineer Center (AFCEC), Joint Base San Antonio-Lackland, Texas. As AFCEC director, he leads the 1,600-person civil engineer field operating agency and directly oversees the execution of $11.8B in contracts, indirectly controls $49B in contract vehicles, and annually manages portfolios of $7B for housing and $5B for Enhanced Use Leases.

A graduate of the University of California at Santa Barbara, Mr. Sciabica began his career with the Air Force in 1982 at the Air Force Rocket Propulsion Laboratory, Edwards AFB, Calif. He has served in a variety of engineering and senior technical management positions within the Air Force laboratory system and prior to his current assignment, served as the Air Force Research Laboratory executive director.

Back to Battery Position in No Time

CEMIRT gets remote aircraft arresting systems ready to go with time to spare.

Mr. John Burt
AFCEC/PA

With temperatures reaching 122 degrees and frequent sandstorms, this would not be a typical destination for Civil Engineer Maintenance, Inspection and Repair Team (CEMIRT) technicians. However, in summer 2012, SMSgt Stephen Burns and SSgt John Rodriguez made the more than 7,500 mile trip from CEMIRT at AFCEC, Tyndall AFB, Fla., to a remote location in Southwest Asia to perform overhauls on aircraft arresting systems (AAS).

This location has a 12,000-foot runway maintained by local host-nation forces and used primarily by the American military, according to SMSgt Burns.

"The airfield's four BAK-12 AAS absorbers and interconnecting BAK-14 systems were past due for overhaul, so they requested CEMIRT's help," Burns said.

"Our team was given six weeks to perform this work onsite," said Mr. Pat Ross, CEMIRT Powered Support Systems foreman. Everyone wanted to get this project completed and get the equipment rebuilt, certified, and back in operation as soon as possible."

At CEMIRT's Tyndall location, the Air Force's center for the overhaul and repair of AAS equipment, the rebuilding of each absorber involves an extensive four-week process incorporating 40 individual process steps and three comprehensive quality assurance inspections. Although CEMIRT routinely provides emergency response to repair AAS in the field, performing depot-level overhauls on four absorbers in just six weeks at such a remote spot presented several logistical challenges.

"I didn't know what kind of facilities to expect," SMSgt Burns said. "Once we were there and began to disassemble the old barrier components, I didn't know if we would have all of the necessary parts to fix it. We had to plan for every possible scenario."

In order to speed up the process once on site, many of the barrier components like engines, control panels, and brake

(above) Members of the host-nation maintenance crew assist with the overhaul of one of the airfield's two BAK-14 systems. The BAK-14 interconnects the BAK-12 absorbers allowing the arresting cable to be raised and lowered remotely to accommodate commercial aircraft traffic or military aircraft with low ground clearance. *(photo by SMSgt Stephen Burns)*

elements were readied at CEMIRT's facility at Tyndall and shipped overseas to be assembled.

"We looked at everything on the BAK-12 and tried to take spare parts whenever we could," said SMSgt Burns. "We also wanted to be able to leave some spares with the local crew that would be maintaining this equipment — to help them do their jobs better."

As the CEMIRT technicians began the month-long preparation for the trip, they gathered parts and supplies for the BAK-12 and BAK-14 systems and organized a long list of tools and equipment. It also took some creative packing.

"When we loaded our 20-foot CONEX container, it was so tight you couldn't fit a dime in there," said SMSgt Burns. "Equipment was screwed in, chained, and strapped. It was a work of art."

Once on the ground, the two CEMIRT techs were met and assisted by MSgt Mark McAuslen and MSgt Jeffrey Stanley from the 557th Expeditionary RED HORSE Squadron based in the region. "The RED HORSE troops were invaluable," commented Mr. Ross. "Our guys were grateful for their help. They helped tremendously."

A local crew employed by the host nation to maintain the airfield equipment was also on hand to help. Acoording to Mr. Ross, they jumped at a chance to work with the Airmen on the overhaul process, eager to gain a better understanding of the arresting systems.

The U.S. Navy provided a maintenance hangar in which the team could work and cranes to lift the BAK-12s in and out of their protective pits beside the runway. According to SMSgt Burns, this level of support saved valuable time.

"The top of each pit is covered with five concrete slabs, which we had to remove to get to the barriers. We had estimated it would take seven hours to get the first set of BAK-12s out of their pits. With the Navy's cranes, we had them loaded on the truck headed for the maintenance hangar after just two hours."

A key step in each AAS overhaul is the metal fabrication stage where corrosion damage to the absorber's steel base is repaired and the base is returned to like-new condition. Not having the capability to perform metal fabrication on-site had been an initial concern for CEMIRT.

"Early in the process, we knew that the bases of these systems were in good shape," said Mr. Ross. "One of the RED HORSE troops, already in theater, had performed a site survey for us. He took literally hundreds of photos of these systems. We pored over the photos to assess the project and the condition of these barriers and were able to determine there were no corrosion issues."

Sections of concrete slab covering the barrier pit are removed in order to access the absorber and lift it from its protective pit for overhaul. *(photo by SMSgt Stephen Burns)*

Following removal of the aircraft arresting system barriers, SMSgt Stephen Burns rolls the worn nylon tape that will be replaced as a part of the overhaul process. *(U.S. Air Force photo)*

MSgt Jeffrey Stanley of the 557th Expeditionary RED HORSE Squadron prepares a reel assembly to be remounted during the overhaul of one of the airfield's four BAK-12 absorbers. *(photo by SMSgt Stephen Burns)*

During the overhaul process, the CEMIRT technicians were assisted by RED HORSE Airmen from the 557th Expeditionary RHS and a maintenance crew from the host nation. *(photo by SMSgt Stephen Burns)*

Newly overhauled BAK-12 absorbers are loaded on a truck to make the trip back to their installed location at the airfield. *(photo by SMSgt Stephen Burns)*

MSgt Jeffrey Stanley of the 557th Expeditionary RED HORSE Squadron works with a member of the host-nation's maintenance crew to attach the aircraft arresting system's new nylon tape during the installation of the overhauled equipment. *(photo by SMSgt Stephen Burns)*

The overhaul of BAK-14 systems is something not typically done by CEMIRT technicians. "The BAK-14 is a separate system that interconnects the BAK-12 absorbers," explained Mr. Ross. "It allows the arresting cable to be raised and lowered remotely from the control tower to accommodate commercial aircraft traffic or military aircraft with low ground clearance. We reached out to the BAK-14 experts at Minot AFB, N.D. They helped us with parts support and technical assistance."

The BAK-14s were nothing new for SMSgt Burns who had experience with these systems from a previous assignment. "I had worked with the BAK-14s at Luke AFB, Ariz. It had been a few years, but it comes right back."

Through long hours, teamwork, and cooperation from the RED HORSE Airmen, the Navy and host-nation support staff, the CEMIRT team completed the work in just three and a half weeks, well ahead of schedule. SMSgt Burns and SSgt Rodriguez stayed onsite for an additional week to train the local crew about proper maintenance of the system.

"I took them through the daily, weekly, and monthly inspections and maintenance, as well as semi-annual and annual procedures," said SMSgt Burns. "We went through the procedures step by step, then had the crew repeat the process to give them hands-on experience. We showed them the theories of the hydraulic braking system and what the equipment is actually doing at the point of engagement to slow an aircraft and bring it to safe stop."

Mr. Ross is pleased with the success of the project. "Our guys pulled it off. They had excellent support from the RED HORSE troops, the U.S. Navy, and the local host-nation crew. I'm very proud of how they worked so hard through the planning and execution stages to get the systems rebuilt, certified, and back in operation with time to spare. It underscores the type of specialty support and emergency response that CEMIRT is known for."

The team reattaches the arresting cable to one of the rubber support blocks on one of the BAK-14 systems. *(photo by SMSgt Stephen Burns)*

Ops Flight *Preventive Maintenance*

Col Andrew Lambert
Mr. Mike Bascetta
AFCEC/CO

Preventive Maintenance (PM) is more than a new and improved Recurring Work Program. As the Civil Engineer community advances through transformation, the Ops Flight of the Future is changing the way it conducts PM to focus efforts, reduce risk to local missions, and standardize maintenance tasks across MAJCOMS and bases.

A revised set of work priorities (see Table) is fundamental to the new Ops Flight business model and concept of operations. The work we do will be the same; how we prioritize it and assign resources (i.e., labor hours and funding) will change. If you consider asset management as "how to apply the next dollar," the new CE Ops work priorities can be thought of as how to apply the next available man-hour.

Naturally, work to mitigate emergency issues (i.e., risk to life, safety, or health) will remain the top or Level 1 priority. The big change will occur in the next,or Level 2, priorities, which includes both preventive maintenance and troop training projects (TTPs). Below that will be "scheduled" or Levels 3 and 4 work. Here, we are no longer thinking in terms of urgent and routine job orders and their associated time limits. Instead, we take sustainment and enhancement jobs and accomplish them based on criteria such as mission necessity, fire safety deficiency, lifecycle impact and available resources (dollars and man-hours).

To formalize and ensure PM work gets accomplished means dedicating the required labor hours up front and not deviating from completing the Level 2 scheduled PMs. TTPs will provide extremely valuable training and promote pride in the work our Airmen and civilians do at home station while sharpening technical competence. All other priority (Levels 3 and 4) scheduled work tasks will be completed only if labor hours are available. The result is a systematic approach to prioritizing and executing Civil Engineer work in a mission priority-related manner, thus ensuring the best application of available man-hours.

Why make preventive maintenance such a high priority? The context of dwindling resources and critical missions provides the answer. As budgets continue to decline, we must address our infrastructure investments in a way that ensures top priority missions never fail. This hinges on several key items (see Figure).

First, a clearly established set of mission priorities must be understood at each base, allowing priorities of facilities and utilities to be addressed accordingly. In other words, the facilities at your base which directly support the installation's mission become top tier assets, where PM is accomplished first and which receive consideration for reinvestment in real property installed equipment (RPIE).

Second, a good inventory of assets requiring PM is an absolute must to effectively link RPIE — and other PM — assets to their mission priority.

Third, each base will rate the condition of its RPIE assets using the NexGen Condition Assessment Scale:

1 = Excellent: new or like-new condition

2 = Good condition: some signs of minor wear and tear

3 = Fair condition: normal wear and tear, still fully functional

4 = Poor condition: excessive wear and tear, somewhat functional

5 = Poor condition: non-functional, no longer working

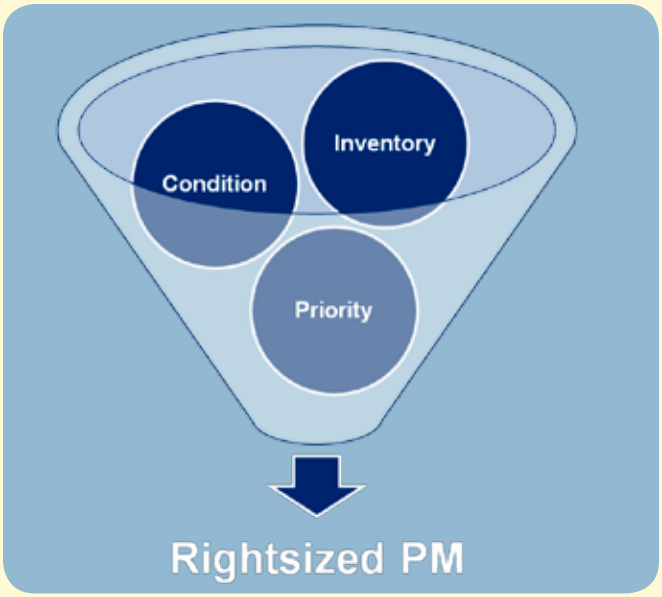


Figure. Creating an effective, comprehensive preventive maintenance program requires a full inventory, an accurate condition assessment, and a mission priority level for facilities at all installations.

With each condition rating, Civil Engineer units will conduct a detailed evaluation and economic analysis to maximize the level of effort and man-hour usage needed to conduct PM on these assets.

Finally, standardized tasks will be created for all PM activities across the CE enterprise. Instead of using different options for maintaining a given type of equipment, every Ops Flight will use the same industry standard. This drives a more accurate "footprint" of the resources needed to conduct PM, which in turn allows for a more systematic application of available man-hours and the ability to recognize and fix trends across the Air Force and reduce risk to mission.

Col Lambert is the Director and Mr. Bascetta is an Asset Management Specialist in the Operations Directorate, AFCEC, Tyndall AFB, Fla.

Table. Work priorities.

Level	Classification	Definition
1	Emergency Corrective Maintenance (CM)/ Work	• All/Only Unscheduled (24 hrs) • Needed to sustain/ensure continued mission operations • "Don't go home" type work until emergency is mitigated/fixed
2A (High)	Preventive Maintenance (PM)	• Rightsized PM (right work/frequency) • Risk-based PM approach
2B (Med)	Troop Training Projects (TTPs)	• TTPs will be multicraft W/Os • TTPs infused to meet AFI 10-210 requirements
3A (High)	Scheduled Sustainment Work (CM)	• High Mission/Equipment Sustainment Risk • Tier 1 and 2* Assets/Equipment • Risk Assessment Codes (RAC) 1-3 (Unabated) • Fire Safety Deficiency codes 1 & 2 • High-return-on-investment CM
3B (Med)	Scheduled Sustainment Work (CM)	• Low Mission/Equipment Sustainment Risk • Tier 3* Assets/Equipment • RAC 4 and 5 (Unabated)
3C (Low)	Scheduled Sustainment Work (CM)	• Low Mission/Equipment Sustainment Risk • Tier 4* Assets/Equipment • RAC 4 and 5 (Unabated)
4A	Scheduled Enhancement Work	• Work defined and prioritized by base • Work that does not contribute to sustainment and/or ensure continued mission operations
4B	All other Enhancement Work	• Work that does not contribute to sustainment and/or ensure continued mission operations

*Tiers is the new Facility and Asset RPIE Priorities

JBER TAPS Landfill for ENERGY

Mr. Tim Berg
Mr. Stacy Scheevel
673 CES/CEAO

In August at Joint Base Elmendorf-Richardson (JBER), Alaska, Col Brian Duffy, 673rd Air Base Wing Commander, along with Anchorage Mayor Dan Sullivan and Doyon Utilities President Dan Gavora, made history by opening the state's first landfill gas-to-energy project.

It was the second landfill gas (LFG) energy project for the Air Force; the first opened at Hill AFB, Utah, in 2004. JBER's unique geographic location enabled the partners — the Air Force, Doyon Utilities (DU), the Municipality of Anchorage (MOA), and the State of Alaska — to undertake the mutually beneficial project, which was executed under an existing utilities privatization contract with DU. With construction complete and testing and evaluation underway, it will be fully operational in January 2013.

Methane gas generated by trash decomposition at the MOA's landfill adjacent to JBER is extracted, compressed, dried, cleaned, and transported via pipeline to an electrical generation facility owned by DU on JBER property, where it is turned into electricity for the base. A 1.1-mile, high density polyethylene pipeline connects the landfill gas processing equipment to the electric power generation facility. This newly constructed facility houses four 1.4 MW General Electric Jenbacher generator units and is located on JBER property adjacent to the landfill. Based on LFG production data that became available during construction, a fifth 1.4 MW GE unit will be added in June 2013; a sixth may be added during the next five years. If gas production increases as projected.

Several factors made the project economically feasible — today's cost of electricity, Alaska's economic forecast of energy costs over the life of the plant, a 30-percent tax benefit, a $2M grant from the Alaska Energy Authority, and private sector financing. The project is expected to be cash positive within the first few years of operation, providing significant economic benefit to all partners. Rather than spending money to flare (burn off) methane into the atmosphere, the MOA will soon make money from its sale — revenue is estimated at more than $50M over the life of the project. Estimates of savings to JBER are $32M for the first 20 years and $73M for the life of the 46-year project.

Under the terms of the utility services contract between JBER and DU, the base has beneficial use of the power generating capacity for 46 years. The electric generation equipment is interconnected to natural gas and runs on either one or a blend of the two. This fuel diversification enhances the reliability and stability of power generation for JBER,

An excavator crushes trash at the Anchorage Landfill in Alaska. Methane gas produced by the landfill is used to generate power for JB Elmendorf-Richardson. *(photo by TSgt Brian Ferguson)*

At the power generation plant, switch-gear cabinets transmit power to transformers for final distribution to JB Elmendorf-Richardson *(U.S. Air Force photo)*

allowing it to be utilized as base-load or emergency power generation in a region prone to extreme weather and earthquakes.

JBER's landfill gas to energy project will supply about 26 percent of the base's electric load. It has the potential to become the largest renewable energy producer in the Air Force, surpassing the existing solar array project at Nellis AFB, Nev. At 14.2 MWs, the Nellis project's energy producing capacity is more than double the JBER project's 7 MWs. However, Nellis' project relies on an intermittent energy source — sunlight — and operates at only 25 percent of its capacity, while JBER's power generation can operate continuously at full capacity.

The project will help the Air Force meet goals set by the Energy Policy Act of 2005, Executive Order (EO) 13514, and DOD's goal outlined in 10 United States Code 2911 (e). Because the renewable energy is produced on federal land and used by a federal agency, JBER will receive double credit for EPAct 05 goals, which requires federal agencies to produce or procure 7.5 percent of total electric consumption in FY13. The project also helps the Air Force create a more sustainable operation as required by EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, and DOD's goal of producing 25 percent renewable energy by 2025.

Mr. Berg is the Chief, Asset Optimization, and Mr. Scheevel is the Utilities Privatization Contracting Officers Representative, 673 CES/CEAO, JB Elmendorf-Richardson, Alaska.

Mr. Tim Berg, 673 CES, stands in front of four electric power generators at JBER's newly constructed LFG power generation facility. *(photo by TSgt Brian Ferguson)*

Mr. Greg Mitchell, JBER's LFG power generation facility operator, checks the pressure on a gas processing module. *(photo by TSgt Brian Ferguson)*

This newly constructed facility on JB Elmendorf-Richardson, Alaska, houses equipment that turns methane gas into electricity as part of the base's (LFG) to energy project. *(U.S. Air Force photo)*

Engineering a SOF Landing

Capt Tara Richards, P.E., LEED A.P.
CJSOAC-A/J7

As deployed assets go, Air Force civil engineers are typically in high demand because they can fly anywhere at a moment's notice to assess, repair, or build facilities. Even some of the most versatile, highly trained special operations forces teams look to Air Force civil engineers to facilitate mission requirements.

As an Air Force civil engineer deployed to support AFSOC, the first challenge I encountered was helping an isolated special operations forces operational detachment alpha (ODA) team in dire need of an airstrip for resupply efforts. The team was located at a remote outpost in southwestern Afghanistan, so far out that planning for resupply convoys was difficult. At the time, the few rotary wing missions tasked for support to this area were often canceled because of the "120 Days of Wind," the local name for the season when sandstorms, some with speeds topping 100 mph, frequently occur.

The ideal solution for resupply was constructing a place to land for fixed-wing aircraft that have the range, payload, and poor weather capabilities needed to get into the area. Given the fixed-wing airframes available in theater, we determined an appropriately sized unimproved forward landing strip (FLS) would return the team to sustainable mission operations by allowing both C-27s and C-130s to land. Determining the solution was easy enough, but the same challenges to resupplying the site — no fixed wing or convoy capabilities — limited the personnel, resources, and equipment to get the job done.

As I met with special operations forces staff at Kandahar Airfield to discuss funding and planning, the ODA team met with contractors to price local equipment rental. The next hurdle was finding heavy equipment operators. AFSOC didn't have any "dirt boyz" in theater, so we turned to the 1st Expeditionary Civil Engineering Group (ECEG) for assistance. Living up to their "Engineering Combat Power" motto, they were excited to help and provided us with three expert equipment operators, one engineering assistant, and one liaison officer to assist with the project.

I arrived (after a few canceled flights) to the site on a CV-22 Osprey to an existing helo landing zone just outside of camp. The camp was a headquarters compound formerly occupied by the Taliban before being driven out of the area in 2001.

The ODA team took me to the sites surveyed by an Air Force Combat Control Team (CCT) as potential locations for our FLS, so that I could evaluate them and choose the best one. The final site selected had excellent force protection visibility, relatively flat topography and good soil bearing capacities after removal of the first six to eight inches of rock and fine sands. This fine sand has the consistency of baking powder and is fondly referred to as "moon dust"

because the wide-open desert expanse resembles a lunar scene devoid of any sign of life, short of our boot prints in the sand.

The ODA team developed excellent working relationships with various local national contractors and negotiated rental of three pieces of heavy construction equipment. After reviewing pictures of the specific equipment for rent, we settled on a 12-foot motor grader, a medium-sized wheel dozer and a vibratory roller. When it was delivered two days later, the equipment did not match the agreed upon pictures: We ended up with an eight-foot motor grader, a small bucket loader and a single drum roller with very little vibratory action (per the Afghan owner, the vibratory action was "uncomfortable").

There was little we could do about the equipment "swap" — we were in a remote location, competing with larger dam projects in neighboring provinces, so available equipment was limited. Unable to find and rent an operable water truck, we improvised and welded a spray bar drilled with holes to the back of a tank truck previously used for fuel transport. Part of the contract to rent the equipment included the owners and operators maintaining the equipment, which proved fortunate. The equipment broke daily and was in need of constant repair and maintenance. During our short rental period, the owners replaced one water pump and two batteries and changed eleven flat tires.

It took us nearly two weeks with weather delays and canceled flights to get the ECEG team to the camp. We used this time to encourage local support of the project by inviting the district governor to the site and asking the owners and operators of the equipment to start stripping the top six to eight inches of rock and loose soil from the FLS site.

(opposite page) In 2011, an Air Force C-130 Hercules aircraft prepares to depart a dirt landing zone similar to the one described in this article. *(photo by MSgt Adrian Cadiz)*
(above) The project team poses for a photo. *(left to right)* SrA John Vergara (EA - 349 CES, Travis AFB, Calif.); Capt Tara Richards (PM- 628 CEF, Dobbins ARB, Ga.); 2Lt Ronda Underwood (OIC - 1 CES, JB Langley-Eustis, Va.); SSgt Donald Cederlund; TSgt Casey Treadway; and A1C Justin Costa (Dirt Boyz - 52 CES, Spangdahlem AB, Germany) *(U.S. Air Force photo)*
(below) A1C Justin Costa and SrA John Vergara survey the FLS to set grade stakes and determine cut volumes. *(U.S. Air Force photo)*

Once the dirt boyz arrived, we battled weak and often broken equipment, wind, sandstorms and extreme heat. The most frustrating problem was the lack of cohesion in the sand, unlike anything else we'd ever tried to compact. Our efforts of consolidation and compaction with a homemade water truck and single drum roller were akin to adding water to dry bread mix; it created balls of "dough" that stuck to the roller, which did more damage than good. After a wait, we received a Dynamic Cone Penetrometer (DCP) and it took days of testing and plotting results before we knew if compaction was effective. This expedient soil testing allowed us to evaluate allowable bearing capacities of the FLS in a grid pattern. The CCT conducted the final DCP tests and completed and submitted the appropriate form for approval.

An expeditionary unimproved runway is approved for a certain number of landings based on the soil properties and aircraft weight. Aircraft weight was estimated by factoring in likely departure bases, elevation, fuel levels required, and cargo being delivered. Our FLS was ultimately approved for more than twice as many landings as we needed given the timeframe for the present operational mission.

Once the heavy construction was complete, the CCT set up the airfield marking pattern (AMP), established the landing zone (LZ), and provided air traffic control services for the LZ. This mission required an AMP-2 which requires eight colored panels during the day and lights at night. Given the expedient nature of the runway, six-inch PVC pipes were set in concrete so that the marking panels on four-foot poles can be quickly dropped in by day or Phantom lights attached at night. The remote-controlled lights can be installed in minutes and set to steady light or strobe in blue, red, green, white, or infrared.

With the hard work and tireless efforts of all involved, the FLS was completed in 30 days at a cost of $50,000. It was certified for aircraft landings exactly seven weeks after construction began. Most importantly, on the first day of operations, three aircraft landed on the new runway with the much needed resupply.

Capt Richards is the civil engineer for the Combined Joint Special Operations Air Component in Afghanistan.

Capt Tara Richards *(left)* and 2Lt Ronda Underwood distribute humanitarian aid to local villagers living near the camp during the seven-week period from beginning construction to FLS certification.
(U.S. Air Force photo)

DEVELOPMENTAL ENGINEERS
SUPPLEMENTAL FORCE
FOR DEPLOYED CE SQUADRONS

Capt Robert Bond
NASIC/GTFS

Capt Jeremiah Flerchinger
485 IS/MOF

What's an Acquisition Developmental Engineering officer doing in Civil Engineering? As 62E officers deployed in Civil Engineer (32E) billets, specifically working for Lt Col Chris Fuller at the 379th Expeditionary Civil Engineer Squadronder, it was always one of the first questions we were asked. Recently, Civil Engineering has benefitted from a slight influx of Acquisition officers, particularly 62E3E Electrical Engineers, filling deployed 32E positions.

The reasoning behind this is covered by answering two other questions we often hear: What benefits and skill sets do 62Es bring to a 32E position? How does working in Civil Engineering benefit Acquisitions officers?

Developmental engineers can be of significant utility to deployed CE Squadrons. We're the one group of officers within Acquisitions that have a degree in an engineering discipline. Compared to many other AFSCs, civil engineers and developmental engineers are more similar than not. From early on, 32Es focus on physical plant infrastructure while 62Es focus on life cycle of specialized systems, but they share a similar mindset of critical thinking and problem solving. Civil Engineer Airmen are well grounded, fielding requests to improve a base's outer layer while planning and taking care of the utilities beneath. Developmental engineers have a similar practicality that focuses on mission performance and life-cycle sustainment in the development of new weapon systems.

Civil engineers possess skill sets that are not easily found or fostered and have experienced years of high deployment tempo in support of the joint warfighter. Strategically, using 62Es offsets the risk of burnout and provides a capable augmentation force. Civil Engineer units gain an outside perspective from engineers experienced at working large, long-term, technologically advanced acquisition projects in the States. Detailed analysis of root cause and effect, combined with holistic process-oriented program management balances the expeditionary "do it now" approach.

For us, working in Civil Engineering provides first-hand experience and insight into the operation and maintenance of fielded systems and base infrastructure. This is a unique opportunity for Acquisitions. It definitely gives us an early perspective of the responsiveness expected for base ops. Acquisition officers can pursue operational positions within space, cyberspace, or intel, but it's virtually unheard of for us to work in a mission support group. The chance to get a basic first-person understanding into aspects of mission support definitely provides us a new appreciation for installations' underpinnings.

Another benefit of our partnership with the Civil Engineer career field is the operational AEF experience we gain. Up until now, 62E deployment opportunities often involved exec or protocol positions, which although important for the mission, underutilize our training. Now, 62Es fill high-demand, base engineer billets as the "80-percent now" solution, a reality of wants versus needs in the fast-paced, tactical deployed environment for civil engineers. The opportunity to take an identified need or problem, engineer the solution, build it and see the immediate impact to mission provides a great sense of accomplishment and personal gratification. Developmental engineers can take these lessons and experiences back to home station and enrich the acquisitions process.

"The warfighter does not care what kind of engineer designs, builds, and maintains. They just want it done right, and done right now. To the warfighter, there is no difference between 32E and 62E engineers, and we are just fine with that."
Lt Col Chris Fuller, 379 ECES/CC

Overall, the need to support the warfighter and Air Force structure has led to a creative and symbiotic relationship between 62E acquisitions engineers and expeditionary 32E civil engineers. Within the 379 ECES, the 62Es have been construction, base energy, and service contract managers; design engineers; and host nation liaisons. They have served as the ops flight chief, deputy commander, and even the squadron commander. In the end, civil engineers gain an additional skill set and relief in dwell rate, acquisition engineers gain meaningful deployment and career broadening experience, and the Air Force comes out ahead with more experienced officers and contingency mission success.

Capt Bond is the Future Scenarios Flight Commander, National Air and Space Intelligence Center. He was the Operations Support OIC for the 379 ECES. Capt Flerchinger is the Mission Operations Flight Commander for the 485th Intelligence Squadron. He was the Chief of CE Operations Contracts for the 379 ECES. Both are 62E Developmental Engineers.

Engineers in the AFPAK Hands Program

Lt Col Omar Coral
USAF/A7CXX

In 2009, the then Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen, established the Afghanistan-Pakistan (AFPAK) Hands Program "to provide more responsive full time focus and support to the senior decision makers and warfighters dealing with the AFPAK challenge." The program's intent is developing experts who can speak the local language, adapt to the local culture, and focus on the region for an extended period of time.

A typical AFPAK Hands assignment is about 46 months long. New members attend the Air Advisor Course (previously attended Combat Skills Training); counterinsurgency training; and language training in Pashto, Dari, or Urdu for about six months. After completing training, members deploy to the Southwest Asia area of responsibility (AOR) for 12 months. They return to a 12- to 14-month out-of-theater assignment at one of three AFPAK Hands hubs: the National Capital Region; Tampa, Fla. (CENTCOM/SOCOM); or Hurlburt Field, Fla. (AFSOC).

Members are expected to remain engaged in AFPAK-related issues and continue language training to improve proficiency. Following their out-of-theater assignment, AFPAK Hands members complete five more months of training (counterinsurgency and language and Air Advisor Course) before a second, 10-month deployment. Following this second deployment, AFPAK Hands participants return to their original career field.

Two Air Force Civil Engineers who are AFPAK Hands, Lt Col James Romasz and MSgt Adam Drowne, recently returned from their first Afghanistan deployment and recount their experiences here. Their jobs didn't just require them to serve as civil engineers developing Afghanistan. Their jobs also required them to be mentors and leaders, culturally sensitive and resourceful to build the capacity of the Afghan people.

Lt Col Coral is currently a student at National Defense University. He was formerly the AFPAK Hands Program Manager, the Office of the Civil Engineer, Washington, D.C.

Lt Col James Romasz

I entered AFPAK Hands program in July 2010. After four months of language (Pashto), culture, and counter-insurgency training in Washington D.C. and three weeks at Combat Skills Training, I deployed to Afghanistan in January 2011.

In Afghanistan, I worked as an International Security Assistance Force (ISAF) Strategic Partner embedded in the Ministry of Energy and Water (MEW) in Kabul with three primary responsibilities: 1) advisor to the minister, his deputies, and staff; 2) liaison between the ministry and International Donor Community; and, 3) ISAF's representa-

MSgt Adam Drowne

I began my 12-month tour with a month of Dari language immersion while embedded with the German-led Kunduz Provincial Reconstruction Team (PRT). I accompanied the PRT on their missions to the Provincial Operational Coordination Center, where the Afghan army, police, and border police; the National Directorate of Security; and other security entities exchange information and synergize their operations. These opportunities to hone my language skills and discuss the province's security situation with Afghan officials were invaluable in meeting the unique challenges I would encounter as an AFPAK Hand.

continued...

tive. The purpose of my position was to build ministerial capacity and capability; facilitate trust between the Afghan government and the international community; connect the central Afghan government to the provincial level; and influence ISAF and the MEW towards common goals and strategies.

Lt Col James Romasz

My duties — assistance and mentorship — ranged from tactical to strategic. I worked with ministry engineers in the preparation of technical contract specifications and evaluation of bid proposals, and taught project management classes. I worked with ministry personnel on important official letters and on briefs to the Afghan National Security Council, and facilitated official visits to critical infrastructure outside Kabul.

For example, I helped ministry engineers develop a design-build requirements template for small hydropower plants in remote areas, so that they could quickly turn feasibility studies by international donor agencies into contract documents for advertisement, review, and award. I also facilitated interaction between the ministry and various U.S. Government entities, particularly U.S. Forces-Afghanistan, U.S. Army Corps of Engineers (USACE), and U.S. Agency for International Development, in the planning and execution of large infrastructure projects at Dahla Dam in the Kandahar Province and Kajaki Dam in the Helmand Province.

The unique part of the deployment was that I wore civilian clothes and had relaxed grooming standards, which allowed me to interact unobtrusively not only with Afghans at the ministry but also with the international donor community as well.

Overall, the deployment was phenomenal, rewarding, and definitely unique. Since March 2012, I have been the deputy of the Programs and Project Management Division for USACE's Middle East District in Winchester, Va. The position enables me to stay current on Afghanistan issues and developments until my second AFPAK Hands deployment, scheduled to begin in September 2013.

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I was then assigned as the American representative for the predominantly Norwegian- and Latvian-operated Maymaneh PRT in the Faryab Province. As the PRT's development coordinator, I was directly responsible for identifying and implementing U.S.-funded reconstruction and development. Using my Dari language skills, I quickly developed good working relationships with Afghan authorities at provincial, district, and local levels. These professional relationships were essential for identifying the locations for Commander's Emergency Response Program projects that would best leverage PRT operations and gain recognition by the Afghan people.

MSgt Adam Drowne

One of my first tasks was assisting the Afghan government in finalizing a design for an irrigation diversion project, needed because spring rains had heavily damaged the dam portion of the existing structure. If this project was not completed within three to six months, approximately 5,000 acres of fertile lands would not receive water, leaving more than 2,000 families without means of providing for themselves. With the Afghan government doing the heavy lifting on the design work, the project was completed in time. As an AFPAK Hand, the latitude I had to operate in a low profile ensured the Afghan government rather than ISAF gained visibility for the project.

I was also the PRT's liaison officer for the Afghan Peace and Reintegration Program, facilitating communications between the provincial government (program lead), the PRT, Regional Command-North, and ISAF Joint Command.

I am currently at HQ ACC International Affairs as the AFPAK Hands program deputy manager. This position allows me to stay tied to events in the AFPAK region and influence the program's future. For example, one of the issues I assisted Headquarters Air Force with was a change to the pre-deployment training. Now all AFPAK Hands attend the Air Advisor Course Afghanistan at the Air Advisor Academy rather than taking Combat Skills Training.

Cool Roofs Can Save Resources

Ms. Jene Doornik-Surber
AFCEC/CND

Mr. Clayton Deel, P.E.
AFCEC/COSC

In FY11, USAFE was awarded an Energy Conservation Investment Program project for installation of "cool" roofs at Ramstein AB, Germany. With energy savings as the driver, 14 buildings were selected to replace existing traditional roofs with cool roofs.

Typical cool roof construction utilizes a trapezoidal metal roof panel with polyurethane foam insulation sandwiched between layers of a "cool" coating (Figure 1). The coating and insulation work together to reduce the energy demand to cool the building interior. These panels are a high-sloped roof system (minimum 25 percent or 3 inches per foot), so where existing roofs are low-sloped, rafter systems are constructed to provide adequate slope.

Standard installations were adequate and appropriate for 13 of the 14 buildings. One building, the community center, which houses restaurants, offices, shops, and a theater, required a 100-percent redesign.

The community center's roof was originally installed in 1953. Building additions throughout the years (Figure 2) resulted in 10 separate roof sections without any unity. Six of the roof sections drained rainwater onto a small low-sloped roof area in the middle. That water was then removed from the building using interior drains. This small, low-sloped section also had a skylight.

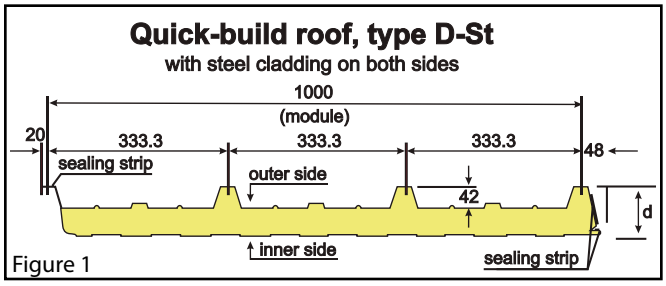


Figure 1

The installed metal roof sandwich panels (ROMA D 162) had the following specifications:

- ***Ridged PU foam core with density of approximately 40 kg/m3***
- ***Insulation thickness of approximately 120 mm***
- ***Overall panel thickness of 162 mm***
- ***U-value of 0.180, in accordance with EN 13165***
- ***B1 certified (hard to inflame), in accordance with DIN 4102***

The project bid called for installing the same configuration as the original roof, but the low-sloped middle section presented a challenge. Making the necessary slope conversion and covering this section with the metal sandwich would eliminate the skylight, a day-lighting feature the customers wanted to retain.

The redesign was an opportunity to eliminate many of the trouble spots on this roof section. After review of a number of options and a contract modification, the roof design was altered to improve drainage, reduce the valleys and ridges, and eliminate several penetrations and flashing requirements. The result (Figure 2) is a much simpler roof that reduces the typical problem areas such as slope changes and penetrations, where leaks are most likely to occur, and offers savings in future maintenance and energy costs.

The existing flat roof, where the skylight is located, now has added insulation and a light color watertight membrane to meet cool roof requirements. This roof is covered with transparent, ultraviolet-resistant light panels to simplify and improve drainage. The gable end created at this section has ventilation grids to prevent animal entry into the attic area and allow outside air flow. The remaining

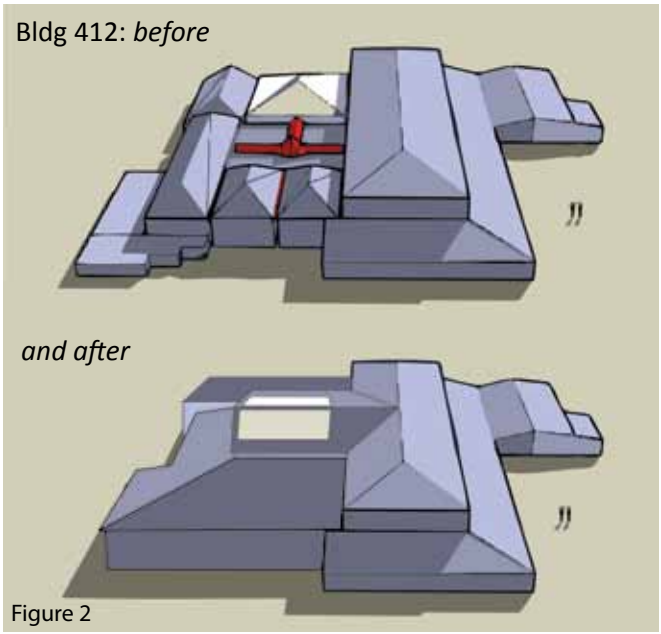


Figure 2

attic spaces are unvented and insulated with the sandwich panels and house the ducts to vent air handlers and bathrooms. Smoke tests were conducted to ensure the unvented attic space is sealed properly upon construction completion.

The goal of the re-design was to simplify the roof structure to receive a better cool roof. The six roof sections behind the main building were combined to form a modified gable and hip roof. The approved approach should extend the roof's service life, and have other advantages as well:

- Higher energy conservation with an uninterrupted composition roof surface area
- Greater energy conservation by reducing joints and connection areas
- Longer service life by mitigating construction deficiencies
- Ten-percent reduction of roof area exposed to environment and lower energy loss
- Lower maintenance costs due to fewer gutters, joints, and connection points

The building construction is finished and final installation acceptance occurred on Aug. 15.

Ms. Doornik-Surber provides contract support as an energy manager for the Energy Program Development and Mr. Deel is the Air Force Roofing SME, HQ AFCEC, Tyndall AFB, Fla.

(photos above) The new vented roof on Bldg. 412 protects the area below, including the original skylight, yet still allows daylighting. (graphics and photos courtesy of Mr. Melih Akguenlue, Environmental Chemical Corporation)

Is a Cool Roof the Right Choice?

Cool roofs absorb less sunlight than traditional roofing materials, so they stay cooler in the sun and transmit less heat into buildings. This reduces the need for cooling energy if the building is air conditioned, or lowers the inside air temperature if the building is not cooled.

Substituting a cool roof for a conventional roof can provide significant energy savings and environmental benefits under the right conditions. According to U.S. Department of Energy, it can reduce the annual air-conditioning energy use of a single-story building by up to 15 percent in warm or hot climates.

Energy savings vary with the location, type of cool roofs, and insulation. Some problems have been reported with cool roofs, such as moisture-saturated roof substrates or sub-membrane ice during cold winter conditions or susceptibility to algae and mold growth in high humidity areas. The higher air temperature above a cool membrane (versus a black membrane) can have a harmful effect on parapets, other nearby buildings, or roof-mounted equipment.

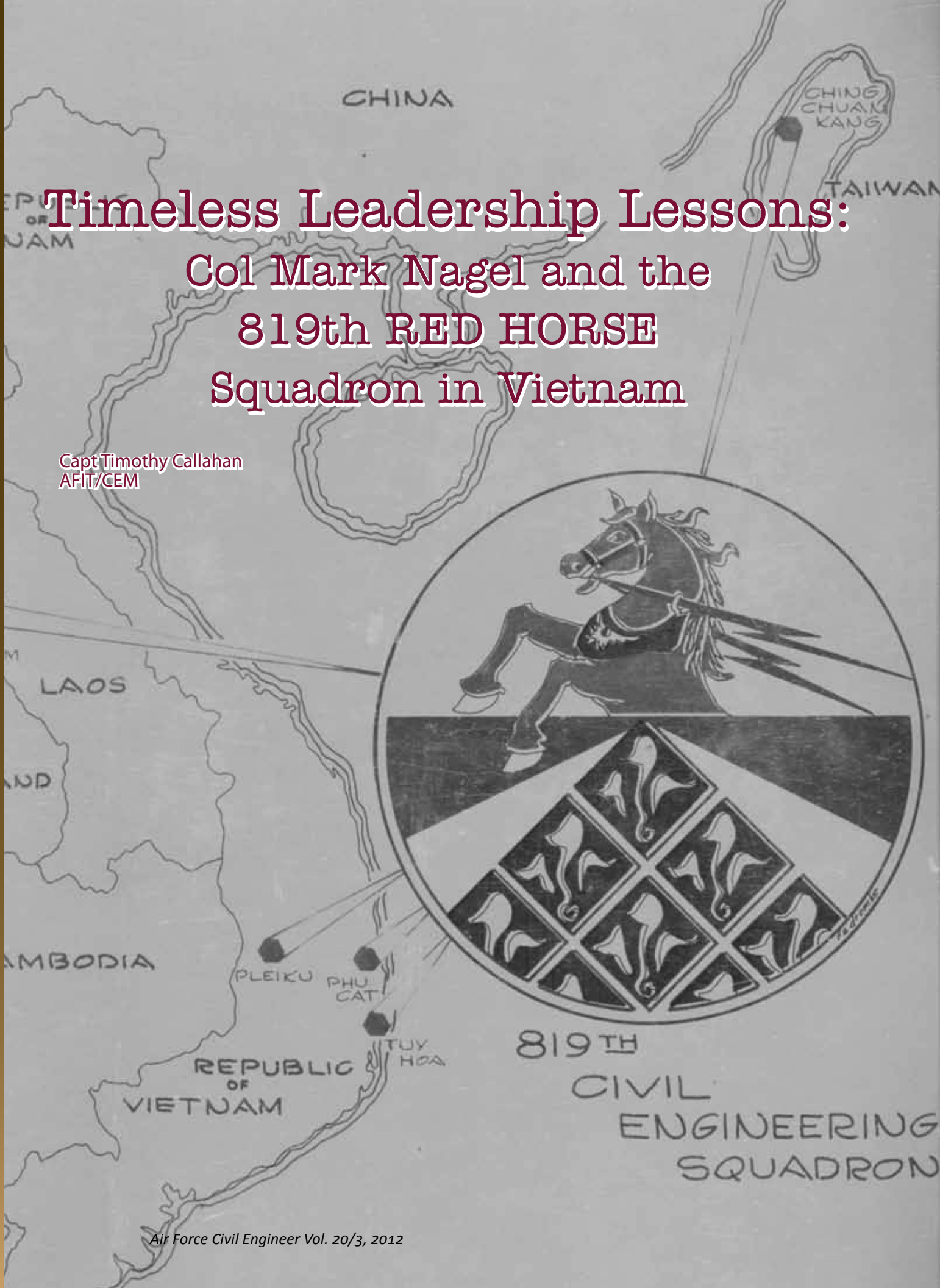
Prior to installation all roof cost and maintenance should be evaluated on a building life cycle cost analysis.

Key factors on deciding on a cool roof:

- Climate zone of building location (applies to CONUS)
- Zones 1 – 3 obviously benefit from cool roofs
- Zones 4 – 5 require thoughtful analyses to determine if a cool roof is beneficial
- Zones 6 – 7 are more likely to benefit from heat gain black roof provides
- Rebate or tax incentive availability
- Any restrictions on appearance or color
- Availability and cost
- Durability

Timeless Leadership Lessons:
Col Mark Nagel and the 819th RED HORSE Squadron in Vietnam

Capt Timothy Callahan
AFIT/CEM



Introduction

Civil engineers are innovators, finding savings in time and money where neither seem possible and forging more efficient and effective ways to accomplish whatever mission is presented. Constantly looking ahead to the next challenge to tackle, civil engineers lean forward. Every now and then, though, a look back is merited.

Civil engineers have a legacy of heroes who broke through barriers en route to innovation. Engineers in World War II cleared airfields and Air Force engineers in Korea and Vietnam laid the framework for airfield and facility repair and construction. Col Mark Nagel was present at all three major campaigns, albeit in varying capacities. In his twin-engine B-26, he provided close air support to allied troops at Normandy on D-Day. In Korea, he flew search and destroy missions in his redesigned B-26 Bomber, once spotting and destroying a resupply train while flying recon. Between those conflicts, Col Nagel graduated from the Lawrence Institute of Technology in Highland Park, Mich., with a bachelor of science degree in civil engineering, then from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio, with a masters in business administration. When the Vietnam conflict erupted, Col Nagel's unique combination of operational experience and engineering knowledge led to his selection in 1969 to serve in a new capacity — commander of the 819th RED HORSE Squadron.

According to Col Nagel's report, "The mission of the 819th Civil Engineer Squadron (Heavy Repair) has been to provide the combat engineer element to the tactical forces in the field by providing a rapid response capability within 7th Air Force to augment Base Engineer forces in the event of heavy bomb damage or disaster; accomplish major repairs and provide expeditionary airfields and cantonment facilities to support initial air operations; upgrade and expand those facilities into a sustaining posture on a priority basis to insure continuity of air operations in accordance with tasks assigned by the Deputy Chief of Staff, for Civil Engineering, 7th Air Force."

Col Nagel passed away in 2008 at the age of 87. Discovered among his collection of Air Force keepsakes, which could support a small museum in their own right, was the end-of-tour report from that year-long command, over 150 pages painstakingly assembled via typewriter with photographs and hand-drawn charts. Inside the document are a treasure trove of lessons learned which resonate, especially across the challenges of our most recent conflicts in Iraq and Afghanistan.

Timeless Principles

The final tally of facility projects accomplished by the 819th RED HORSE Squadron under Col Nagel's command was $3.47M. His report notes that similar projects completed by contract would have cost the Air Force $8.77M, 250

(above) Col Mark L. Nagel, Commander 819th RHS, June 1969 – March 1970. *(courtesy photo)*
(below) A 4,800-squarefoot operations building, completed in just 31 days thanks to pre-fabricated wall and roof components and a fast-tracked schedule. *(courtesy photo)*

percent of the cost of the work completed by RED HORSE. Major projects by the 819th included construction of a new concrete apron and erection of 40 hardened shelters at Phu Cat Air Base, an effort that became known as "Concrete Sky." A similar project followed at Tuy Hoa Air Base, involving the erection of 56 hardened shelters as well as both quarry plant and concrete batch plant operations. Preceding conversion of Nha Tang Air Base to an all-Vietnamese

(above) One of two batch plants at Phu Cat which supplied the concrete for a new 60,000 square yard parking ramp. *(courtesy photo)*
(below) After being trained in woodworking and other trades, local nationals became key members of the RED HORSE team. *(courtesy photo)*

base, the 819th CES completed a number of projects at the base, including taxiway and facility construction, revetment erection, and an apron extension that required 500,000 cubic yards of earth fill and placement of more than 4,000 tons of asphalt.

Col Nagel's report reads like a diary of events, organized by the months of his command. He describes the construction projects, weather events, and troop training efforts in detail, painting a vivid picture of the events that took place. Throughout his command, Col Nagel showed commitment to three goals that mirror the priorities of the current Civil Engineer, Maj Gen Timothy Byers.

Goal #1: Build Ready Engineers

Provide effective Civil Engineer expeditionary and emergency response and management capabilities to meet current and emerging Air Force and Combatant Commander requirements.

Being ready requires preparation. Col Nagel notes early in this report that improving the readiness of his troops required both planning and training. But he also notes that no amount of planning can change the weather, something that severely hampered operations during the first few months of his command. For example, during July, Pleiku Air Base received almost 10 more inches of rain than average, resulting in hundred of lost man-hours. Making up for lost time required creativity and a high degree of flexibility. Fortunately, Col Nagel's unit was more than up to the task. As higher headquarters reassessed project priorities and future construction requirements, the troops were already rallying to get the job done. When the available supply of equipment operators and pavement specialists ran low, electricians learned to operate paving trains, and plumbers ran transit mixers, and carpenters and other tradesmen erected metal shelters. Shifts were adjusted to longer hours, equipment was rigged for additional uses, and in the end, they got the job done.

Col Nagel concluded, "It is a tribute to the military men of Air Force Civil Engineering, that as members of this RED HORSE unit, they readily accepted these out-of-skill assignments and performed them commendably."

Ready Engineers are flexible, multi-skilled individuals, prepared to face whatever challenge comes, and overcome it.

Goal #2: Build Great Leaders

Organize, develop, enable, and retain a trained and capable Total Force Civil Engineer team ready to meet current and emergent mission requirements

Greatness is measured by the leaders we build. As in so many of our deployed engineer units today, turnover in the 819th RED HORSE Squadron was sporadic. Col Nagel learned quickly the redeploying Airmen took with them a wealth of on-the-job knowledge that incoming Airmen did not possess and to meet ongoing mission requirements, time should be given for the outgoing troops to train their replacements. However, the high ops tempo of the unit did not always allow for step-aside, one-on-one training and in some cases, new arrivals in-processed and went to work immediately. The immediate immersion not only provided fresh sets of hands to gap the manpower shortfalls during turnover, but it also helped pass along many of the tricks and tips from the departing generation.

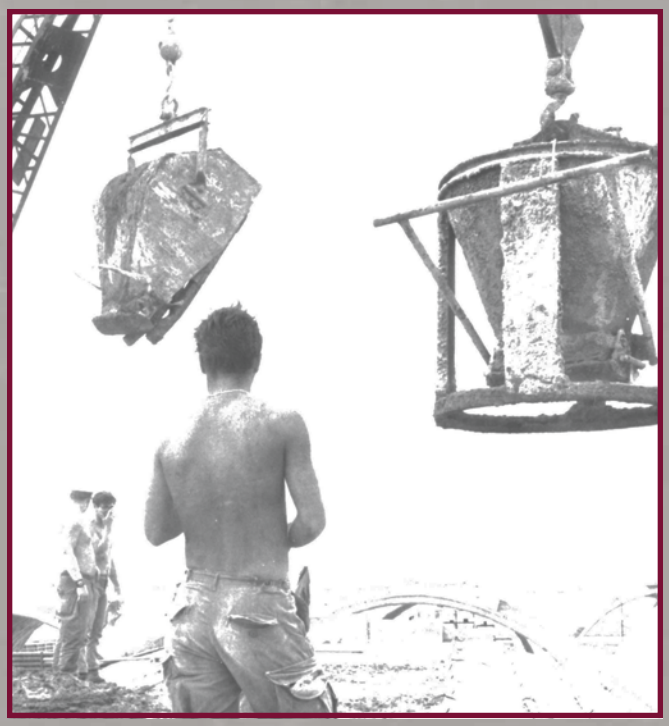
"Willingness is not a substitute for experience but it is an invaluable aid to training it rapidly, and within a few days the newcomers were outstripping their tutors in many tasks," wrote Col Nagel.

Great Leaders ensure that their replacements hit the ground running, going farther and faster than those who came before them.

Goal #3: Build Sustainable Installations

Develop sustainable installations by implementing asset management principles for built and natural assets.

Sustainable Installations are built to last and are adaptable to a shifting horizon. Col Nagel's men knew that the war back home was controversial and that political and military



During the Tua Hoa concrete shelter project, craftsmen worked around the clock in sometimes sweltering conditions to finish the project on time. *(courtesy photo)*

leaders were struggling to devise a way forward — a situation in many ways similar to today's. As Col Nagel noted in 1970, those political decisions and military positions were "foretelling a rapid decline in new construction" at the same time that "construction plant and equipment had to a great extent passed a condition of maintainability" and he developed mobility planning strategies under "the expectation that declining work at the host base would necessitate either deployment or redeployment." Col Nagel's experience emphasizes the importance of adaptability to a unit's or installation's success and also highlights the challenges of managing built and natural assets. Not taking the time to maintain a piece of equipment, a facility, or base infrastructure component and choosing instead to run the system until failure may be the easiest way forward but it can have long-term consequences. For example, Col Nagel's maintenance section was only 50-percent manned, which threatened the on-time completion of two major concrete overlay projects as "the Squeeze-Crete trucks were overused and increasingly broke down."

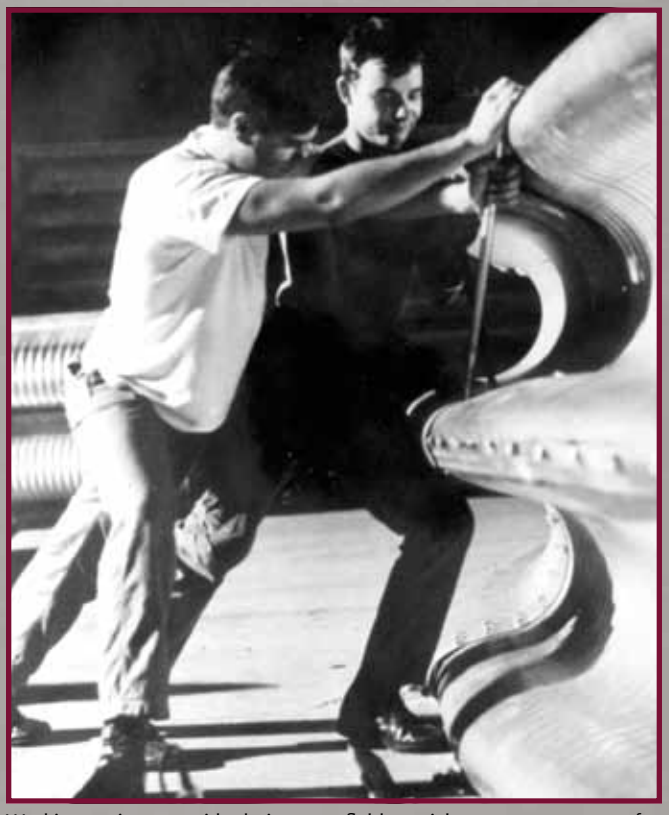
Building sustainably requires constant give and take between present and future mission needs, decisions that engineers must make every day on the job. Yet in spite of those challenges, his team accomplished their mission: "The spirit and solidarity with which they rallied as a unit, as RED HORSE men, and as Air Force Civil Engineers were stirring, and their performance under difficult and trying circumstances worthy of the pride of Command at all levels," concluded Col Nagel.

Conclusion

Most people are familiar with George Santayana's advice that "Those who cannot remember the past are condemned to repeat it." But, few of us heed it. We deploy and move from job to job and immediately immerse ourselves in the challenges of the present. Those with foresight look ahead and develop plans to mitigate tomorrow's shortfalls. Few take the time to look backward at those who came before to see how they tackled the challenges they faced. Those who do will see that yesterday's challenges are not so different than those faced today: manpower and equipment shortfalls, shifting mission priorities, and training when there's high turnover. Solving these types of grand problems requires a high degree of management skills, wisdom, and leadership. Faced with similar challenges, a wise leader will take the time to first look back, before moving forward.

Note: All pictures and citations come from Col Mark L. Nagel's "819th Civil Engineer Squadron Heavy Repair End of Tour Report.

Capt Callahan is great-nephew to Col Mark Nagel, and like him, is an Air Force Civil Engineer. Capt Callahan is an instructor and course director at the Civil Engineer School at AFIT, Wright-Patterson AFB, Ohio, teaching, among many subjects, lessons in expeditionary bare-base planning and construction management.



Working projects outside their career field specialty areas was a way of life for many. Electricians and plumbers operated paving trains and all craftsmen helped erect aircraft revetments. *(courtesy photo)*

Holloman CES Train on

THE ROAD TO WAR

Lt Col Donald Ohlemacher
2Lt Jereme Henrard
MSgt Mark Thomas
49 CES

At Holloman AFB, N.M, the 49 CES and engineers from the 49th Materiel Maintenance Squadron teamed up in a three-day exercise (April 10-13) that culminated six months of Prime BEEF training. The scenario-based field training exercise (FTX) provided the base's civil engineers with a final validation of expeditionary engineering and combat skills before heading to Silver Flag, Combat Airman Skills Training, or Combat Skills Training and then to deployment.

Holloman calls its six-month home station training program the "Road to War" concept and uses it to ensure deploying civil engineers are fully trained before they enter their deployment window. The concept takes the training objectives outlined in AFI 10-210, Prime Base Engineer Emergency Force (BEEF) Program, and reorganizes them into lessons that build one upon the other in a logical progression of learning. The lessons start with basic skills to create cognitive recognition, move on to application of skills in the field, then reinforce retention of critical skills with a progression of increasingly complex training tasks under realistic combat situations.

Certain computer-based training (CBT) modules are treated like textbook learning. They are done outside of the once-a-month Prime BEEF days, preserving these critical days for battle drills that improve muscle memory, exercise field leadership, and build camaraderie. Holloman prefers to group-train their Airmen on the key lesson objectives from the CBTs, allowing the instructors the flexibility to focus on hands-on training of the more relevant topics, such as radio or convoy operations, damage assessment repair team, and command and control (C2), while illustrating relevance with recent deployment stories. This active learning environment approach seems to be effective in developing skills and increasing knowledge retention.

For example, for the radio training module, Holloman instructors covered the lesson objectives, then spent the rest of the hour-long lesson letting Airmen handle each of the radios and practice radio protocol. This paid big dividends in the FTX as the participants demonstrated strong competency in applying communications security, using brevity codes while under attack, and providing SALUTE — Size, Activity, Location, Unit, Time, and Equipment — reports to the unit control center (UCC).

(above) An Airman stands guard during a three-day field training exercise held at Holloman AFB, N.M., by the 49th Civil Engineer and Materiel Maintenance Squadrons. *(photo by A1C Michael Shoemaker)*

April's FTX scenario tested leadership; C2; work party security; chemical, biological, radiological, and nuclear defense; air base defense; weapons handling; employment; and camp construction for the 132 participants, and beddown planning for an additional 1,000-person follow-on force. Every craft lead had a chance to plan and execute specific Air Force specialty tasks for their role. The exercise also required extensive coordination with the UCC on plan execution which provided substantial leadership opportunities for young officers and NCOs.

The FTX also provided key feedback to the Prime BEEF Manager for improving the next Road to War training cycle. With a comprehensive grading plan, the EET easily identified the skills that require more extensive training time in the next cycle. Holloman is continuously improving its approach, ensuring its Prime BEEF home station training relies more on hands-on application of the relevant skills needed while deployed.

The April FTX was the "walk" phase in a "crawl-walk-run" development of full-scale Phase II training, complete with friendly and opposing forces, an exercise evaluation team, and FTX control operations. The "walk" phase is now complete and Holloman is gearing up over the next six months to prepare for the "run", which will again test the training Airmen receive. This time, however, the stakes will be higher, with integration of other mission support group squadrons in the exercise and the direct assessment of the Airmen's Defense Readiness Reporting System mission essential task list skills against their expeditionary engineer skills.

Holloman's motivation for conducting an FTX every six months is not to prepare for an upcoming operational readiness inspection, but rather to prepare Airmen to be confident in their skills and more adaptable in combat situations. The motivation for April's FTX was sky high despite Southwest Asia-like temperatures and dust storms. Airmen rave about the success and impact of going to the field, stating "this is the training we expect before deployments." This strong feedback made the squadron leadership realize the group and hands-on approach made the deployment training much more effective.

Holloman's FTX emphasized that field skills are easily perishable and underscored that squadrons need to exercise in the field frequently to develop muscle memory of core skills, enhance C2 and field leadership, and strengthen EET efforts. Based on the effectiveness of the Road to War concept for training, other units may to consider adopting a similar approach and sharing their experiences to improve available home station training tools to "Build Ready Engineers."

Lt Col Ohlemacher is the Commander, 49 CES, Holloman AFB, N.M.; 2Lt Henrard is the Readiness and EM Flight Commander, and MSgt Thomas is the Prime BEEF Manager for the 49 CES.

Airmen from the 49th Civil Engineer and Materiel Maintenance Squadrons perform an active bomber exercise during a three-day field training exercise at Holloman AFB, N.M. *(photos by A1C Michael Shoemaker)*

Airmen from the 49th Civil Engineer and Materiel Maintenance Squadrons man the unit control center during a three-day field training exercise in April at Holloman AFB, N.M.

Airmen from the 49th Civil Engineer and Materiel Maintenance Squadrons take cover under a hardened shelter in level-four mission oriented protective postures during a three-day field training exercise in April at Holloman AFB, N.M.

The PALACE Acquire Program:
Developing the Next Generation of Leaders

Mr. Anthony F. Gennaro
ACSC AY13 Student

After reading about the Civil Engineering PALACE Acquire (CE PAQ) Program, some civilians within the Civil Engineering community may actually wish for a "do-over" to re-enter the Air Force workforce as PAQ intern.

Why would the CE PAQ Program inspire such envy among our veteran civilians? Entering the workforce via the usual route, civil engineers may have received some official training and maybe a little help from co-workers and friends. Most got by with on-the-job training and a fair amount of gut instinct and grit. However, entering the workforce through the CE PAQ Program is uniquely different.

"It gets you in and up to speed very quickly on how the Air Force Civil Engineering community does business," said Mr. Shubha Chakravarty, a recent CE PAQ graduate. "The broad insight into our tactical structure is hard to gain outside of the PAQ program. And, because of our functional rotations, we start off with a huge network of peers and leaders to refer to for information and resources."

Sponsored by Air Force Personnel Center, the PAQ program is designed to recruit, train, and develop exceptional college graduates into an internship experience as civil service entry level (GS-7) employees within several disciplines including Civil Engineering and it's occupational fields (engineering, architecture, community planning, and real property).

The ideal end result is a well-established employee (in most cases out-placed to GS-11) who has gained a multitude of training and experience over a two-year period. During their internship, a CE PAQ graduate should gain the basic ability to understand the inputs and outputs of their organization's functional areas and the opportunity for future growth into management, subject matter expert positions, or leadership roles, as well as develop a host of contacts to build their professional network.

Civil Engineering's Palace Acquire interns gain a variety of experiences during their two years in the program. *(U.S. Force photo)*

The program's success is attributed to several critical factors:

- Collaborative recruitment efforts
- Structured individual development plans (IDPs)
- Management's commitment to interns' development and progress
- Opportunities for exposure to higher-level management personnel
- Careful planning of program activities
- Challenging assignments and interns' initiative
- Positive mentorship

Mentorship may be the most important factor in developing a future leader. Offering positive mentorship at any level is a key attribute in developing a successful employee. Basic guidance and operational direction delivered from the supervisor or mentor is a critical component to a PAQ intern's forward decision-making processes. Effective mentoring involves frequent interactions, constructive assessment, and strong collaboration between supervisor and intern.

The CE PAQ program's success is also attributed to the foresight of Civil Engineering leadership, who believes a profitable initial investment in recruitment, training, and development can lead to a more capable workforce with higher retention rates. Collaborative recruitment strategies and thorough planning capitalize on forecasting tools used to track attrition rates, scheduled retirements, and make predictions about future force development. To fill future workforce voids more effectively, additional data is often gathered, evaluated, and prioritized to target the types (i.e., occupational series) and locations of graduates needed.

In 2010, Civil Engineering leadership made a commitment to provide an effective development path tool for its new interns — the IDP. As part of the Civil Engineering force development panel's collaborate effort to update train-

ing plans, the PAQ IDPs were revised to be more effective. Rolled out in the summer of 2010, the IDPs provide a current training and development map that includes updated courses at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio; vendor courses; robust cross-functional rotation schedules; and other pertinent links and useful information. The revised IDPs also give PAQ interns a framework for understanding the Air Force Civil Engineer community's culture.

Civil Engineering is also one of only two career fields within the Air Force utilizing a dynamic social collaboration tool for PAQ interns. Using the CE PAQ Professional Forum, CE PAQ interns at locations across the Air Force can connect online and learn from one another and established experts as they begin their Air Force careers. The early development of peer networks will serve the PAQ interns and the career field long into the future as they deal with the complex problems certain to face them during their careers.

In the 1990s, the total CE PAQ intern force numbered in the 20s. At the end of FY09, there were 52 and with the recruitment of 40 additional interns in FY10, this number increased to a Civil Engineer Career Field Team all-time high of 92 PAQ interns! Eighty-four percent of the PAQ interns for the time period from 2010-2012 (i.e., interns recruited during FY08-10) have successfully graduated from the program. Although recruiting has recently slowed down because of delayed implementation of the new OPM Pathways replacement hiring authority, we are expecting growth to resume in the near future.

There have been significant advancements since I was a CE PAQ intern in the late 90s, within information technology and communication methods, and especially in the use of tools that help us collaborate across the career field. Watch for more from the CE PAQ interns as the program continues to evolve — they are harbingers of our future, more effective workforce.

Note: If you'd like more information about the innovative programs that contribute to the CE PAQ program, please contact the CECFT org inbox: afpc.ce.cft@us.af.mil.

Mr. Gennaro is a student in residence at Air Command and Staff College, Maxwell AFB, Ala. He was the former Civil Engineer PALACE Acquire Program Administrator at the Air Force Personnel Center, JB San Antonio-Randolph, Texas.

(top) Mr. Bryan Harvey, a PAQ intern at JB San Antonio-Randolph, Texas, working with the 902 CES water quality program, collects a water test sample. *(U.S. Air Force photo)*
(bottom) The author, Mr. Anthony Gennaro (front center), joins PAQ interns at JB San Antonio, including (front, left to right) Ms. Lorena Castillo and Ms. Angela Chiaro and (back, left to right) Mr. Sam Klein, Ms. Dayna Cramer, Mr. Aaron Farmer, Mr. Joseph Domeier and Mr. Bryan Harvey. *(photo by Mr. Rick Villegas)*

AFRC's FOCUS ON TARGETS OF PPORTUNITY

Mr. Gene Van Deventer
AFRC/A7ZP

In AFRC, as in other major commands, providing world-class mission-ready facilities for our troops has been continually challenged by budget constraints, force realignments, mission changes, and base closures. To proactively identify and correct facility deficiencies, the Director of Installations and Mission Support (A7) established an AFRC unique process (appropriately named "FOCUS" for Facilities Operational Capabilities and Utilization Survey). FOCUS allows AFRC to identify those facilities requiring the most urgent care, champion initiatives to acquire MILCON, and prioritize crucial facility repair requirements.

"This facility initiative is for our nine host and 37 tenant locations," said Mr. Ronald Scandlyn, chief of the A7 Planning Branch, which "owns" the FOCUS process. "That's quite a lot of territory to cover and every organization has their list for facility improvements."

FOCUS is a four-step process to determine repair and construction priorities. The first step is the Facility Utilization Survey. During this phase, on-site interviews are conducted with functional points of contact at the study location. The survey determines the functional space authorized (as established by Air Force specifications) and how much space is actually being used by each unit.

The second step is the Facility Condition Assessment, during which the structural, mechanical, and aesthetic elements of the AFRC facilities are assessed against established checklists to identify and document substandard conditions. The third step in the FOCUS process is the Programming Workshop which takes place several months after the survey and assessment. According to Ms. Toni Thorne, AFRC's FOCUS program manager, this step involves working with the installation staff to complete an in-depth analysis of findings that integrate space use and facility condition requirements into a prioritized list of specific and actionable items.

The FOCUS process culminates in the production of a final report, which documents all findings and analysis in great detail and provides supporting documents for the subject unit to properly program and seek funding for all prioritized requirements.

A FOCUS team is typically made up of 10-25 contractor personnel (engineers, technicians, and geospatial specialists) who, under the leadership of AFRC's A7 staff, meet with site locations' civil engineers and their senior leadership. FOCUS team members review current work orders, interview facility managers, and conduct facility inspections documenting deficiencies on interior and exterior elements. The team makes on-the-spot recommendations for fixes, providing senior leadership with an in-brief prior to the survey and an in-and-out-brief at the workshop to explain the breadth of the evaluation and its findings. A final assessment report is sent to the location documenting their planning and programming requirements.

The analytical FOCUS process helps to expedite the review and validation of project funding as both the site customer and the headquarters staff have already coordinated on the requirement scope and work prioritization. To date, 46 AFRC operating locations have been visited by a FOCUS team with a second round of visits now underway. The goal is to visit units about once every four years to ensure plans are updated and changes incorporated into the overall AFRC facility investment strategy.

"FOCUS provided a snapshot of project and space needs that both the BCE and customers did not identify or did not realize due to mission and policy changes," said Lt Col Ted Munchmeyer, base civil engineer for the 482nd Fighter Wing, Homestead ARB, Fla. "In a perfect world, the BCE and customer would be able to identify all the needs of the base given the constraints of policy, situation, and mission, but this is not a perfect world and frankly, due to the voluminous changes of the recent past and the complexity of our systems, it is very difficult to keep up on what is a 'priority.' FOCUS provided us with that ability."

While AFRC host bases have a full-time civil engineering staff to manage a multitude of facility maintenance issues, tenant units are not manned at the same levels. Consequently, when the FOCUS team arrives at a tenant unit to conduct an in-depth facility survey, its findings are fully documented and systematically substantiated by subject matter experts.

A FOCUS project at JB San Antonio-Lackland, Texas, renovated the 433rd Airlift Wing Headquarters exterior and interior, shown before the project *(above)* and after *(below)*. *(U.S. Air Force photos)*

The 349th Airlift Wing Squadron Ops Building at Travis AFB, Calif., also benefited from a FOCUS renovation project. The building is shown before *(right)* and after *(below)* the FOCUS project. *(U.S. Air Force photos)*

"Our latest FOCUS visit identified 31 facility projects, of which five have been awarded funding totaling over one million dollars," said Mr. Steven Hensley, a facility manager at the 459th Air Refueling Wing, which is a tenant unit at JB Andrews , Md.

According to Mr. Hensley, the explosive ordnance disposal facility project is an excellent example of how FOCUS system research helped to gain cooperative emphasis both at AFRC and with Andrews, the active duty host. The FOCUS study validated the need for additional space and funding was awarded to make additions to accommodate the extra workspace for personnel and equipment.

The FOCUS program has helped to identify and prioritize needed facility repair at both host and tenant AFRC locations. Its professional analyses and consequent command emphasis go a long way in pinpointing where precious monies ought to be spent first when it comes to improving our Airmen's quality of life environments and their ability to complete their mission.

Editor's note: A version of this article originally appeared in Citizen Airman, Vol. 64, No. 4, August 2012 (http://www.citamn.afrc.af.mil). AFRC manages the command's MILCON program; it is not managed through AFCEC.

Mr. Van Deventer works in the Expeditionary Combat Support Division, Directorate of Installations and Mission Support, HQ AFRC, Robins AFB, Ga.

New Center Helps Air Force Fight Fire with Fire

Ms. Susan Scheuer
AFCEC/PA

Over the summer, wildfires have been sweeping the nation — for many, forcing evacuations and loss of property as others watched news coverage of the fires engulfing homes and acres of wildland.

For a few, proactively fighting wildland fire with fire to protect wildlife and natural resources is a daily rather than seasonal mission.

By performing prescribed, controlled burns, forestry/range technicians — more commonly called wildland firefighters — minimize the risk and damage from wildfires on Air Force controlled land. As AFCEC seeks to sustain the Air Force's environmental and installation resources, fire is one of the tools employed to accomplish this goal.

"Fires are inevitable on military training ranges," said Mr. Kevin Porteck, Civil Engineering's natural resources subject matter expert, at AFCEC in San Antonio, Texas. "Through proactive wildland management, including controlled burns, the severity and intensity of wildfires are greatly reduced and more easily controlled."

Officially established on July 1, 2012, the Air Force Wildland Fire Center at Eglin AFB, Fla., is home to a specialized force that takes on about 125 prescribed burns along with more than 100 wildfires each year. Situated on 464,000 acres in the panhandle of Florida, Eglin's is a fire-dependent ecosystem, primarily long-leaf pine forest, and home to numerous endangered species. Through a balance of prescribed burns and wildfire response readiness, Eglin sets an example of how complex military goals and wildlife stewardship can form an alliance.

Although officials at Eglin have been performing prescribed burns for about 50 years, with the newly established center and its staff of 12 federal employees and five contractors, they can dramatically increase the amount of land they manage each year. The center has a goal of burning 90,000 acres a year through prescribed burns, said Mr. James Furman, chief of the Air Force Wildland Fire Center.

Typical burns range from 300 to 1,400 acres and most are conducted between December and June. Furman described the long-term approach to controlled burns as a "chess board," requiring a balance of strategic planning and maximizing the efficiency of burn crews. Burn blocks are typically defined by existing firebreaks — roads, waterways, or other boundaries that restrict the burn area.

Each day includes an evaluation of base activity, wind, weather, and manpower to select the best burn areas. The team typically selects the most difficult block that can safely be burned at that time, Furman said, since there are limited opportunities for some areas. Computer predictions of the smoke plumes are sent to base test engineers to prevent interference with visibility, sensitive military missions, and other activities.

Once started, the fires consume the available fuel load, typically dead vegetation. The longleaf pines have adaptive features that enable them to survive the flames. After the natural fuel burns off, the fire crew performs a "mop-up" to ensure all fire is out and monitors the area for additional safety.

The cycle is ironic, Furman said: "The more you can burn, the easier it is to burn; the easier it is to burn, the more you can burn." Mimicking burning that would occur naturally, they keep the ecosystem resilient. The longleaf pines thrive and provide homes to such endangered species as the red-cockaded woodpecker, indigo snake, and reticulated

(above) Mr. Tom Murrie, forest technician and wildland firefighter, uses an ATV-mounted torch unit at the beginning of a prescribed burn in the southeast region of Eglin AFB, Fla.
(opposite page) Air Force Wildland Fire Center Chief James Furman monitors a smoke plume produced by a prescribed burn on Eglin. (U.S. Air Force photos)

flatwoods salamander. Through successful burn operations, they have been able to recover the red-cockaded woodpecker population and increase mission flexibility with regard to usable land, Furman said.

Not only do the crew members have their hands full with prescribed burns, but the nature of the base's primary functions, along with natural factors, create a significant number of wildfires. But by prioritizing key mission areas during prescribed burns, they limit natural fuel sources, and are more effective at preventing fires from spreading out of control and damaging mission buildings and equipment.

The combination of prescribed burns and wildfires mean constant flames at Eglin, making the center a unique training ground for gaining experienced-based qualifications established by the National Wildfire Coordinating Group in Boise, Idaho.

"Pyro-tourists," as Furman has dubbed them, go to Eglin to get concentrated experiential training in wildfire response and prescribed burning. "Practice makes better," and there are very few places where firefighters can get more hands-on practice than Eglin, he said.

Other DOD agencies, the U.S. Forestry Service, the Fish and Wildlife Service, and even the renowned Vandenberg Hot Shots have trained at Eglin. Once people arrive at the center, the staff quickly assesses their skills, integrates them into their team, and exposes them to fire almost every day of a typical two-week training stay.

In addition, students receive classroom and practical instruction in wildland firefighting methods. This includes ATV training, chainsaw usage, bulldozing, and other tactics used to combat wildfires. Unlike structural firefighting, wildfire fighting focuses on containing the fire, rather than extinguishing it.

The Air Force Wildland Fire Center's adaptive and proactive fire hazard mitigation measures are coming to the forefront as wildfires, such as the recent one at Colorado's Waldo Canyon, make headlines. Thanks to these strategies, the vulnerability of the Air Force Academy was greatly reduced when the Waldo Canyon fire approached.

Furman said he hopes to provide adaptive training and information to Air Force programs across the nation, sharing ways to reduce risk at vulnerable bases. "Working together we will continue to accomplish great things."

Eglin Dedicates Building to Fallen EOD Airman

Ms. Lois Walsh
96 TW/PA

The EOD community, family, and friends remembered a fallen hero Oct. 30, 2012, with the dedication of a building in his honor at Eglin AFB, Fla.

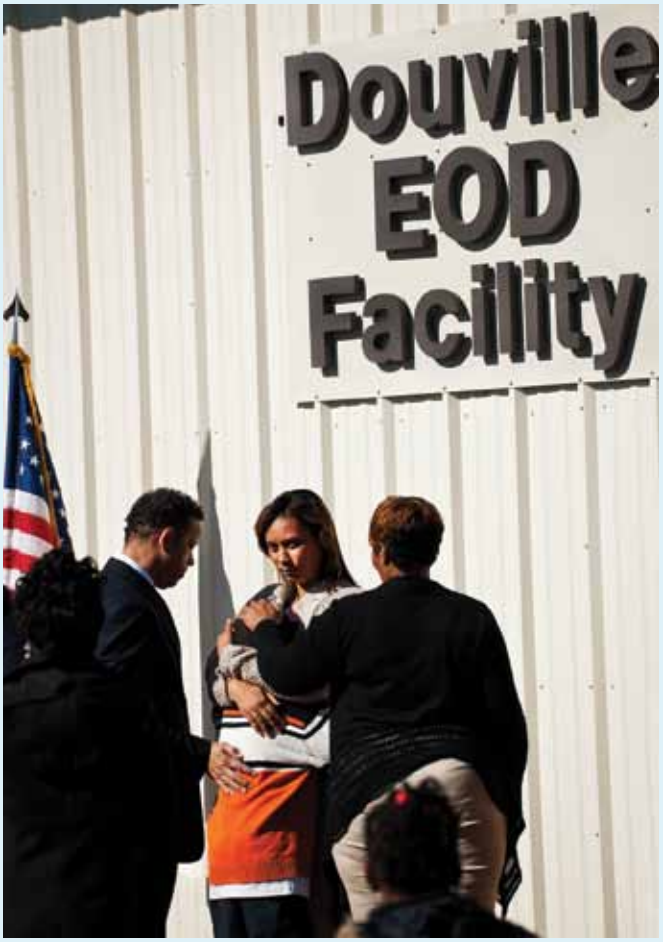
TSgt Daniel Douville, an Airman assigned to the 96th EOD Flight, died June 26, 2011, in Helmand provice, Afghanistan, as a result of injuries suffered from an improvised explosive device.

"This is great for us to remember him," said SrA Johnny Cervantes, who was on patrol with TSgt Douville when he was killed. "But, it's also for people who didn't know him who will walk through these doors and know what he did."

TSgt Douville's wife LaShana agreed. She said people will know of him forever, and the sacrifices he made are not taken lightly.

"I'm grateful," Mrs. Douville said quietly. "I tell my children, 'That is your name up there forever,' and one day they will understand the sacrifices made for them."

Douville was posthumously awarded the Purple Heart, Bronze Star with Valor and the Air Force Combat Action Medal. His name appears on the Explosive Ordnance Disposal memorial and now on Bldg. 1314 on Eglin AFB.



Key Personnel Update

Ms. Kathleen I. Ferguson is the Principal Deputy Assistant Secretary of the Air Force for Installations, Environment, and Logistics, Office of the Assistant Secretary of the Air Force Installations, Environment and Logistics (SAF/IE), Pentagon, Washington, D.C. She was formerly the Deputy Assistant Secretary of the Air Force for Installations, SAF/IE, a position now held by Mr. Timothy Bridges. Mr. Bridges was formerly the Deputy Assistant Secretary of the Air Force for Environment, Safety and Occupational Health, SAF/IE.

Col Markus Henneke is the Associate Civil Engineer, Office of the Air Force Civil Engineer (USAF/A7), Washington, D.C. He was formerly the Chief, Planning Division, USAF/A7. Col Crinley S. Hoover replaced Col Henneke as the Chief, Planning Division until reorganization of the USAF/A7 divisions. Col Hoover is now the Chief, Installations Division, USAF/A7C.

Mr. Terry Edwards is the Director, Communications, Installations, and Mission Support at Air Force Materiel Command, Wright-Patterson AFB, Ohio. He replaces Mr. Paul Parker, who retired. Mr. Edwards was formerly the director of the Air Force Center for Engineering and the Environment, JB San Antonio-Lackland, Texas.

Col David Martinson is the Deputy Director of Logistics, Installations and Mission Support, and the Civil Engineer, Headquarters Air Education and Training Command, JB San Antonio-Randolph, Texas. He was formerly the Associate Civil Engineer, USAF/A7. Col Martinson replaces Col David DeMartino, who is now the Director, Planning and Integration, Headquarters Air Force Civil Engineer Center, JB San Antonio-Lackland, Texas.

Col Richard Houghton is the Chief, Operations Division and the Civil Engineer, Headquarters Air Force Global Strike Command, Barksdale AFB, La. He replaces Col Michael Hass, who retired. Col Houghton was formerly the Commander, 802nd Mission Support Group, JB San Antonio-Lackland, Texas.

CE is AETC's 2011 NCO Instructor of the Year

Mr. Dan Hawkins
82 TRW/PA

For TSgt Ryan Tennyson, AETC's NCO Instructor of the Year for 2011, life as an Explosive Ordnance Disposal (EOD) instructor couldn't get much better.

Assigned to the 366th Training Squadron Field Training Detachment 3 at Eglin AFB, Fla., part of the 782nd Training Wing based at Sheppard AFB, Texas, TSgt Tennyson earned the annual award not only for his outstanding work at Naval School Explosive Ordnance Disposal (NAVSCOLEOD) educating Airmen, Soldiers, Sailors, and Marines about improvised explosive devices, but also for his deployment time as well.

TSgt Tennyson, who's been at NAVSCOLEOD for close to four years, deployed as part of Task Force Troy in Iraq during 2011, acting as the single point of contact within the task force as the improvised explosive device liaison officer.

"The brotherhood we share, that's what I love best about being in EOD," TSgt Tennyson said. "It starts right here in tech training and it's carried on out to the field and down-range. It's a very tight-knit family."

Being in a position to mentor the newest generation of EOD technicians is a satisfying component of being an instructor.

"Showing these students the right way to go about your job and Air Force career is great," TSgt Tennyson said. "I work hard every day to make sure they are learning what they need to know to be competent and safe technicians."

TSgt Tennyson's work ethic and ability to pass his knowledge on to his students in an extremely technical career field has not gone unnoticed.

"Ryan brings his 'A' game to the training environment every day," said Lt Col Jerry Sanchez, 366th TRS Detachment 3 commander. "You can't ask for a better role model for our students."

Headed to the 52 CES at Spangdahlem AB in Germany after he completes his tour as an instructor in the fall, Tennyson could not be more excited to get back out to the field.

"I've had a great time here," he said. "But working out in the field and getting the chance to perform the real world mission is something we all live to do."

TSgt Ryan Tennyson (left), an EOD instructor with the 366 TRS Detachment 3 at NAVSCOLEOD at Eglin AFB, Fla., demonstrates tools and methods practices for students. Tennyson, the 2011 AETC NCO Instructor of the Year, split the year between teaching at NAVSCOLEOD and deploying to Iraq as part of Task Force Troy. *(U.S. Air Force photo)*

SSgt Ernest Andrews, 7 CES, Dyess AFB, Texas, participates in combat skills training at JB McGuire-Dix-Lakehurst, N.J. (photo by SSgt Kenneth Bricker; graphic treatment by Mr. Jeff Pendleton)

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