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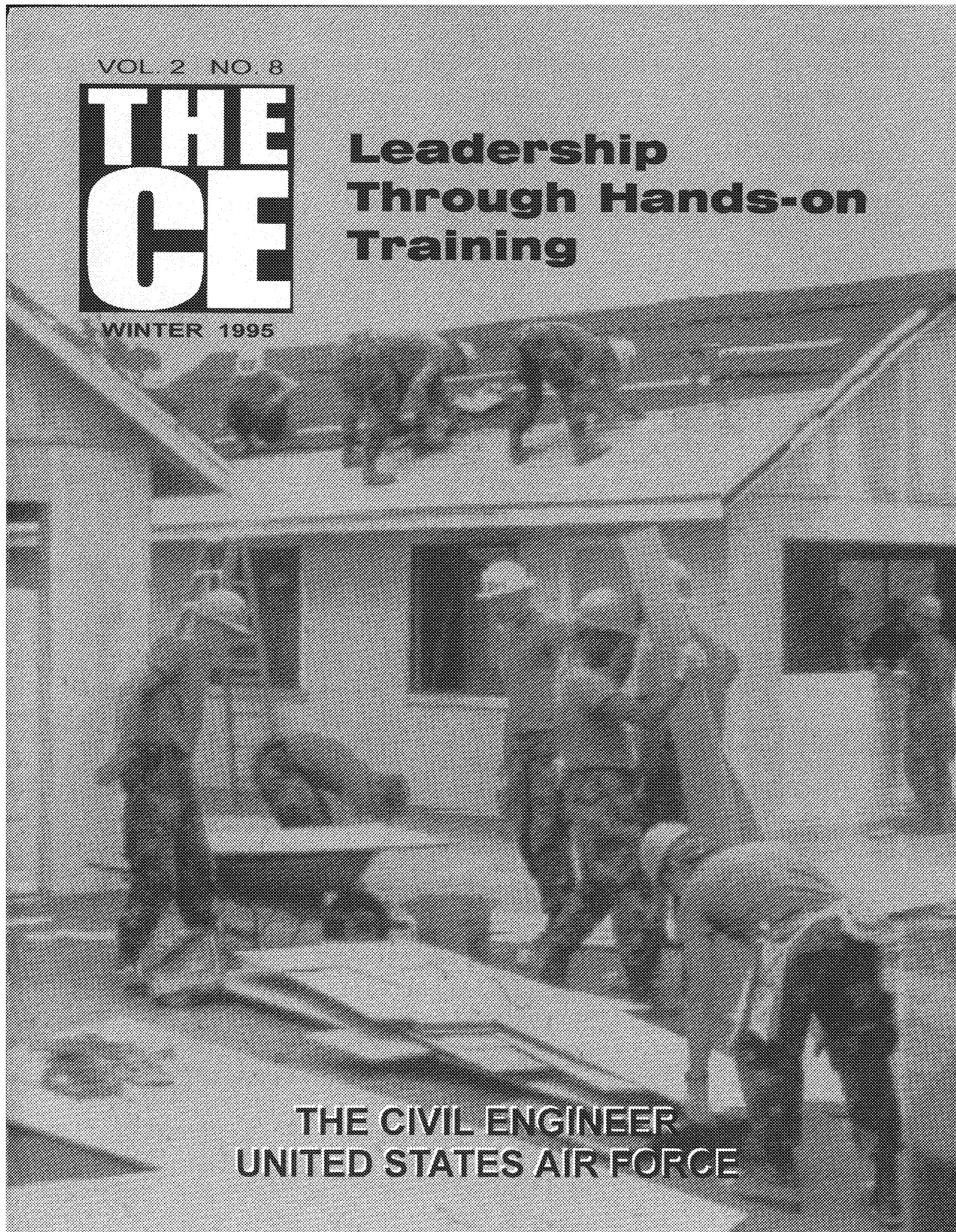
THE CE

WINTER 1995

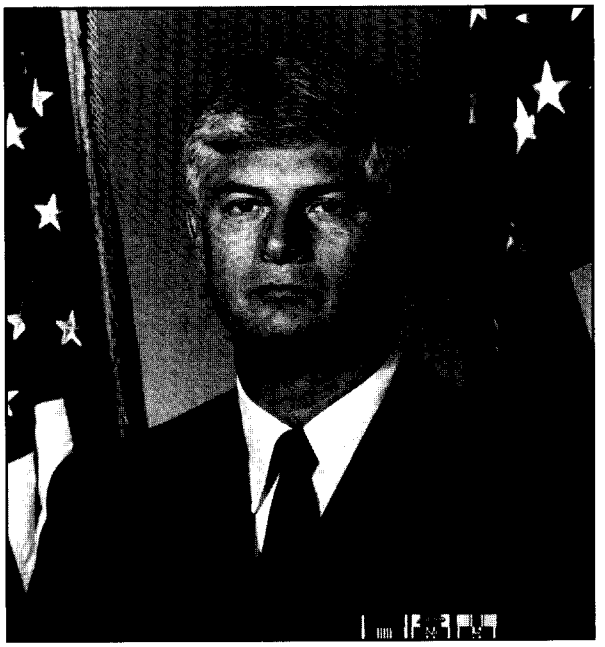
Leadership Through Hands-on Training



THE CIVIL ENGINEER
UNITED STATES AIR FORCE

FROM THE TOP

AFCESA -- meeting the challenge of a changing world



Col. Paul W. Hains III

Change. A word we have become accustomed to in the Air Force. Change in the force strength, base closures, objective squadrons, uniform changes. When will it stop?

In a changing world with changing threats and political influences, change is essential and part of a dynamic process that assures organizations are geared to best respond to new challenges. An organization that does not step up to this changing environment will eventually stagnate and become nonproductive and perhaps nonessential to mission accomplishment.

Change has certainly been the mark of Team AFCESA during the past decade. The Agency has been restructured several times to meet the challenges of the Civil Engineer community. We traversed the New Year through a program we entitled "Relook," with a totally new organization geared to ensure our reduced resources are focused on our customer needs. To accomplish this task, we first had to ask ourselves "Who is our primary customer?" Although we support both Air Staff and MAJCOMs, we focused on our primary customer, the Base Civil Engineer organization.

This focus is best captured in our mission statement, recently developed through our Quality program—"Providing the best tools, products, and professional support to maximize Air Force Civil Engineer capabilities in base and contingency operations." This statement forms the baseline for all activities of this Agency and the foundation of our new organization.

The "Relook" process started with a review by you, our customers, of what you wanted or needed the Agency to do. The result was a prioritized list of some 286 tasks that generated a needed tool for Base Engineers. Once we finalized the list and applied associated manpower to accomplish tasks, we limited output to core requirements and organized accordingly. Our new organization is streamlined, linked to base services, and reflects products that directly support BCE activities.

Our four directorates—Contingency Support, Operations Support, Technical Support, and Field Support (CEMIRT)—are focusing on seven primary product areas: Training, Management Practices, Technical Consultation, Computer Support, Vehicles and Equipment, and Readiness Capability. Training is in the forefront, focusing on our most critical asset—our people. Our vision is to move from paper-based training to computer-based training and testing for all military and civilian Civil Engineers. This multi-media, interactive environment is not intended to replace hands-on field instruction, but it will fill a practical knowledge gap where one previously existed. While the civil engineering community, partnering with AETC, is on the leading edge of information exchange in the training arena, be aware that we are breaking new ground on this particular journey. Our efforts must be diligent and earnest as civil engineering activities are likely to support future contingencies.

With increases in global taskings, Team AFCESA's need increases to communicate with the field and the commands we assist. There must be a free flow of information that will allow us to synopsize the services we provide so they can be readily utilized. Our monthly A-Grams provide this information to the field. To date, we have published 26 A-Grams and will continue to update you each month, providing you an arsenal of tools to select from.

There continues to be many forums for change in our business. Contracting out of base-level service activities, automation modernization, RED HORSE and Prime BEEF force structure, READINESS CHALLENGE V, and modernized Fire Protection and Utility equipment are on the forefront of our efforts. Workshops to formulate consensus on these issues will continue to be the forum for change. Partnering with the service and construction contract industry will be essential to meet the challenge of providing top-notch quality with reduced resources.

Our nation is now achieving security objectives without the use of lethal force. This provides us with a window of opportunity to emphasize the training and equipping of our troops. A core capability of this Agency is the ability to deliver awareness and inroads to products, ideas, and operations which help sustain and increase the skills of civil engineering personnel.

This year, we hope to stabilize our new organization to focus on delivering needed tools to our base engineers; i.e., a better trained warrior, handbooks, training aids, technical evaluations, and improved readiness capability.

by Col. Paul W. Hains III
AFCESA Commander

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Merging Philosophies:

AFMC Civil Engineer talks changes, manpower cuts

■ Utilizing "cradle to grave" management principles, Brig. Gen. Robert J. Courter Jr., is leading troops through a complex period of change.

by H. Perry Sullivan Jr.

Brig. Gen. Robert J. Courter Jr.

The CE: Two years ago, during the creation of AFMC, you were responsible for putting together a new civil engineer organization. In civil engineering terms, what was the impact of merging Air Force Logistics Command and Air Force Systems Command?

Brig. Gen. Courter: It was the merging of two very different philosophies, not unlike two foreign countries coming together. On one hand, we had people involved with acquisition, test, and science and technology, while on the other, focus was on the sustainment side of our operations—the depots. Bringing these two entities together to form one seamless organization was a challenging endeavor. I am quite proud of the results, which include the civil engineering and the environmental business. The Systems Command headquarters had taken very serious reductions just prior to the merger. They were down to 40-plus people. Things typically accomplished in a headquarters, in terms of programming and follow-on resource management, were not done because there were not enough people. In addition, we picked up Kirtland AFB (N.M.) from Air Mobility Command, which brought us up to 14 installations with a gross replacement value of more than $35 billion. We then received three former Air Force Communications Command organizations. At the same time, AFLC was undergoing headquarters staff reductions. So, our formidable challenge during the past two years has been accomplishing the merger, assimilating the other bases, and maintaining high performance while working in an austere resource environment.

The CE: These reductions and manpower constraints obviously were carried into the merger and assimilation processes. How did you handle them?

Brig. Gen. Courter: During the process of merging the two commands, we identified critical CE and environmental management products and services — where functions were performed and how manpower intensive they were. This gave us a solid foundation to work from in reducing or moving selected services. We eliminated others. For years, many commands employed functional experts in the areas of roofing, pavements, heating, ventilating, and air conditioning systems, cathodic protection, and so on. Working in these specific areas was their primary job. We had to make each of these a secondary job for people, caus-

See ***Leadership,*** *Page 5*

"We have compartmentalized environmental work into three main areas -- restoration, compliance and prevention. One notable difference at the field level is 11 of our environmental managers report directly to the center commander instead of the civil engineer . . . It works because the center commander is immediately and ultimately responsible for the environmental program at his or her installation."

Brig. Gen. Courter

Leadership: mission requirements drive installation capabilities

Continued from Page 4

ing us to rely heavily on AFCESA for that kind of expertise. We also restructured the way we accomplish infrastructure assessment and management along with the engineering and construction parts of our business. We transitioned from a long, complicated process to one focused on customer service. For example, in engineering and construction, integrated teams are being formed by base, focusing on a specific AFMC center. Our teams are responsible for all infrastructure development and for all MILCON program management — from the programming stage, through development, design and final construction. They are also responsible for assessing and improving the reliability of the infrastructure at each of their assigned centers.

The CE: How do you differentiate between the responsibilities faced by civil engineers in other commands, and those that you face as The Civil Engineer for AFMC?

Brig. Gen. Courter: What makes AFMC's mission so different is that it develops, acquires, manufactures, and provides follow-on maintenance for most Air Force weapons systems. This "cradle-to-grave" management of weapons systems became a command reality as a result of the merger. AFMC's mission requirements drive unique installation capabilities. Most noticeable is the size and complexity of our facilities. Anyone who has been to a depot quickly understands that this is not a typical operational Air Force base. Some AFMC depot facilities are blocks long, large enough to house several C-5s under one roof. Also, many of our installations have a base or bases within a base since we support many tenants — some of which are wing-level operational units. This size and complexity requires attention and a special approach to facility O&M. AFMC facilities are greatly varied and unique. Our product centers, for example, support acquisition and laboratories. Each is different, devoted to aeronautical systems, space and missile systems, human systems, and electronic systems.

The CE: With such a large and diverse command, how do you manage the process of assessing facilities and establishing priorities?

Brig. Gen. Courter: With decreasing budgets, we must look at all of our requirements then, determine which will yield the greatest return. We have developed a program which assesses the command's facilities and utilities using a rating system that guides us in maintaining and improving the command's infrastructure. We break down infrastructure into nine common systems: buildings; utilities; pavements; exterior electric; fire protection; heating, ventilating and air conditioning; interior electric; mechanical; and sanitary. Each common system can be broken down further into components and subcomponents. We rate each system on a scale of zero to 10 (zero means broken, 10 means new) based upon published maintenance and repair condition standards. We have published our own standards in order to level or normalize ratings across AFMC. Our craftspeople and engineers team up to rate each system against our standards, thereby providing a quantified condition index. Once this is accomplished, we mathematically combine it with the mission requirement rating to generate a system reliability index. From the comprehensive list, we can then maximize return on investment by comparing project investment cost with return on the system reliability index. We use this to input our requirements to the Commanders' Facility Assessment and connect it to our actual funding of projects. Our command-wide goal is a system rating of 8.5 which translates into an 85 percent reliability rating. When all command facilities are at this level, we will focus on maintenance and systems repair and replacement.

The CE: What about your environmental program?

Brig. Gen. Courter: Our environmental programs mirror our installations with respect to size and complex-

See ***Compliance,*** *Page 7*

The Canadian air force team, shown here arriving for Readiness Challenge IV, will be this year's lone non-U.S. competitior.

Readiness Challenge V teams set

The teams slated to compete in Readiness Challenge V, the civil engineering and services worldwide competition, have been announced by officials at the Pentagon.

The Air Force Civil Engineer Maj. Gen. James E. McCarthy and Col. Stevan B. Richards, the Air Force Director of Services, randomly selected the teams which will represent each major command, the Air National Guard, Air Force Reserve and two direct reporting units. A team representing the Canadian air force — 4th Airfield Engineer Flight, 4th Wing, Cold Lake, Alberta, will be the lone international competitor in the this year's event. The 12 U.S. Air Force teams are:

Air Combat Command: 554th Support Group, Nellis AFB, Nev.

Air Education and Training Command: 97th Air Mobility Wing, Altus AFB, Okla.

Air Force Materiel Command: 96th Air Base Wing, Eglin AFB, Fla.

Air Force Space Command: 341st Missile Wing, Malmstrom AFB, Mont.

Air Force Special Operations Command: 16th Special Operations Wing, Hurlburt Field, Fla.

Air Mobility Command: 437th Airlift Wing, Charleston AFB, S.C.

Pacific Air Forces: 354th Fighter Wing, Eielson AFB, Alaska.

United States Air Forces, Europe: 100th Air Refueling Wing, RAF Mildenhall, England.

Air Force Reserve: 932nd Airlift Wing, Scott AFB, Ill.; and 934th Services Flight, Minneapolis-St. Paul IAP, Air Reserve Station, Minn.

Air National Guard: 130th Airlift Group, Charleston, W.Va.

United States Air Force Academy, 554th Support Group, Colorado Springs, Colo.

11th Support Wing, 11th Support Group, Bolling AFB, Washington, D.C.

Readiness Challenge V will be held at Tyndall AFB, Fla., April 9 - 13.

"Participating units are announced approximately 60 days prior to departure for the competition," said Col. Daniel Barker, event project officer. "Events are announced only after teams arrive at Tyndall. This provides a realistic picture of the team's overall preparedness to perform its wartime missions."

Held every two years, Readiness Challenge sharpens the warfighting capabilities of civil engineer and services personnel while also fostering leadership and evaluating training programs. The 13 teams, each comprised of 27 participants, will vie for individual and team awards. **(AFCESA Public Affairs)**

Compliance: self-assessment programs part of restoration solution

Continued from Page 5

ity. For instance, total AFMC environmental funding is nearly $500 million annually.

The CE: How have you organized your environmental management program?

Brig. Gen. Courter: Along the same lines as the rest of the Air Force, we have compartmentalized environmental work into three main areas — ***restoration, compliance, and prevention.*** One notable difference at the field level is 11 of our environmental managers report directly to the center commander instead of the civil engineer. They adopted this model due to the proliferation of environmental laws and regulations, coupled with the unique size and complexity of AFMC installations. It works because the center commander is immediately and ultimately responsible for the environmental program at his or her installation.

The CE: How are the component parts of the program working?

Brig. Gen. Courter: Environmental ***restoration*** of an AFMC site is an issue of magnitude and variety. Due to the complexity and size of these sites, the complete remediation cost at some centers could be in the range of $1 billion to $2 billion. To make sure we do the most affective and important projects, we are employing a risk assessment process which involves many parameters, including health and lasting environmental damage, measured against cost and benefits. This allow us to focus our dollars on the most important, or high-risk sites in the restoration business. In California, McClellan AFB has been successful in integrating the risk analysis approach into their program. Both EPA Region IV and the state of California have been supportive. We want to extend this success to our other centers. Additionally, we track other critical indicators including the distribution of funds between study and actual cleanup, the time it takes to recover a base, our ability to obligate restoration money and the availability of needed technologies.

Under ***compliance,*** there is not another command in the Air Force that has a higher probability per square foot of a compliance incident than this command. If you consider all of the industrial operations, labs, and test facilities that we have, there are enormous opportunities for out-of-compliance situations. We have a strong and proactive ECAMP program, which is a system of ongoing self-assessments to ensure continuous improvement of a base's entire compliance program. When you consider the intensity and frequency of review and inspection that we undergo from various regulators, we can be proud of our results.

Of course, the long-term solution is getting ahead of the problems by finding alternatives to processes, practices and substances which have caused problems in both the past and present. Pollution ***prevention*** involves reducing the amounts and uses of ozone depleting substances and items on the EPA's target list of 17 toxic chemicals and compounds. Many of these chemicals are tied to industrial processes in the command, and in some cases are required of field-level maintenance activities doing work on weapon systems over which AFMC has technical control. Coordinating the command's program requires a standing pollution prevention integrated product team to make it happen. The team's objective is to remove these chemicals from use at our bases. By mid-1995, we will be more than one year ahead of our base objectives with a 70 percent reduction in pounds purchased of the 17 chemicals off he EPA's list. Part of our success has been through implementing the hazardous materials pharmacy distribution concept at all AFMC installations. The pharmacy, in effect, issues hazardous materials to base organizations on an as needed basis, thus eliminating excess purchases. This concept has produced excellent results.

The CE: Where do you stand now in foreign military sales construction?

Brig. Gen. Courter: I'm responsible for all foreign military sales construction programs. Many of the facilities you saw during Desert Shield and Desert Storm, both complete air bases and supporting command, control, communications, and intelligence facilities, were built through the foreign military sales construction programs that are directed from this command. I have a staff here and a staff on site in other countries. I currently have active programs in Saudi Arabia and Egypt. The scope of those programs is about $2.1 billion,

*See **AFMC,** Page 22*

Florida fee illegal

Florida State Department of Motor Transportation officials announced that a previous policy of charging an "impact fee" to some individuals to register motor vehicles in that state is unconstitutional and has been discontinued.

Florida officials also announced intentions to refund money, however, no plan for distribution has been set.

Service members stationed in Florida during the time the "impact fee" was administered may be eligible for a refund, including those who've since transferred, separated or retired, officials said. For further information, contact the FSDMT at 1-800-299-TAGS. **(USCENTCOM)**

Mileage rate climbs, now 30 cents

Uncle Sam now pays government employees 30 cents a mile when they drive their own cars on official business. The jump from 25 cents went into effect Jan. 1.

General Services Administrator Roger Johnson approved increases for use of personal cars, motorcycles and airplanes on official business. Reimbursements for using a motorcycle have increased from 20 cents a mile to 24.5 cents. Reimbursements for flying an airplane have nearly doubled, from 45 cents a mile to 88.5 cents.

The reimbursement rate for cars had been 25 cents a mile since 1991. Congress passed legislation allowing the increase and President Bill Clinton signed it in October. General Service Administration had suggested such legislation in 1992, but Congress failed to pass it at the time.

The Internal Revenue Service changed its rules in 1994 to allow businesses to reimburse employees at 29 cents a mile. The government reimbursement rate cannot exceed the standard mileage rate IRS allows private businesses, also 30 cents per mile in 1995.

For more information, contact a base finance office. **(AFIS)**

Enlisted to get single dorm rooms

■ Vision 2020, the Air Force's plan to house all enlisted personnel in single rooms on base moves closer to reality following joint-service agreement.

by MSgt. Louis A. Arana-Barradas
Air Force News Service

The first step of Air Force's Vision 2020 plan to provide airmen vastly improved dormitories is nearing reality.

Army, Navy and Marine Corps officials agreed Jan. 9 to adopt a common construction standard featuring private sleeping rooms for enlisted dormitories in all the services.

Sent to the Defense Installation Policy Board Jan. 19, the plan now awaits approval by Defense Secretary William Perry.

The Air Force first introduced the private room concept in early 1993, said The Air Force Civil Engineer Maj. Gen. James E. McCarthy. He added that the aim of the first step of Vision 2020 is to provide unaccompanied servicemembers dormitories with private bedrooms, walk-in closets and a shared bathroom and kitchenette.

The long-range plan calls for eventual conversion to an efficiency apartment standard slated for completion by 2020.

"Our surveys indicated our troops wanted privacy where they lived," McCarthy said. "Young people have different expectations today. They have different lifestyles. That room ought to be their home. They should be able to be by themselves once in a while."

Vision 2020 is the Air Force attempt to provide airmen the privacy and living conditions they want, more akin to those found in off-base apartments. "That is a major change from the way we have billeted our people in the past," McCarthy said.

The new plan will replace the "two-plus-two" scheme adopted by the Defense Department more than a decade ago. Under this plan, two people live in one room and share a bathroom with two people in an adjacent room. Roommates shared — including closet space — a 180-square-foot room.

That standard hasn't been fully implemented and only about 72 percent of Air Force single enlisted people live in these type dormitories.

The other 28 percent still live two people to a room with "gang latrine" standards.

The new standard would give each person a private room with about 115 square feet, apart from the walk-in closet.

"If we get the authority, we would probably first apply the new standard in replacing the old dormitories with gang latrines," McCarthy said.

However, he said, "two-plus-two" dorms are still being constructed. In Fiscal 1995, $91 million was earmarked for this type construction — which added more than 4,000 bed spaces. "I would expect us to continue spending around $100 million to $120 million every year on dormitory construction.

"At that rate, implementing the new standard (replacing the gang latrine dormitories) will take from eight to 10 years," McCarthy said. The cost would be about $1 billion.

by TSgt. Andra Higgs

Brian Willis, a local construction worker, uses an air hammer to complete work in a dormitory room at Tyndall AFB, Fla.

The general said that time period could be less if more Air Force budget dollars were put into the plan. "But the Air Force chief of staff has a lot of choices to make in the budget, including other quality of life issues."

In addition to constructing new standard dormitories, Air Force officials want to put one airman to a room in the existing "two-plus-two" dormitories and move the rest off base in those communities where housing is available and affordable.

However, that would increase basic allowances for quarters spending by an additional $50 million a year,

See ***Quarters,*** *Page 9*

Quarters: dormitory amenities to end days of gang latrines

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McCarthy said. "That $50 million would have to come from somewhere else."

New standard dormitories will cost more. And in the wake of criticism of the armed services' readiness, some people believe defense dollars should go toward maintaining a ready combat fighting force.

McCarthy said he believes providing the troops better places to live is fundamental in maintaining readiness, "an investment in the productivity and motivation" of the force.

He said it didn't "make a lot of sense" to send young airmen through basic training, up to 52 weeks of technical school, then out on the flightline and expect them to do perfect work fixing airplanes if they live "in a lousy room."

The new plan, McCarthy said, shows troops "we're putting money behind our statements, not just making statements."

"This (commitment) is fundamental to readiness — as much a part of readiness as spare parts for airplanes," he said.

One week from pinning on his first stripe, AB David A. Poirier has been in the Air Force six months and knows only the gang-latrine dormitory life. A KC-10 hydraulics mechanic at Travis AFB, Calif., he shares a room. Though he said it "isn't that bad" because his roommate is a friend, he has complaints about living in an "ancient dormitory."

"Where we live now, we have old furniture," it's dark and the heat doesn't work very well," he said. "And I can't stand the bathroom; it's cold and damp."

Across the street from Poirier's dormitory, a new two plus two dormitory is being completed. Told he might be moving into the new dormitory in May, he said the day won't come soon enough.

"I can't wait to move there," Poirier said. "I'll finally have my own room and some privacy."

For airmen assigned to Tyndall AFB, Fla., moving into new buildings could come as soon as summer. Renovations to an enlisted dormitory, converting a 96-room facility to 93 — with new furniture, heating units and bathroom facilities and other amenities — are slated for completion in August. According to base officials, 24 rooms will be single occupancy, the others rooms will house two airmen each.

"We believe in spreading the wealth on a project like this," said Jacques Smith, site superintendent Dun/Car (Duncan Carlisle), which began the project in December. The Anniston, Ala., company — whose workers had previously renovated the Tyndall NCO Club — began the current assignment in December.

"We've gone to the temporary services and registries and hired people from the local area for general construction work on this project," said Smith. "At any given time, we could have eight to 20 local laborers on-site. When we're done, these rooms will have been furnished with new materials ranging from air conditioners to wall lockers."

Partnership proposal earns environmental grant

by Larry Testerman
Scientific and Technical Information Manager

For the second time in two years, a proposal submitted by Armstrong Laboratory's Environics Directorate and a team of private-sector contractors has been selected to receive a Technology Reinvestment Project Grant from the Advanced Research Projects Agency — this time for $2.7 million.

The award-winning proposal was for advanced development of the Environmental Systems Management, Analysis and Reporting neTwork (E-SMART). This system, sponsored by the Defense Department and developed by General Atomic Corporation, San Diego, will seek to interconnect diverse environmental sensors and sampling systems into monitoring and control networks. It is designed to simplify the installation, operation and management of environmental monitoring networks which are used to regulate the presence of contaminants in ground, soil and surface water sources.

The advanced systems will be capable of detecting spilled fuels, chlorinated solvents and heavy metals, and will be compatible with the E-SMART environmental monitoring standards now being developed by the Defense Department. It will also provide hydrological measurements, including temperature and pH balance, while offering automated error correction to enhance data accuracy.

The TRPG emphasizes investments in dual-use technology for commercial and military applications. The project is being implemented by a collaboration of six federal agencies — the Departments of Defense, Commerce, Energy and Transportation; the National Aeronautics and Space Administration, and the National Science Foundation.

Partners with Armstrong Laboratory — located at Tyndall AFB, Fla. — and General Atomic Corporation are: Isco, Inc., Lincoln, Neb.; Photonic Sensor Systems, and Georgia Tech Research Center, both located in Atlanta; and, Science and Engineering Analysis Corporation, San Diego.

The partnership is expected to build an integrated system, including data handling, networking and 3-D visualization software for complete site management. The system will be tested against standard laboratory techniques to ensure regulatory acceptance. There are also plans for the system's extension into the area of air contamination, and its associated compliance monitoring and process-control application programs.

Matching funds from partner organizations are expected to raise project funding to $5.4 million, while follow-on options and matching ARPA funding could boost the program's ante to $9.8 million. The funds will be used for development and commercialization of resulting technology.

In particular, the team goals are to develop: 1) a new class of chemically specific, microsensors utilizing integrated optical interferometry technology; 2) commercially viable

*See **Grant**, Page 29*

Civil engineers adopt career-field badge

For years, Air Force civil engineers have wanted a badge of their own. They wanted to proudly display their identity as a member of the civil engineer career field. They finally have it.

The new Civil Engineer occupational badge has been approved and should be available for purchase at base exchange military clothing sales stores.

The Air Education and Training Command Civil Engineer Col. Todd I. Stewart designed the badge and authored the design's heraldic significance. The basic design has not changed since the original badge was announced in the September-October 1993 issue of *The Civil Engineer.* Maj. Gen. James E. McCarthy, The Air Force Civil Engineer, made some refinements to the badge itself to improve its appearance. The result is a professional, dignified symbol of the Civil Engineer career field.

Three badges are available to Civil Engineer officers and enlisted personnel: Basic, Senior, and Master. Air Force Instruction 36-2923, "Aeronautical, Duty and Occupational Badges," provides the policy on award and wear of all badges. The following are some civil engineer specific clarifications to the existing policy:

OFFICERS

BASIC BADGE can be worn by new officers after completing the following Air Force Institute of Technology courses: Management 101, Introduction to Base Civil Engineer Organization; and Engineering 485, Air Base Combat Engineering. Officers in the 1993 year group and earlier are authorized to wear the basic badge when approved by their commander or senior civil engineer officer if assigned to a staff organization.

SENIOR BADGE can be worn after seven years in the specialty.

MASTER BADGE can be worn after 15 years in the specialty.

ENLISTED

BASIC BADGE is awarded at graduation from 3-level training.

SENIOR BADGE after attaining an AFSC 7-level job skill classification.

MASTER BADGE can be worn after becoming a master sergeant with five years in the specialty after attaining the 7-level.

All time spent in the Disaster Preparedness and Explosive Ordnance Disposal career fields counts toward Civil Engineer time. EOD personnel may wear the EOD badge in addition to their Civil Engineer badge, but only on the blue uniform.

Officers and enlisted personnel who transfer from the Army, Navy, or Marines receive full credit for time spent in equivalent Civil Engineer career fields in the other services.

Firefighters assigned to group level and below may wear the fire protection shield or the Civil Engineer badge on the aircrew style name patch when wearing BDUs. Above group level, only the Civil Engineer badge is worn.

Time spent in a special duty AFSC (e.g. PME or ROTC instructor) is not credited toward time required to earn each level of the Civil Engineer badge. However, time spent attending PME or continuing education counts with no limit.

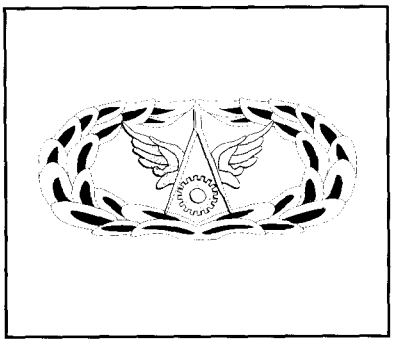
The senior and master badges are always worn only when approved by the unit commander or the senior Civil Engineer officer in a staff organization. This should be done at an appropriate ceremony.

McCarthy is considering modifications to the badge award criteria to promote technical competence and commitment to the Air Force mission. For example, awarding the Senior Badge early to captains if they have Professional Registration is one proposal.

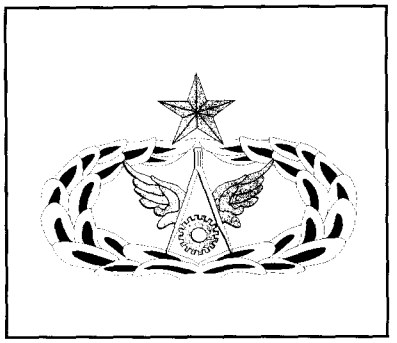
Accompanying this article is a statement of the heraldic significance of the Civil Engineer Occupational Badge's elements. Please read it to understand the meaning of the badge. A great deal of time, effort and thought went into developing the badge and each individual element has a specific meaning.

The badge represents the accumulated experience of thousands of men and women who have performed engineer duties for more than 50 years. The standard of excellence set by these people is what allows today's civil engineers to wear the badge with the knowledge and confidence that they will be recognized throughout the Air Force as having achieved an expected level of skill and competence. As McCarthy stated, "Wear it proudly!" **(Courtesy, office of The Air Force Civil Engineer)**

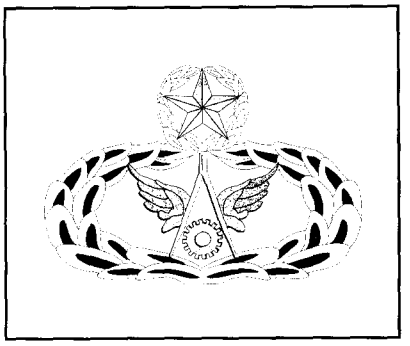
New badges



Basic badge



Senior badge



Master badge

Badge elements link engineering profession principles

The gear wheel and compass have historically been used to represent the engineering profession, in the military and private sector.

In the military, the gear wheel was used on the Army Air Force Technician badge for those persons associated with aviation engineering. The gear represents the essence of engineering, applying scientific principles and technology to practical ends. The gear is an especially appropriate symbol for Air Force Civil Engineers because the gear is an element (representing the built environment) that meshes with others (weapon systems and trained personnel) to enable a larger machine (the Air Force) to perform its function. The gear is used here as the common symbol to represent all Air Force engineers, having many diverse skills, who are employed worldwide in providing, sustaining and protecting the installations and environment the Air Force needs to project Global Reach and Global Power.

The compass is a precision tool historically used by all engineers in designing and constructing facilities and equipment. More specifically, the compass is an engineering tool used to describe the boundaries of an effort. Placing the gear within the compass is intended to symbolize that all of the diverse engineering specialties included within the Air Force Civil Engineers are represented by the badge. Finally, by superimposing the traditional Air Force wings on the legs of the compass, the badge is intended to portray the fundamental linkage between engineering and aviation and that the built environment provided by Air Force Civil Engineers is the foundation supporting Air Force missions and people. **(Courtesy, office of The Air Force Civil Engineer)**

Front and center

by Joe Garza

Air Force Civil Engineer Support Agency Commander Col. Paul W. Hains III, presents the Civil Engineer Occupational Badge to 2nd Lt. Glen Korban, 377th Civil Engineer Squadron, Kirtland AFB, N.M., during a recently held ceremony at the Silver Flag Exercise Site, Tyndall AFB, Fla. As an honor graduate in the Initial Skills Training sequence, Korban earned the distinction as the first civil engineer from his class to wear the new badge. Forty-eight other officers completed the eight weeks of instruction which include base civil engineering and air base combat engineering courses, and officer field education.

Suggestion earns AFSOC airmen bucks

Four Air Force Special Operations Command airmen have been recognized through the Air Force Suggestion Program for developing a life- and money-saving method for airdropping supplies over war-torn Bosnia-Herzegovina.

Captain Matthew B. Ash, SMSgt. Haldor C. Regi, and MSgts. Michael G. Duffie and Mark N. Heflin, earned $6,000 each for developing the Tri-Wall Aerial Delivery System to better distribute relief supplies into Bosnia. In its first year of use, the TRIAD system has saved more than $3.8 million.

The system uses a cardboard tri-wall box that is cut and contained in such a way so that upon release from an aircraft, the box disintegrates in midair and scatters its contents over a larger target area. The method allows for a more even distribution of goods over a wider area. The previous method of dropping a 2,000-pound crate attached to a parachute was both expensive and dangerous, as it often times caused damage on the ground when landing at 50 to 60 miles per hour.

One bundle typically cost upwards of $750. TRIADS allows the light, individual meal packets to fall softly to earth. Air pockets in the packets slow it down considerably, all but eliminating the chances for personal injury when hitting the ground. **(AFNS)**

The "Bucking Bulldozer" was featured in the Aviation Engineers badge, a symbol of support to the Army Air Forces beginning in June 1940.

Historic markings symbolize unit missions

■ ***The current civil engineer badge is preceeded by a long line of different emblems and logos - which have distinguished units and individuals who have worn them. No less than a source of pride, the emblems of some organizations have helped promote the succes of their work, as was the case for RED HORSE after a huge mural of their patch appeared at the end of a Persian Gulf runway. During World War II, the Aviation Engineers' "Bucking Buldozer" was also a familiar landmark embellishment.***

by Dr. Ronald B. Hartzer
AFCESA Historian

Symbols have distinguished friend from foe in warfare throughout history. The Air Force, like other military units, employs heraldic emblems as a means of identification and for esprit de corps. These emblems symbolize a unit's history, mission or function.

The use of heraldry dates back to the 12th century, when large, closed helmets made warriors unrecognizable to their followers. To prevent confusion, feudal leaders painted their shields with original, simple, easily memorized shapes in highly contrasting colors, called cognizances. In addition, the warrior also displayed the design on his surcoat, a garment worn over his armor to protect it from the weather, from which the phrase "Coat of Arms" is derived. During medieval times, the herald was a person who issued a king's official proclamation of tournaments and the regulations that governed them. In tournaments, the cognizance helped the herald distinguish between the different armored men. To prevent duplication of cognizances, heralds eventually compiled Rolls of Arms, thereby establishing the system known as Heraldry.

A system of heraldic emblems evolved within the air forces of the allied and central powers during World War I. Gen. Benjamin Foulois established the policy that each squadron would have an official insignia painted on the middle of each side of the airplane fuselage. The well-

See ***Logo,*** *Page 13*

Logo: emblems a welcome sight to military personnel

Continued from Page 12

known Hat-in-the-Ring design of the 94th Aero Squadron was probably the most famous.

To trace Civil Engineer heraldry, one must go back to the Corps of Engineers' Castle. First adopted in 1839, it represents classical military engineering and the construction of fortifications, hence the castle.

It was this insignia that engineers wore while building early airfields such as Langley Field, Va.; Chanute Field, Ill.; and Maxwell Field, Ala.

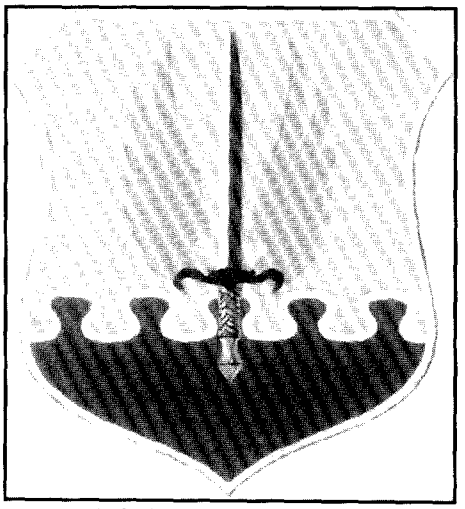
In June 1940, with war on the horizon, Gen. "Hap" Arnold wanted specially trained and equipped engineers to support the Army Air Corps. He pushed for the creation of the Aviation Engineers. Organized into 800-man battalions, nearly 100,000 engineers saw action in every theater during the war.

The Aviation Engineer's "Bucking Bulldozer" represents the essence of engineering support to the Air Corps. A rather ferocious-looking bulldozer -- with eyes, teeth and wings -- holds a piece of pierced steel planking, the material used to construct hundreds of runways, taxiways and parking aprons. The engineer riding the bulldozer wears a shovel on his back, ready to fire his weapon.

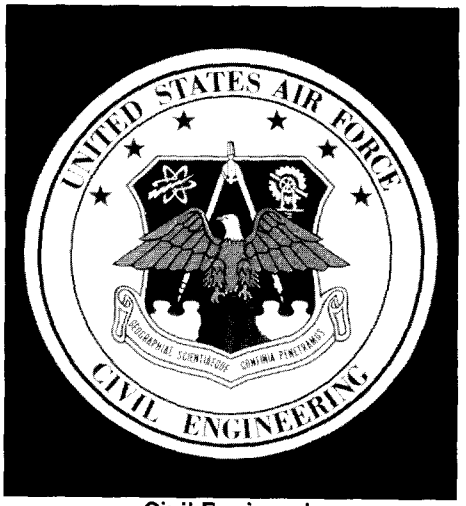
This emblem was one of the most welcome sights to military personnel of all services, because it meant that within days or sometimes even hours, an airfield would be opened and airplanes flying.

Overall, the men who wore the Aviation Engineer patch built or repaired 568 airfields during World War II — a remarkable achievement.

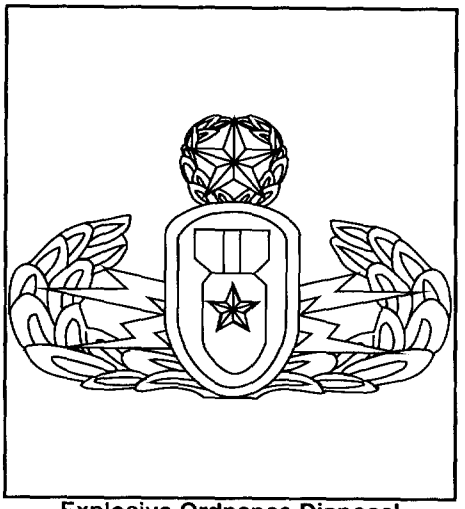
In the 1940s, fire protection merged with the air installation squadron at the base level and has been part of what later became civil engineer units ever since. The fire protection badge represents traditional elements of the firefighter's mission. The helmet is of course instantly recognizable as part of the firefighter's gear. The axe is used to make entry into a burning structure and the horn was used to relay commands and directions at a fire scene.



Aviation Engineer Force



Civil Engineering



Explosive Ordnance Disposal

In 1947, the Army Air Forces became the U.S. Air Force. Air installation officers were responsible for the operation and maintenance of the air base. However, combat engineering remained with the Army.

One of the Air Force's first challenges was the Korean War. During this conflict, Aviation Engineer Battalions built airfields under the SCARWAF program, which stands for Special Category Army With Air Force. These were troops organized, equipped, and trained by the Army, but who worked for the Air Force — an unwieldy arrangement. But they did their best.

Generally, these units were woefully under-equipped and poorly trained, so the Air Force formed the Aviation Engineer Force (AEF). Its emblem included the red and white of the Corps of Engineers combined with the blue and yellow of the Air Force. This unit successfully trained 33 battalions for action in Korea. One of the leaders of the AEF was Col. Guy Goddard, destined to become both a major general and director of Air Force Civil Engineering from 1968 to 1972.

In 1959, installation engineers became civil engineers. This important change called for a new emblem. Air Force civil engineering adopted the familiar design featuring an eagle perched on a rock. The Latin inscription translates to "We penetrate the frontiers of geography and science."

Crises in Lebanon, Berlin, and Cuba showed that Air Force engineers deployed on an ad hoc basis, organizing teams by the seat of their pants. In an effort to change this, the engineers created the Prime BEEF program in 1964. Teams of specially-trained engineers were ready to deploy anywhere.

The Prime BEEF charging bull logo has become instantly recognizable to Air Force personnel worldwide. Maj. J. H. Kent led the first Prime BEEF deployment — a 34-person team to San Isidro AB, Santo Domingo, Dominican Republic, to support a deployment of Air Force aircraft. In 1966, Prime

See Heritage, Page 28

AFCESA TAKES NEW STRUCTURE, NEW DIRECTION

by Dr. Ronald B. Hartzer
AFCESA Historian

"Our focus should be on the base civil engineer team," was the charge given by Col Paul W. Hains III upon assuming command of the Air Force Civil Engineer Agency (AFCESA) in July. Since then, AFCESA has reorganized and streamlined to better serve its primary customer. The article, "New AFCESA Ready for the Future" in the November-December issue of *The Civil Engineer* described the process AFCESA followed to determine its core functions. On Jan 1, the new organization was in place and the people ready to work.

MISSION

AFCESA's mission is to: "*Provide the best tools, practices, and professional support to maximize Air Force Civil Engineer capabilities in base and contingency operations.*

PEOPLE

Team AFCESA comprises an unmatched collection of technical and professional expertise. The Agency has one-of-a-kind systems engineers who are the Air Force experts in fields such as roofing, pavements, cathodic protection and waste water treatment. The training specialists develop career-field education and training plans and provide training systems to ensure mission-capable people. Management analysts take the best ideas from throughout the Air Force to help squadrons operate efficiently. AFCESA has world-class fire protection specialists who provide the technical guidance and assistance for this vital function. Working to beddown the next generation computer system are the Agency's computer programmers. The equipment and supply managers assist bases and commands in acquiring the best vehicles and equipment to do the job. Traveling worldwide, specialty teams provide technical expertise in peace and contingency situations. Finally, AFCESA's readiness specialists help ensure civil engineers are ready to fulfill their wartime mission. Together, these eight groups of people form a unique Air Force resource known as AFCESA.

PRODUCTS AND GOALS

AFCESA provides its customers with products and services in seven major areas:

READINESS—Maximize air base readiness by establishing and implementing programs to prepare the base civil engineer for rapid and effective contingency support.

TRAINING—Provide training systems that ensure mission-capable military and civilian engineers.

VEHICLES/EQUIPMENT—Provide the BCE with the best equipment, vehicles and materiel, delivered at the lowest possible cost.

MANAGEMENT PRACTICES—Provide work force multipliers and productivity enhancements to help the BCE do the job.

COMPUTER SUPPORT—Beddown the next generation base civil engineer computer automation and associated support.

TECHNICAL SUPPORT—Provide quality technical and professional support to the Air Force.

RESEARCH, DEVELOPMENT, AND ACQUISITION—Provide the bridge between MAJCOM/BCE requirements and product development by serving as the civil engineer user technical representative.

ORGANIZATION

AFCESA has reorganized to better deliver these products and services. The Agency has three directorates - Contingency Support, Technical Support and Operations Support. In addition, there is CEMIRT Field Support and the Commander's Support Staff.

OPERATIONS SUPPORT DIRECTORATE

The Operations Support Directorate, headed by Lt. Col. Peter K. Kloeber, seeks to increase base civil engineer capabilities through enhanced management practices, applied technology and mission-oriented training systems. The directorate includes four divisions—Systems Automation, Management and Logistics, Training, and Contract Support.

The Systems Automation staff is developing and implementing the next generation civil engineer automation system, featuring telecommunications LAN/WAN connectivity and a state-of-the-art information management system for worldwide support of civil engineer operations. They have recently completed LAN installations at AFCESA, HQ USAF/CE and Tyndall AFB, Fla;work has also begun at Moody AFB, Ga., and Eglin AFB, Fla..

The Management and Logistics Division provides professional management services in the areas of manpower, organization, management practices, logistics, vehicles, equipment and financial management. Using process improvements, it is leading the base-level and civil engineer automation system modernization programs. The division is also testing full cost visibility and helping reduce environmentally harmful deicer chemical use across the Air Force.

Training Division has the enormous task of helping ensure the civil engineer population is properly trained and educated to meet mission requirements. The division's members develop career field education and training plans, provide career-field functional management and lead the way in delivering the latest training system technologies. In addition to activating the new Environmen-

See ***Support,*** *Page 15*

Support: directorates establish standards, assist field personnel

Continued from Page 14

tal Air Force Specialty and revising new specialty training standards for 13 enlisted specialties, the division conducts workshops to define training requirements and recommend effective methods of course delivery.

Hains specifically created the Contract Support Division because AFCESA's customers expressed a need for this type of expertise to assist folks in the field. The division serves as a center of contract expertise, providing in-house contract consultation services; benchmarking "best" examples of performance work statements, practices and procedures; and, promoting Air Force-wide partnering with private industry through various public and private associations.

TECHNICAL SUPPORT DIRECTORATE

Under the leadership of Mr. William V. Corsetti, the Technical Support Directorate establishes standards and criteria for life-cycle planning, programming, design, construction, operation, maintenance, repair and revitalization of base infrastructure. The technical experts assist the major commands and installations in assessing the condition and developing strategies and plans for upgrade of Air Force infrastructure systems. The directorate has pulled together diverse elements and created three new divisions: Civil/Pavements, Electrical and Mechanical/Fire Engineering.

The Civil/Pavements division provides the BCE with technical/professional problem solving, program assistance and standards in the areas of civil, structural, water, waste water, pavements, roofing, aircraft arresting systems and airfield marking. This division brings together a Pavements engineer, the Pavements Teams and Pavements Laboratory to act as a synergistic center of expertise in this critical area. The Pavements Teams perform destructive and nondestructive testing at airfields around the world, often deploying to locations such as Rwanda and Haiti to support contingency situations.

Life-cycle engineering for electrical utilities is the responsibility of the Electrical Division. This includes work on prime power, emergency power and standby power generation systems; overhead and underground electrical and communications distribution systems; transformers, substations and switch gear; alarm systems; and lightning protection. The division also directs and implements the energy conservation and corrosion control programs. By providing professional engineering guidance for related environmental programs, they supply the BCE with helpful environmental stewardship tools.

A specialized group within the Electrical division is the Utility Litigation Team, comprising three attorneys specializing in utility rates intervention on behalf of the Air Force. The team saved the government more than $26 million in fiscal 1994 through intervention before utility rate boards and by providing other legal assistance to bases and MAJCOMs.

The Mechanical/Fire Engineering Division has combined elements from several different offices to create an organization with life-cycle responsibility for mechanical utilities. This encompasses gas, oil, and coal-fired, central steam and high temperature hot water generating plants and distribution systems; pressure vessels; central chilled water plants and distribution systems; industrial water treatment; storage systems for ground and jet fuels; gasoline dispensing systems; jet fuel fill-stand and hydrant refueling systems; fire detection, alarm and suppression systems, and irrigation systems. The division has assumed responsibility on a reduced scale for developing and maintaining methodologies, cost models, and associated data bases to estimate, analyze and show the impact of various environmental and economic factors on construction and environmental costs.

CONTINGENCY SUPPORT DIRECTORATE

Ensuring all engineer personnel are trained and equipped to deploy anywhere in the world in case of war or peacetime emergencies is the responsibility of Col. Daniel J. Barker and his Contingency Support Directorate. This directorate is the product of a merger between the former Readiness and Fire Protection directorates. The new organization not only produced manpower savings, but also brings together the people who are responsible for ensuring contingency readiness. Directorate personnel work with war planners from the Air Force and the other services to ensure engineer forces are accurately reflected in U.S. war plans. The directorate's four divisions represent its major areas of responsibility—explosive ordnance disposal (EOD), fire protection, readiness operations and readiness planning.

The EOD division has overall responsibility for managing EOD readiness forces. This includes development of total force posturing and wartime planning guidance, preparing Air Force EOD instructions and pamphlets; and determining manpower, training and equipment requirements that enable EOD forces to meet their missions. The division also advocates issues impacting base-level EOD flights.

Fire Protection provides the executive leadership and functional management of all Air Force fire protection activities, with oversight responsibility for fire protection operations and research and development. The division also provides guidance for Air Force fire protection operations, monitors the resources needed to carry out those operations, and supervises all Air Force fire protection issues in the Defense Department. It provides technical policy, guidance, and assistance to more than 12,000 Air Force firefighters at 120 major fire departments. The division also determines the technical requirements for fire fighting vehicles and equipment and requests

*See **Plans**, Page 29*

Publication icon, editorial guru retires

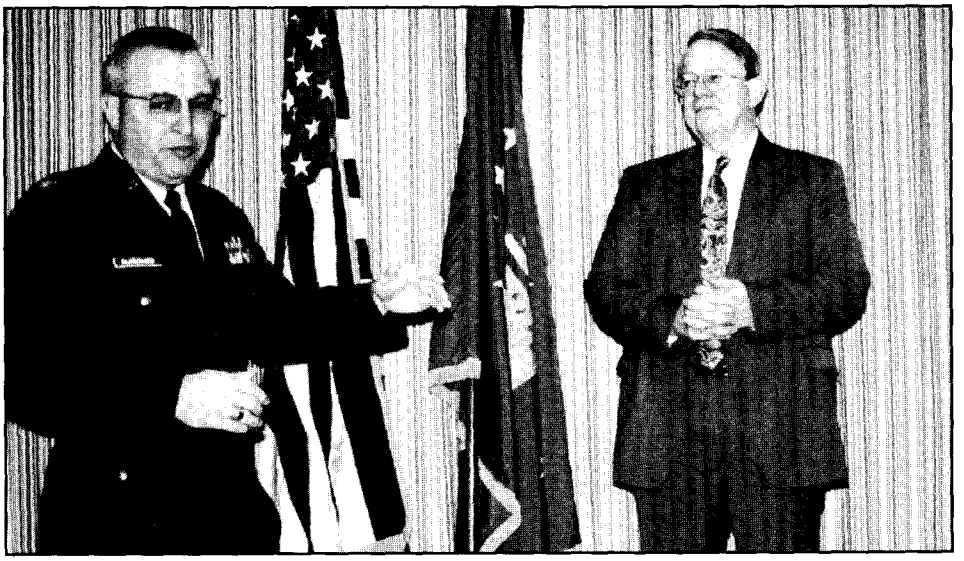
■ After a career of more than 45 years of government service, Mr. H. Perry Sullivan opts for life as private citizen.

Mr. H. Perry Sullivan, long-time editor of *The Air Force Civil Engineer,* retired from the Air Force in January 1995. Sullivan is probably best known for the time he served as editor of the *Engineering and Services Quarterly* from 1981 to 1986, when it was canceled as a cost-cutting move. For two years, while the Deputy Director of AFCESA Public Affairs, he worked tirelessly to provide the Engineering and Services community with an avenue of communications. Finally, in 1988, Sullivan began the *ES Update,* which has evolved into the present publication.

Sullivan began his career with the Air Force as a Public Information Specialist at Warner Robins ALC. While there, he started "Robins Report," the longest continuing Air Force-produced television program on a commercial station. He also provided public affairs coverage for the vehicle and equipment support for the fledgling Prime BEEF and RED HORSE programs. In 1972, Sullivan moved to HQ AFLC/PA as Chief of Plans, Programs and Resources. He worked in several important television projects and handled the media coverage for the Herbicide Orange destruction effort and the C-141B stretch program.

In 1981, he moved to the Air Force Engineering and Services Center as editor. Through his efforts, the *Quarterly's* circulation grew to an all-time high. Sullivan brought an innovative design to the magazine and opened coverage to enlisted authors. He was a frequent attendee at conferences and workshops to perform background research for his articles. He was always willing to help a novice author in the field develop an article for the *Quarterly* or another professional journal.

Sullivan's achievements in the area of technology transfer have paid dividends by making pertinent information from the commercial sector available to civil engineers in the field. He was intimately involved in creating the first Military Engineer White Book on Air Force technology transfer. **(AFCESA/PA)**



Mr. H. Perry Sullivan listens as AFCESA Vice Commander Col. Donald Blanchard says a few words during a recently held retirement ceremony.

Blackbird to rejoin Air Force operations

The first of three SR-71 Blackbird reconnaissance jets flew into Palmdale, Calif., Jan. 12 for a complete overhaul and refitting before rejoining the Air Force.

The NASA-flown and operated A-model jet was delivered to the Lockheed Aircraft Corp. plant where it will be restored to operational status.

By Sept. 1, two A-model jets and one B-model pilot trainer are scheduled to become operational, said Maj. Brian Bergdahl, the Air Force SR-71 program manager.

Congress appropriated $100 million in the fiscal year 1995 defense budget to reactivate the aircraft. Where the high-speed aircraft will be based has not been determined, but they will be operated by Air Combat Command, Bergdahl said.

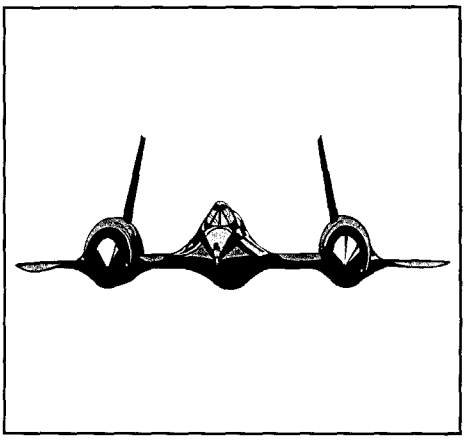
ACC officials are formulating a concept of operations, but Bergdahl said the aircraft will not be used to collect day-to-day reconnaissance. "They will deploy overseas to support contingency or crisis operations," he said.

The Air Force program office for the reactivation of the Blackbirds is at Wright-Patterson AFB, Ohio. It's that office's job to get the aircraft — the other two are in storage at Lockheed's Palmdale plant — outfitted and flying again.

The reactivation will be an ongoing process, Bergdahl said. "Tasks will be assigned as the need arises. The aircraft and supporting equipment, defensive systems and collection sensors were all placed in storage."

How many people will be needed to support the program is still to be determined. Crewmembers and support workers are presently being identified so they can be assigned.

NASA will train the aircrews, since no crewmembers are currently qualified to fly the airplane, Bergdahl said. Training of "two or three crews" is to start March 1. **(AFNS)**



SR-71 Blackbird reconnaissance jet.

Shaw bomb squad sweeps for explosives

Story and photo by Mark Anthony Songer
20th Fighter Wing Public Affairs

One week a month, a group of Shaw AFB, S.C., airmen and NCOs sweep the grounds at Poinsett Bombing Range for practice bombs to determine which ones have not fired their explosive spotting charge. Personnel from the 20th Civil Engineer Squadron Explosive Ordnance Disposal Flight render the explosives safe. How? With more explosives.

"We carpet the area, determining which bombs have not fired," said AIC Michael McWhirter. "Those that have not are gathered up and taken to a separate area of the range to be safely treated."

MSgt. Tom Burrill, EOD flight chief, explained that after the bombs are treated, they are taken to a special area of the range where they are laid out in a row. Next, several pounds of C-4 explosives are laid on them. Once the charges have been set and the safeties pulled, the entire team evacuates the area. Following the detonation, what's left is a large crater and countless little pieces of now-harmless bombs.

Monthly, the team must clear the targets at the range to a 500-foot radius. Once a year, they clear 2,000 feet out and every five years, they clear the whole range (12,000 acres).

"We're not dealing with just one bomb out here. We are dealing with thousands of bombs," Burrill said. "Weather, which we have no control over, can make our job less safe. But no one gets nervous. No one gets scared."

"This is a job in which 99.9 percent is just not enough," said SrA. Robert Tye. "When we finish clearing the range, the collected bombs are given to the range contractor for recycling.

"If we miss a single charge, it could potentially injure or kill an innocent person. We have to be 100 percent at all times in this job."

Tye added that the recycling process EOD uses to clear the range is something they are most proud of. To date, more than 1.5 million pounds of practice bombs have been recycled, saving the wing more than $30,000, he said.

"EOD 'render safe' procedures have been classified since World War II," said SSgt. Timothy Hawkins. "When a British EOD went out to defuse bombs that hadn't exploded, a reporter went out with them. The Germans got the story, found out and changed the trigger. Fifteen British EOD were killed. Since then, our safing techniques have been classified," Hawkins said.

During the other three weeks of the month, the EOD flight doesn't just sit around waiting for bombs to show up. They spend at least 20 hours a month training. They also spend considerable amount of time TDY.

"We get tasked to handle just about anything," said TSgt. Randy Danner. The EOD flight supports several Air National Guard bases, as well as agencies in the Shaw and Fort Sumter, S.C., communities. The flight's personnel also augment manning at other bases.

"We can get called to Nellis AFB (Nev.) to clear a bombing range. When we're done with that, we may go directly to Miami to 'sweep' a conference room for foreign dignitaries or to Charlotte (N.C.) to secure the coliseum for the president visiting the Final Four. We live out of suitcases a lot in this job," he said.

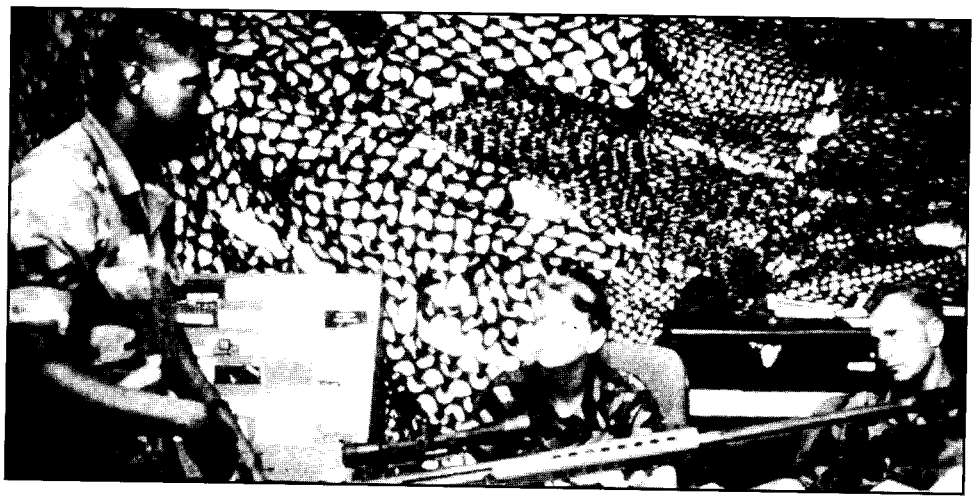
Explosive ordnance worker SrA. Robert Tye puts bricks of C-4 on bomb fragments at the Poinsett Weapons Range, Shaw AFB, S.C.

DOIN' IT IN

In an effort to upgrade their skills and make them b
emy cadets took part in the first session of "Civil
neering." Held at Silver Flag Exercise Site, Tyndall
opportunity to complete 16 different activities, while
shortening the career-field learning curve, officials
becoming real-world project designers, managers

Two cadets team up to control a high-pressure hose.

With the assistance of a cadre of enlisted personnel, U.S. Air Force Academy cadets place concrete padding that was later used during tent building exercises. ▶



While at the Silver Flag Exercise Training Site, Tyndall AFB, Fla., cadets received weapons briefings and ◀ training.

I THE DIRT

etter career-field civil engineers, U.S. Air Force Acad-
Engineering 351: Construction Practices, Field Engi-
l AFB, Fla., the two-week course provides cadets the
e living in tents under field and combat conditions. By
are hopeful that graduates transition effectively into
and combat engineers. *See stories, Pages 20-21.*

At least one cadet appears to have enjoyed F-15 aircraft egress training while at Tyndall AFB, Fla. ▶

Taking her turn at the scope, a cadet sets sight on a target.

Cadets use a hydraulic jack to apply pressure to concrete beams while determining the destructive capacity of their work.

Academy cadets launch into new training

by Barbara Bryant
USAFA Dept. of Civil Engineering

A new course launched by the U.S. Air Force Academy now provides cadets with a chance to gain base-level civil engineering experience.

Working with enlisted civil engineering personnel at three bases, — Hurlburt Field, Eglin and Tyndall AFBs, Fla. — the cadets participated in construction and repair projects, while also gaining hands-on experience in areas ranging from fire protection to mobile aircraft arresting systems. The focal point for Operation Civil Engineering/Air Force is two-weeks of summer training at Tyndall's SILVER FLAG Readiness Training Site, where the cadets were exposed to the elements and combat engineering operations.

"Being out at SILVER FLAG, working in the heat and humidity, and dealing with the insects, has given me an excellent understanding of what the enlisted folks go through to maintain wartime readiness," said Cadet Kimberly Taylor.

After returning to the Academy, the students spent several more weeks constructing a variety of full-scale projects and working with heavy equipment at the new Field Engineering and Readiness Laboratory (FERL). By the end of the new course - "Civil Engineering 351: Construction Practices, Field Engineering" - the cadets had completed 16 different activities while living in tents under field conditions.

"It's part of a concept we call 'construct first, design later,'" said Lt. Col. Gregory Seely, FERL operations director. "By observing and working with Air Force personnel, and then completing actual construction projects [at the FERL], the cadets gain practical experience that will help them to understand the more difficult concepts they'll learn in their advanced design courses."

Air Combat Command, Air Mobility Command, Air National Guard, and Air Force Reserve personnel trained cadets at the FERL on projects conceived and designed by Academy's Department of Civil Engineering faculty and instructors.

"I was surprised to learn that NCOs, airmen and civilians supervise scheduling and complete all of the work on the construction sites," said Cadet Matt Russell. "This course taught me that, as an officer who designs and manages civil engineering projects, I'll need to rely on their skills and experience to get the job done."

"What impressed me most about [CE 351] is that it gave us a concentrated look at what the civil engineering field is really like," said Cadet Alan Wigdahl. "Now that I've been through this course, I have an idea what type of organization and responsibilities I'll be walking into as a new second lieutenant. I learned a lot about how a civil engineer squadron functions and how it connects with other support agencies on base."

The enlisted personnel who assisted with the

See ***Students,*** *Page 31*

Students get software for base planning

■ By marrying design and drafting capabilities within a database, budding engineers will work in program environment that includes war scenarios.

by Barbara Bryant
USAFA Dept. of Civil Engineering

Users of CRISIS -- a computer software product that provides civil engineers with a tool to draw detailed maps of a base, its facilities and other resources utilizing a variety of graphics and statistical formats -- are hopeful that plans to fund expansion of the program beyond its present training capacities are approved.

Combining drafting and design capabilities within a database that provides users with a variety of pull-down menus and icons, the Combat Readiness Infrastructure Support Information System is also used to teach U.S. Air Force Academy cadets and Air Force Institute of Technology students base operability planning and combat engineering concepts.

Originally designed by faculty members of the Academy's Department of Civil Engineering, the software capabilities are being expanded through a cooperative venture with developers from the Science Applications International Corporation (SAIC).

Moving beyond simply being a program capable of generating wartime scenario, CRISIS users — utilizing program sharing platforms — have pushed the current version of the software packages' envelope beyond the scope of its original intent.

At Kadena AB, Japan, for instance, civil engineers are using CRISIS to conduct disaster preparedness training; while instructors at the Academy hope to integrate geographical information system technology into CRISIS for use in monitoring environmental conditions at the 18,000-acre Colorado Springs, Colo., facility.

This is where SAIC software developers enter the picture.

The DOS-based version (2.0) of the CRISIS software was designed to generate "war games" which allowed engineers — operating in a computer-generated air base environment — to plan for and recover from "enemy" attacks. Developers from SAIC, taking input from Air Force end users, have expanded the software's capacities into a UNIX operating environment where training scenarios can be changed during an exercise.

Hoping that software changes can be implemented at the Silver Flag Exercise Site, Tyndall AFB, Fla., by Spring 1995, Air Force officials are now organizing exercises which will allow for "damage assessment" following an "attack."

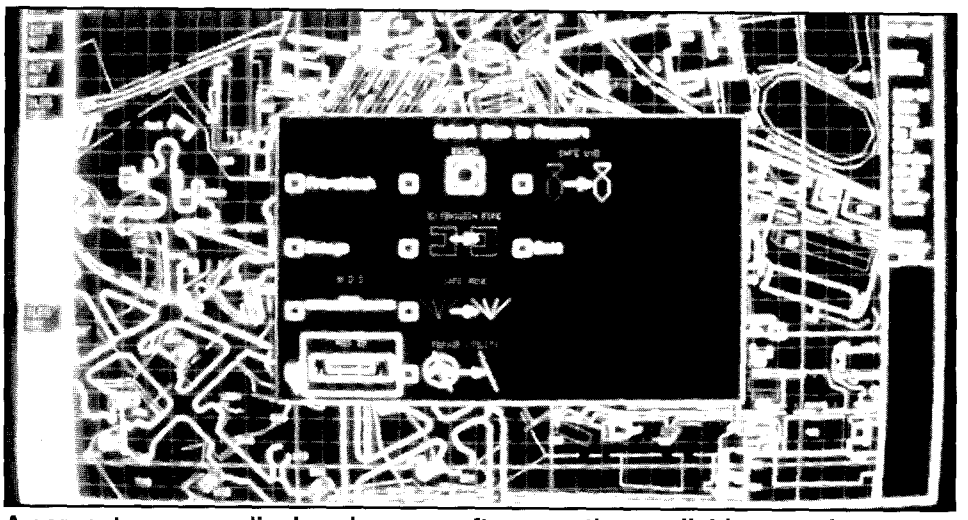
Realizing that information storage and graphic generation limitations existed in UNIX and DOS-based versions of CRISIS, Tom Johnson, SAIC chief software engineer, said the focus for future uses of the software will, in part, be based on suggestions taken from the field. Users who had their operations linked to ORACLE or worked with AutoCAD base maps and illustrations, expressed interests in having greater ability and increased capacities for training."

According to Johnson, this would also begin to address the enhancement concerns from base-level Air Force users who want features which increase communications with command and control networks such as the Work Information Management Systems. Upgrade suggestions also included areas of base mapping where automatic, on-screen computer generations for specific aircraft parking plans are available, with runway damage identification based on grid coordinates as another software possibility.

"DOS-based CRISIS users want the more user-friendly, point-and-click features that a Windows-based version would provide," said Lt. Col. Stan Rader, software research director. "Although UNIX offers many of the features they've requested, the equipment required to run it is expensive and system administration is difficult for inexperienced personnel. A Windows-based version of the software would give users a more flexible, familiar base comprehensive planning and air base management tool, and make it more affordable and portable."

SAIC engineers are continuing the process of refining the program's base-mapping capabilities in the latest version of CRISIS. A feature available in the 2.1 format that will run on AutoCAD 12 include importing photographs of specific geographic locations for display on screen. Software planners used this feature to plan deployments during Desert Shield/Desert Storm and to conduct

See ***Crisis,*** *Page 27*



A computer screen display shows a software option available to engineers.

"We must focus on reducing the load that we levy upon our customers. If we're successful in this effort, more dollars will be available for the operation of the command." **Brig. Gen. Courter**

AFMC: units meeting 90 percent of customer commitments

Continued from Page 7

and they enhance the security of key allies by providing modern basing elements to support weapon systems purchased from our country.

The CE: With such diversity of responsibility, how does AFMC focus its management attention and the resource allocation required to carry out the command's mission?

Brig. Gen. Courter: We use a management structure that was implemented by Gen. [Ronald W.] Yates with the establishment of AFMC. Our framework consists of five mission element boards: program management (which deals essentially in the systems acquisition part of our business), support and industrial operations (essentially our depots), test and evaluation, and science and technology. The fifth board is base operating support (BOS), and I chair that board. The BOS mission consists of 16 functional areas ranging from the civil engineer, to the doctor, the lawyer, supply and transportation, to security police, and so on. The board also includes each of the air base wing and support group commanders. We are responsible for all strategic planning and resource allocation decisions of BOS across AFMC. All of the program element codes for BOS are assigned to this board and are worked by my resource manager.

The CE: Does the AFMC BOS organization approach to base resource management have implications elsewhere in the Air Force?

Brig. Gen. Courter: Most of the recent changes in AFMC have brought about have been the result of managing by Quality objectives and empowering our folks in the field to do what's right. The key is to educate and encourage them to be innovative. You will be utterly amazed at the results. In fact, we just gave a case study at our last command meeting where civil engineering across AFMC started out meeting less than seven out of every 10 customer commitments. At some bases, it was less than six out of every 10 customer commitments met. Through the use of this quality management tool, they are now meeting more than nine out of 10 customer commitments. Keep in mind that AFMC civil engineers make about a quarter of a million commitments to customers every year. Our commitment met and customer satisfaction improvements have been an amazing Quality Air Force success story.

The CE: What are the foundations, the keys, to the success of the system?

Brig. Gen. Courter: There are three BOS deliverables that I think are necessary in any command, at any center, right now in the Air Force. First, come up with performance extenders, and devise innovative ideas to focus outward on the customer, delivering the results they want. In BOS —whether you're dealing with the police, the legal office, communications, civil engineers, or whatever — the first thing we want to do is adopt an outward focus. In fact, nearly all of our metrics are focused on critical performance measures that our customers are most interested in as opposed to internal efficiency measures. The second thing we need to do, is to figure out the most effective ways to apply the limited dollars that we get. Everything we spend — whether it be on environmental or on infrastructure — needs to have a good investment return. We have designed metrics that provide an objective assessment of investment versus return. We use these to optimize limited resources. The final deliverable we have is to reduce the total operating expense of BOS. We must focus on reducing the load that we levy upon our customers. If we're successful in this effort, more dollars will be available for the operation of the command.

The CE: Where would you speculate that his could wind up?

Brig. Gen. Courter: I see us reengineering BOS at our centers to make them even more customer focused, having, let's say, teams assigned by zone. A typical zone might be composed of personnel from security, fire protection, communications, civil engineers, and others. Each zone team would be designed as a fully-integrated BOS business unit. It would be multiskilled, able to respond to any difficulty that arises in that particular area of the base. The team would have only one control center, a single resource manager, a single programming and planning staff, and one work control point instead of having these jobs duplicated for each BOS functional area. If you look across

See ***Drawdown,*** *Page 23*

Drawdown: quality people critical part of Air Force future

Continued from Page 22

our centers, there are 16 distinct BOS stovepipes that exist and the duplication of effort in overhead areas is astounding. I think that the BOS reengineering initiative, coupled with strategic contracting during the next five years could be a source of significant savings and reduced resource burden on the operating commands.

The CE: It's obvious that you are focused on the relationship between the supplier and the customer. How do you know what the customer thinks? How do you assess the overall impact on the base population?

Brig. Gen. Courter: It's really a combination of feedback channels. The BOS board uses a comprehensive annual quality of life survey which goes to 14,000 people every year at all of our installations—civilians, military enlisted, and officers—covering medical care, safety, security, work environment, education, base support services, housing, and MWR-type services. It specifically tells us two things, which services are most important to people who live and work on our bases, and which services are they satisfied or dissatisfied with. This, coupled with our command objectives, formed the basis of the BOS supporting objectives. Additionally, we use random customer surveys at the point of delivery to assess whether a particular service met the customer's quality standards.

The CE: One final question, during the period of resizing there may be the impression that we don't need to aggressively seek the best people. How do you feel about our future needs for qualified officers, enlisted personnel and civilians?

Brig. Gen. Courter: If anything, we've got to be tougher on ourselves to make sure we get the right people. We need to be sure that every person that we have is holding their own. We cannot allow ourselves to accept mediocre performers. In the recruiting of people, whether it be officer, enlisted or civilian, we've got to be extremely selective. Quality will be of the utmost importance. What you do and how you do it, and the results you actually produce will become even more important in the world of the Air Force of tomorrow. There will also be more opportunities at a younger age to assume jobs of great responsibility. I think that the opportunities in our business for the top performers is better than it's ever been. And so, to answer your question, I think that quality people will be exceptionally important in the years ahead.

Editor's note

Brig. Gen. Robert J. Courter Jr. is the Command Civil Engineer, HQ Air Force Materiel Command (AFMC), Wright-Patterson AFB, Ohio, following an assignment as the Civil Engineer, Air Force Logistics Command (AFLC). Since entering the Air Force in 1968, he has served at U-Tapao AB, Thailand; Bergstrom and Randolph AFBs, Texas, and Langley AFB, Va. He has a bachelor's degree from Rutgers University (industrial engineering); a master's degree from Central Michigan University (industrial and business management); is a graduate of the executive development program, Whittmore School of Business and Economics, University of New Hampshire; Squadron Officers' School; Air Command and Staff College; Air War College; and the Industrial College of the Armed Forces. He is a registered professional engineer in Texas, and is a fellow and member of the Society of American Military Engineers.

Key career assignments

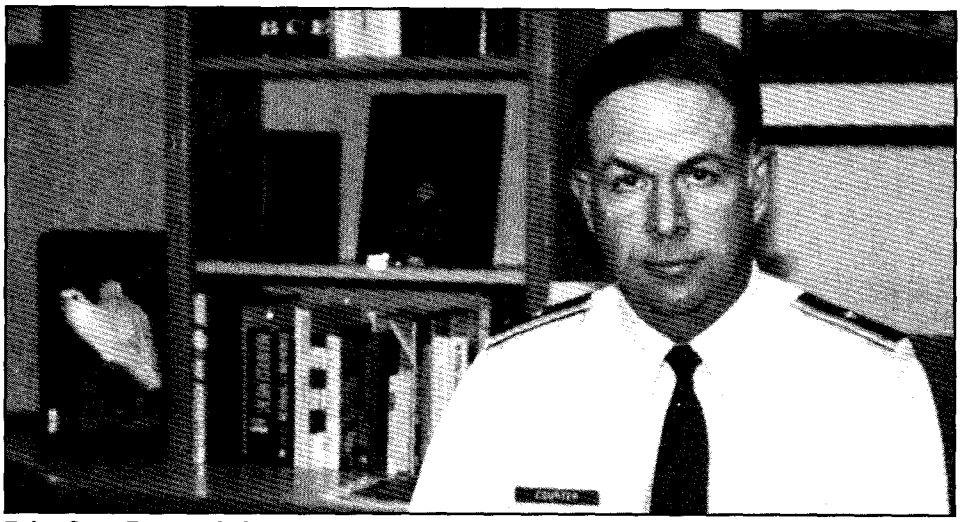
Was assigned to the Air Staff just after a faculty assignment at the Air Force Institute of Technology schoolhouse - working in operations and maintenance; then as special assistant to two former Directors of Engineering and Services, retired Maj. Gens. William D. Gilbert (USAF) and Clifton D. Wright (USAF): *"It broadened my perspective on what the Air Force does, how we operate, how we get money, and how we program and market what we need."*

Twice a base engineer (Bergstrom and Langley): *"Langley was really a challenge, it was fun, and we were constantly charging. I think that was a pivotal job in my career and the one that I enjoyed most."*

Key people

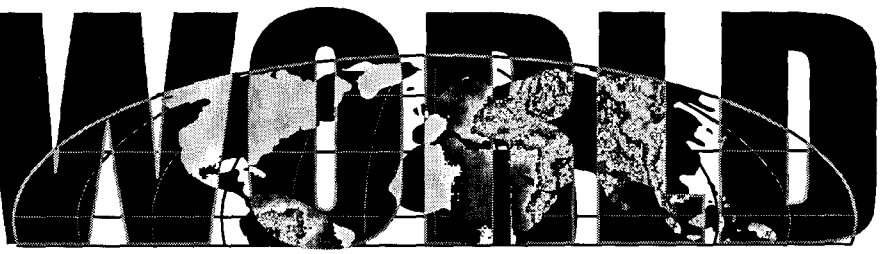
Air Education and Training Command Commander Gen. Henry C. Viccellio Jr.: *"He influenced me in terms of how I operated and what I focused on, and he always made sure that I had an eye for the mission, dedication to quality, and attention to detail."*

AFMC Commander Gen. Ronald W. Yates: *"A man that you simply want to emulate. He is great fun to work for. He takes a very complex organization like AFMC, with many different arms and legs to it, and simplifies it. He has masterfully operated the command through the use of the mission element system. He's focused on quality, business and strategic planning, and metrics that work -- he's very ahead of his time.*



Brig. Gen. Robert J. Courter Jr.

CE WORLD



Hurricane Conference

The ***U.S. Army Corps of Engineers*** and the Federal Emergency Management Agency are among a list of organizations hosting the 17th Annual ***National Hurricane Conference,*** April 11 - 14, at the Trump Taj Mahal, Atlantic City, N.J. The conference is slated to bring together many of the ***nation's top experts*** to discuss the ***latest information*** on hurricane mitigation and recovery. For registration brochures or information, call David L. Tait (904) 561-1163.

Tech Transfer Team Meeting

The next Transfer Integrated Planning Team meeting is scheduled for March 22-23, Wright-Patterson AFB, Ohio. The meeting is for the exchange of ideas related to ***technology transfer,*** and for individuals to ***"get a better understanding"*** — first hand — of the subject's philosophy ***from Air Force and command senior staff members.*** The meeting schedule is set, however, individuals with pertinent topics may be added. Agendas will be sent to registered participants March 7. To make arrangements or to submit an abstract idea, contact Ms. Cindy Walker, Technology Transfer Office, DSN 785-7993, or Commercial (513) 255-7993.

Fed Lab Consortium National Meeting

The 1995 National Federal Laboratory Consortium Meeting is scheduled to be held in Atlanta, April 10-13. The FLC for ***Technology Transfer offers nationwide access*** to federal lab expertise and capabilities. Seekers of new technology, unique lab facilities or ***assistance with technical problems*** are encouraged to attend. In an effort to encourage attendance, the planning committee will sponsor some small business, helping to ***defray registration costs.*** For additional information, contact Terrye Whitaker, FLC Southeast Region Coordinator, (615) 974-3018, FAX (615) 974-1528.

Environmentally Preferred Products

The Defense General Supply Center (DGSC), Richmond, Va., has published its first catalog of ***"Environmentally Preferred Products."*** The list includes a host of products including, chemical alternatives, recycling equipment, spill control products and aircraft cleaners. ***DGSC*** is one of the Defense Logistics Agency's five supply centers. It ***manages federal stock group 68*** which encompasses hazardous as well as environmentally preferred chemicals. The catalog contains more than 300 stock-numbered items available through ***normal requisitioning channels.*** The catalog is available to DGSC's worldwide military and federal civilian customers. To receive a copy, call DGSC's Marketing Office, (800) 352-2852, DSN 695-5698 or FAX (804) 279-5695.

Information Superhighway

If you think it's some far-off dream, think again. Engineers constructing the information superhighway have built a major on-ramp at Tyndall AFB. The ATM Backbone, the ***first of its kind in the Air Force,*** will connect AFCESA, the 325th Communications Squadron and the 325th Civil Engineer Squadron. The Asynchronous Transfer Mode ***(ATM) Backbone technology*** will allow unlimited numbers of users to ***communicate 15 times faster*** on individually dedicated equipment. The system became fully operational in January. More information on this warp speed technology will be whisking to your desk soon. (SSgt. Hal Munsell., DSN 523-6336)

Hold The Phone

In October, the Travis CEMIRT received a request from HQ PACAF to review and advise on a proposal to overhaul five 1250-kVA diesel generator sets. An ***in-country contractor*** had submitted a recommendation to overhaul the units at a combined ***cost of $821,500.*** Two power-production specialists from Travis CEMIRT were dispatched in November to perform an inspection. They found the ***engines did not require overhaul*** and performed the necessary repairs on-site. Material and TDY costs were less than $30,000, resulting in a CEMIRT versus contract ***savings of more than $790,000.*** (Mr. Gary Tyree, DSN 837-5211)

MILCON And Family Housing

An Air Force manual to facilitate the completion of Economic Analysis (EA) for MILCON, MFH, Medical and ***Energy Conservation Investment Program*** (ECIP) projects is being completed. The four-section manual will feature a complete sample EAs. ***Computer programs*** to complete EAs are available from the Army Corps of Engineers. (Maj. Edward Piekarczyk, DSN 225-8177)

Pest Management Program

HQ USAF/CEV initiated an effort with AFCESA/CESM to develop a strategy to achieve a ***50 percent reduction*** (relative to 1993 data) in the annual amount of ***pesticide active ingredient*** applied by fiscal 2000. The reduction goal was established by the ***Defense Environmental Security Council*** in December 1993. This 50 percent reduction goal is consistent with on-going pollution prevention efforts and regulatory reforms. (Maj. John Coho, DSN 227-3360)

CE WORLD FIRE

Academy firefighters make icy dive

Five U.S. Air Force Academy Fire Department firefighters were recognized in a Colorado Springs, Co., newspaper for their efforts in assisting victims of a flash flood in that city recently.

Trained and equipped as diving specialists, the Academy unit arrived on scene to assist nine other city and private fire fighting teams after small icebergs formed following a hailstorm which trapped motorists in their vehicles under up to ten feet of water.

Although all the motorists and passengers had exited or been retrieved from the 15 vehicles involved in the ordeal, the team performed underwater searches of every vehicle as a precaution. The city's high angle rescue team also brought in ropes to tether rescuers. The September storm, which hit with little warning, flooded a major intersection of that city. A city fire chief believed that the blinding hail and rain storm possibly contributed to so many motorists driving into the flooded area.

According to the newspaper report, neighborhood residents were first on scene, assisting firefighters to find and rescue people. Others opened their homes to the cold and wet victims.

"You could literally stand there and watch cars sink," said Colorado Springs Fire Paramedic Mark Huddleston, one of the first to arrive at the scene.

The fire official also praised the unit's members for their quick response to the city's call for help. Of the nine local response teams which assisted in the rescue effort, Academy firefighters were the only unit equipped and trained for the underwater mission.

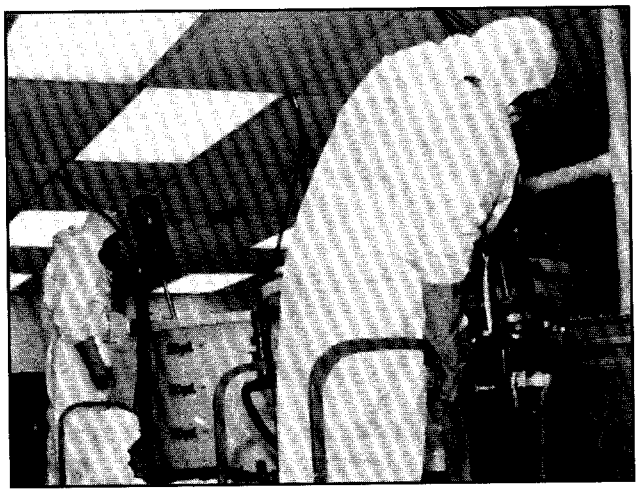
Members of Academy diving team recognized in the article were: Assistant Fire Chief Joe Scherb; and divers: Michael Hickman, Robert Nelson, Greg Ward and Corey Rea. (**Courtesy,** *Gazette Telegraph*)

NEW AIR COMPRESSOR

Depot funding to purchase 110 new air compressors is approved. The compressor will be used to service the recently-fielded Hurst Rescue Tool (Jaws of Life), one-hour Interspiro self-contained breathing apparatus, and the P-15, P-21 and P-23 Aerospace Rescue Fire Fighting Vehicles.

The trailer-mounted compressor weighs 3,000 pounds with dimensions not exceeding 60 inches in height by 60 inches in width by 120 inches in length. The unit is "mulatto-driven" (diesel and 220/440 VAC) and will produce 5,000 PSI compressed breathing air at 25 standard cubic feet per minute. The unit will also feature an on-board air purification system and 5,000 PSI air storage tanks.

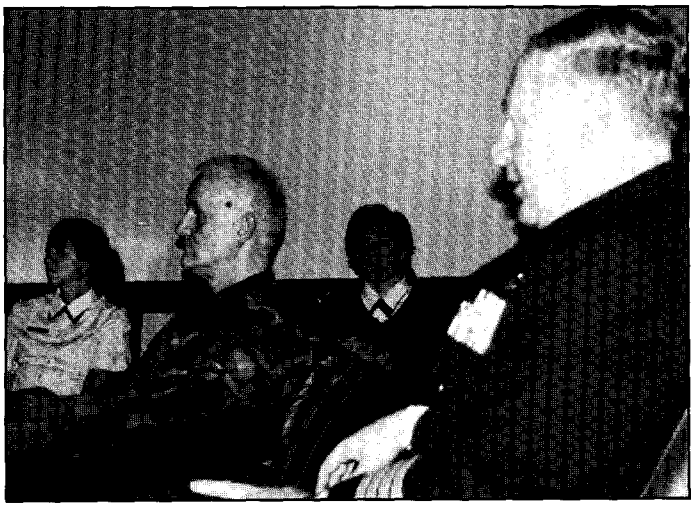
The compressor is listed in table of allowances 490 (NSN 4310-01-256-0962) with an authorization of one unit per fire department. Deliveries should begin in late third quarter, 1995. Point of contact for this equipment item is SMSgt. Thomas W. Vieth, DSN 523-6155.



Is it soup, yet?

Since May 1994, workers at Griffiss AFB, Rome, N.Y., has been using the ABCOV (Asbestos Conversion) method to convert friable asbestos into a non-hazardous product. The patented process, assigned to DSI Industries Consolidated, Inc., New York, converts asbestos into a fine, sand-like silica product which can be mixed with top soil, concrete or used to de-ice roads. The ABCOV process involves wetting and mixing the asbestos with other chemicals in a vat, of which 90 percent of the chemicals used in the process are recovered for reuse. In addition to removing the cancer-causing asbestos fibers from base facilities, there have been cost savings and the avoidance of environmental landfill disposal matters by using the process. ***(Compiled by Ralph Lalonde, Griffiss AFB, N.Y.)***

CE WORLD
AIR RESERVE COMPONENT



On the agenda

The Air Force Civil Engineer Individual Mobilization Augmentee workshop was held February 2-5, Tyndall AFB, Fla. The event - attended by about 45 IMAs who are assigned to AFCESA, AFCEE and the Pentagon — focused on a variety of issues relating to the civil engineer career field, including pollution prevention and directorate matters and updates. Overviews during the workshop were also given on issues such as business practices, wartime justifications of IMA assignments and furthering initiatives in the areas of identifying partnerships with private sector counterparts. Here, Col. Larry Enyart, IMA to U.S. Air Force Civil Engineer (Maj. Gen. James E. McCarthy), leads a discussion during a briefing.

Reserve group honors Missouri statesman

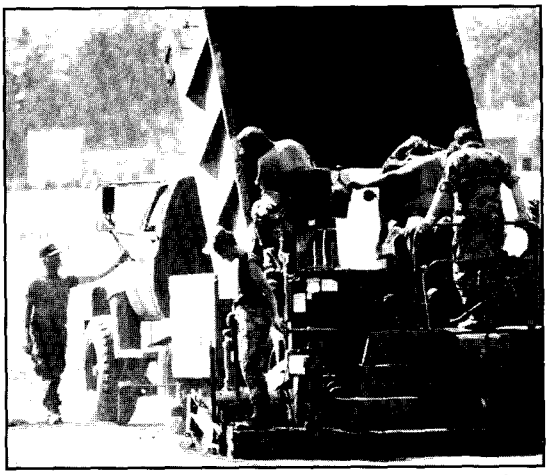
The Reserve Officers Association's named Congressman Ike Skelton (D. Mo.) as the 1995 Minute Man of the Year. The award was for his consistent dedication and efforts on behalf of national security. The award is the highest honor handed out by the 73-year-old organization.

The award was presented to Skelton during the closing banquet of ROA's annual Mid-Winter Conference in Washington, D.C. In his acceptance speech, the congressman stressed the need for the 104th Congress to preserve Defense funding to maintain readiness, give adequate pay raises to uniformed personnel and for the modernization of equipment and weapons systems. Skelton also stressed the importance of training to bolster the nation's strength in international diplomacy which is a deterrent to war, he said.

As the 1995 recipient this ROA's award, Skelton's name will be permanently inscribed on the Minute Man Hall of Fame in the ROA Minute Man Memorial Building on Capitol Hill — alongside the names of previous recipients from the Executive and Legislative branches of government.

Capitol Hill-based ROA was founded in 1922 at the suggestion of General of the Armies John J. Pershing, to support an adequate national security. Its 102,000 members include officers of all branches of service, reserve, regular and retired. **(Courtesy, Reserve Officers Association News)**

Roll out the carpet



Working for two months to expand 35 asphalt pads on the airfield at McChord AFB, Tacoma, Wash., the 202nd RED HORSE Squadron, Camp Blanding, Fla., and the 203rd RED HORSE Flight, Virginia Beach, Va., completed the project site, making the area available for C-130 aircraft-related activities during Airlift Rodeo 1994. Each pad measured 82 feet by 120 feet and required about 1,800 tons of asphalt and 20,000 tons of gravel for the Air National Guard units to complete the project.

Crisis: base mapping and planning features integrated as management tools

Continued from Page 21

damage surveys at captured Iraqi air bases. This software package has been distributed to a number of civil engineer squadrons, with a purpose of assisting in the preparation of personnel for training sessions at the Silver Flag site.

"We're incorporating the DOS 2.1 version of CRISIS into the readiness training we conduct for civil engineering units throughout PACAF," said Maj. Fred Mullard, commander, Detachment 1, PACAF Civil Engineer Squadron at Kadena. The squadron began using CRISIS in April 1994.

"In the first quarter of 1995, we'll start offering one-week CRISIS classes that show students — engineering assistants — how to use the program to perform base comprehensive and force beddown procedures," he said. "We're also teaching how to convert their existing AutoCAD maps to CRISIS-usable maps. We're using the program to keep track of teams in the field and the status of key assets, including damaged buildings, and what would be required to establish minimum operating strips during wartime scenarios."

Portions of CRISIS — especially its base mapping and planning features — are being considered for integration into the Wing Command and Control System, which has been adopted as an Air Force-wide operational management tool.

"Its ability to import aerial and satellite imagery is an important component as well," said Capt. Robert Dunaway, an Academy Department of Economics and Geography instructor. "We're still examining the feasibility of such a project but the software certainly has many of the features and flexibility we'd need. Our ability to field CRISIS as a geographical information system would be a boon to the academy, and perhaps to other Air Force installations as well. We would use it to track the status of wildlife and vegetation, contaminated or environmentally hazardous sites, and to perform predictive analyses to identify and develop measures to prevent problems.

"If we equip the system with a large, centralized database, a variety of users throughout the Academy could draw different types of thematic or reference maps, or just retrieve statistical data," he said. "Once the necessary information is entered, fire departments, medical and security personnel could identify the best routes for emergency response based on traffic flow.

At Eareckson Air Station, Alaska, Maj. David Alley, 673rd CES commander, is using CRISIS to monitor the status of the base's environmental Installation Restoration Projects and drawdown programs.

"We're now storing detailed information about facilities and infrastructure, in a CRISIS generated map of the installation," Alley said. "Before using CRISIS, we found it almost impossible to keep a clear and accurate track record of this. Much of the real property information such as square footage and heating systems is located at Elmendorf [AFB] rather than here and is not immediately accessible."

Eventually, software designers and users envision being able to identify a building, place a visual representation of it on screen along with relevant physical information, including dimensions, utilities and layout.

"With the rapid pace of the drawdown, we lose people everyday," said Alley. " It's important to remember that the Air Force has drawn down and then returned to Eareckson *twice* since World War II. In the past, returning personnel had no idea what facilities and assets they'd find when they got here. Many failed to bring the resources they needed and brought others they didn't need."

While designers strive to make the software more applicable and portable for field users, Air Force officials seek continued financing for the program.

"We have the ability to expand the software's flexibility to serve a broad range for users, but all these enhancements depend on continued funding," said Rader.

Civil engineer teaches Haitian youth new language

Despite having what is possibly one of the worst jobs while at Camp Phillips, Guantanamo Bay, Cuba, supporting Operation Sea Signal, A1C Brady Jones still takes time out to help a Haitian youth improve his English.

A civil engineering specialist based at Barksdale AFB, La., Jones cleans portable toilets in the Haitian camps for a living — all day long, seven days a week.

Each day, while pumping portable toilets, Jones pauses to help a 13-year-old Haitian expand his ability to speak English. What's more, Jones is learning Creole in return.

"The day I met him started out like always," Jones said. "We pulled up next to the camp's toilets, unrolled our hoses and began the servicing operation.

"Then I noticed this youngster staring intently at what we were doing. He came up to me, pointed at the hose and said 'Phew,'" then laughed. The next thing I knew we were getting acquainted."

Jones is part of a 42-person Air Force civil engineering team which has the task of servicing field latrines at Camp Phillips and all the portable toilets in the Haitian tent cities. At one of his stops, he takes time out with his new friend.

"Right now we're just getting the basics down," Jones said. "For instance, I ask him what a rock is in Creole, he'll tell me and we'll repeat it four or five times. Then he'll ask how to say foot in English, and the process is repeated. We have quite a time."

According to Jones, Alex is in Cuba alone - his mother, still in Haiti; his father, living in Jamaica.

"I've noticed lately when other Haitians see and hear us during our visits, they gather and demonstrate their willingness to help. Some have taken over scrubbing the toilets, and even told others not to discard trash in them. That sure makes it easier."

Perhaps unbeknownst to Jones and other members of a team with the job no one wants, a language barrier is being bridged — and the quality of life improved — by their hard work and willingness to interact with Haitians at Camp Phillips. (**Courtesy,** *Guantanamo Bay Gazette*)

Heritage: new emblem emerges with Services marriage

Continued from Page 13

BEEF teams began deploying to Southeast Asia. By 1968, more than 60 teams and 1,600 personnel had built hundreds of hootches, constructed miles of revetment and laid untold lengths of pipe.

When the Army and Navy engineers couldn't provide the heavy engineering capability the Air Force required, the response was RED HORSE. Its emblem features a red stallion operating a bulldozer. It soon joined the familiar Prime BEEF bull to make a civil engineering menagerie.

When the Air Force had difficulty finding the equipment and vehicles for RED HORSE and Prime BEEF, the Civil Engineering Construction Operations Group, under the leadership of then-Col. William T. Meredith, was formed at Wright-Patterson AFB, Ohio, in 1966. This small, 50-person organization helped monitor and equip these new Prime BEEF and RED HORSE units.

In 1972, they moved south to Tyndall AFB, Fla., and were renamed the Air Force Civil Engineering Center.

In 1975, civil engineering welcomed services to the family. They decided a new emblem was required to describe the new organization. After dozens of possible designs, they simply kept the same emblem but changed the words from "Civil Engineering" to "Engineering and Services."

At Tyndall, a new organization was created — the Air Force Engineering and Services Center. This new unit brought together people from all over the country to form a center of excellence for the operation and maintenance of the air base and the well-being of the people who lived and worked there.

In August 1990, Prime BEEF, Prime RIBS, and RED HORSE personnel began deploying to sites in Saudi Arabia and surrounding countries during Operation Desert Shield. Once again, civil engineers demonstrated their capabilities and once again, they let everyone know who bedded down the people and planes at the sites. RED HORSE even painted their familiar logo on one of their newly-paved runways to remind the aircrews who provided it.

The men and women of Desert Storm came home to parades, yellow ribbons, reorganizations and change. It wasn't long before Engineering and Services reverted to simply Civil Engineering as Services merged with Morale, Welfare and Recreation.

But as civil engineers were losing services, they were welcoming two new functions — Disaster Preparedness and Explosive Ordnance Disposal. Each of them brought their own heraldry.

Coming from the operations community were the disaster preparedness professionals who are responsible for preparing the Air Force to cope with disaster situations in peace and war. Their Disaster Response Force logo includes a green cross representing safety and three triangles, each symbolizing the three types of hazards faced during wartime — nuclear, biological, and chemical.

At the same time, Explosive Ordnance Disposal became part of Civil Engineering. This function, which traces its heritage back to the Bomb Disposal Units of World War II, brought an important capability to civil engineering. Their familiar badge uses the bomb from the World War II Bomb Disposal Badge, lightning bolts symbolizing the potential destructive power of the bomb, and a shield to represent protection of the surrounding area from a detonation.

The most recent addition to Civil Engineer heraldry is, of course, the Civil Engineer badge (See article, Page 10). It represents the mission, heritage, and character of the Air Force Civil Engineer career field. More importantly, it tells everyone that the person wearing the badge is proud to be a Civil Engineer professional.

Choir audience

During her Jan. 30 - 31 visit to Tyndall AFB, Fla., Air Force Secretary Dr. Sheila E. Widnall visited the Air Force Civil Engineer Support Agency, where she was given a briefing on the organizational structure and the variety of products produced and supported by assigned personnel. Left, Armstrong Laboratory Environics Director Col. Neil J. Lamb, paces through a display board discussion with Widnall about environmental restoration technology currently operational in the laboratory remediation efforts.

Plans: directorates guide operations, deploy teams

Continued from Page 15

research and development efforts. Division personnel are also closely involved in the training of Air Force Fire Protection personnel.

The Readiness Division manages the critical Prime BEEF and RED HORSE programs, including total force technical and standardization issues. In addition to preparing Air Force Readiness Instructions and Pamphlets for civil engineering, they coordinate equipment standards; develop nuclear, biological, chemical and conventional warfare defense guidance; and establish standardized camouflage, concealment, and deception procedures. The division also acts as the focal point for the Air Force Civil Engineer functional research, development and acquisition program.

The Plans Division is the hub of civil engineer wartime and peacetime contingency planning. They develop and coordinate doctrine, operational procedures, and mobility and deployment planning guidance. Actively involved in the development of Air Force War and Mobilization Plan, they assist MAJCOMs in developing, sourcing, and posturing manpower in support of theater operations plans and they develop planning guidance for bare-base operations. The division is also responsible for developing and revising contingency-related training curricula and systems for both individual and team training. The division acts as the focal point for planning and executing Readiness Challenge, the biennial international civil engineer and services wartime contingency team competition.

CEMIRT FIELD SUPPORT

Headed by Mr. Melvin C. Chilson, this organization is known throughout the Air Force simply as "CEMIRT" (Civil Engineer Maintenance, Inspection, and Repair Team). These technicians provide intermediate and depot-level maintenance, inspection, and repair of electrical generation and distribution equipment. They also provide technical support for heating, ventilating, air conditioning and refrigeration systems. CEMIRT has regional sites at Dover AFB, Del., (responsible for supporting the CONUS east of the Mississippi River, Europe, Central America, and Southwest Asia) and Travis AFB, Calif., (responsible for the CONUS west of the Mississippi River, Pacific Basin, Southeast Asia, Alaska, Australia, and the Indian Ocean area). The Tyndall AFB office rebuilds small engines for classified locations and provides mechanical systems support, including pre-acceptance design reviews.

Each year CEMIRT technicians respond to more than 100 emergencies worldwide that could not be handled locally. They provide emergency mission-sustaining assistance to locations from remote sites in the Arctic and Australia to major facilities such as Wilford Hall Medical Center, Lackland AFB, Texas. By recycling generator sets and electrical switchgear, CEMIRT saves $39 for every dollar spent. Their deployable teams provide support of Harvest Bare and Harvest Falcon power generation, electrical distribution, and mobile aircraft arresting system equipment. One of CEMIRT's proudest moments came during Operation Desert Shield. Troops deploying to bare base sites in Southwest Asia lacked the primary distribution centers (PDCs) to effectively set up electrical distribution systems. CEMIRT designed, built, and shipped 35 PDCs to the sites in only 35 days. In addition, a team performed depot-level repairs on 750-kW generators in theater, maintaining critical power generation capabilities for 55,000 Air Force personnel. CEMIRT technicians are the cream of the crop in their individual fields and collectively have built a reputation for excellence and customer satisfaction.

COMMANDER'S SUPPORT STAFF

Providing support to AFCESA's commander, the entire organization, and even the civil engineer function throughout the Air Force is the Commander's Support Staff. This group includes Air National Guard and Reserve Advisors, Professional Communications, Financial Management, Personnel, Quality Improvement, Communications-Computers, and Information Management. Professional Communications is responsible for communicating both The Air Force Civil Engineer's policies and guidance to the field and AFCESA's products and services to customers everywhere. It includes two important functions that support the entire civil engineer career field. The Air Force civil engineer historian documents significant events, preserves and maintains important records and photographs dating back to World War II, collects lessons learned and disseminates historical information to personnel throughout the Air Force. Professional Communications also publishes *The Civil Engineer*, a periodical that serves as The Air Force Civil Engineer's primary avenue of communication with the field and is a publication where engineers can exchange ideas on how to work smarter and more efficiently.

Grant: Air Force's lead lab continues tradition of quality environment research

Continued from Page 9

E-SMART-compatible sensors, samplers and network management systems; and 3) low-cost, high-performance, user-friendly workstation software for contaminant modeling and 3-D visualization tools, which are to be used for fate and transport studies, and remedial design.

The choice of this technology represents the only selection, this year, from an Air Force superlaboratory. Armstrong is an element of Human Systems Center, Brooks AFB, Texas. The Environics Directorate is the Air Force's lead laboratory for environmental quality.

Bruce Nielsen, the scientist involved in last year's award-winning partnership, is the Armstrong Laboratory project manager for that E-SMART technology. "This is a really new and exciting way of doing business between government and private industry," he said. "The TRP is sort of a peer review of your work, it validates the technology. If industry is willing to invest in it, I see this process expediting and providing a wider application of the technology transfer, and providing several hundreds of millions of dollars in savings."

"It is a singular honor to have different technologies selected for this type of grant two years in a row," said Armstrong Laboratory Environics Director Col. Neil Lamb. "Great credit goes to Bruce Nielsen, our project engineer."

CE WORLD AWARD WINNERS

★ **OUTSTANDING CE SENIOR MILITARY MANAGER**
Lt. Col. Emmitt G. Smith, 12th CES, Randolph AFB, Texas (AETC)
Lt. Col. James T. Ryburn, 36th CES, Bitburg AB, Germany (USAFE)

★ **OUTSTANDING CE MILITARY MANAGER**
Capt. Mark A. Pohlmeier, 93rd CES, Castle AFB, Calif. (ACC)
Capt. Michael R. Hass, 380th CES, Plattsburgh AFB, N.Y. (AMC)

★ **OUTSTANDING CE MILITARY SUPERINTENDENT**
MSgt. Ruben Gomez, 36th CES, Bitburg AB, Germany (USAFE)
MSgt. Robert W. Rice Jr., 95th CEG, Edwards AFB, Calif. (AFMC)

★ **OUTSTANDING CE MILITARY TECHNICIAN**
TSgt. Robert H. Brown Jr., 75th CEG, Hill AFB, Utah (AFMC)
TSgt. Dennis L. Waddell, 28th CES, Ellsworth AFB, S.D. (ACC)

★ **OUTSTANDING CE SENIOR CIVILIAN MANAGER**
Mr. Gene F. Mesick, HQ AFCEE, Brooks AFB, Texas (AFCEE)
Mr. Thomas C. Russell, 18th CEG, Kadena AB, Japan (PACAF)

★ **OUTSTANDING CE CIVILIAN MANAGER**
Mr. Robert Massey, 62nd CES, McChord AFB, Wash. (AMC)
Mr. Edward K. Lenz, 509th CES, Whiteman AFB, Mo. (ACC

★ **OUTSTANDING CE CIVILIAN SUPERVISOR**
Mr. Benjamin K. Kimbell, 12th CES, Randolph AFB, Texas (AETC)
Mr. Kenneth A. Karnes, 92th CES, Fairchild AFB, Wash. (AMC)

★ **OUTSTANDING CE CIVILIAN TECHNICIAN**
Mr. Roger W. Herron, 97th CES, Altus AFB, Okla. (AETC)
Mr. William R. Susenbach, 47th CES, Patrick AFB, Fla. (AFSPC)

★ **OUTSTANDING CE IMA OFFICER MANAGER**
Lt. Col. William K. Springer, 90th CES, F.E. Warren AFB, Wyo. (AFSPC)
Capt. Eric S. Tillstrom, 509th CES, Whiteman AFB, Mo. (ACC)

★ **OUTSTANDING CE IMA ENLISTED MANAGER**
MSgt. Thomas M. Garrity, 20th CES, Shaw AFB, S.C. (ACC)
TSgt. Jeffrey A. Riechmann, 95th CEG, Edwards AFB, Calif. (AFMC)

★ **MAJ. GEN. JOSEPH A. AHEARN ENLISTED LDRSHP**
CMSgt. Ira F. Head, 62nd CES, McChord AFB, Wash. (AMC)
CMSgt. Thomas J. Ostrowski, 410th CES, K.I. Sawyer AFB, Mich. (ACC)

★ **MAJ. GEN. WILLIAM D. GILBERT AWARD (OFFICER)**
Maj. Harry Briesmaster III, HQ AFCEE, Brooks AFB, Texas (AFCEE)
Maj. Michael Falino, HQ USAFE, Ramstein AB, Germany (USAFE)

★ **MAJ. GEN. WILLIAM D. GILBERT AWARD (ENLISTED)**
CMSgt. William W. McGlothlin, AFCESA, Tyndall AFB, Fla. (AFCESA)
SMSgt. Ricky A. Jones, HQ ACC, Langley AFB, Va. (ACC)

★ **MAJ. GEN. WILLIAM D. GILBERT AWARD (CIVILIAN)**
Mr. Boyce E. Bourland, AFCEE, Brooks AFB, Texas (AFCEE)
Mr. Kerry Quinn Hart, AFCESA, Tyndall AFB, Fla. (AFCESA)

★ **SOCIETY OF AMERICAN MILITARY ENGINEERS (NEWMAN MEDAL)**
Col. Earnest O. Robbins II, AFSPC, Peterson AFB, Colo.
Lt. Col. Guy W. Demoret II , AFMC, Wright-Patterson AFB, Ohio

★ **SOCIETY OF AMERICAN MILITARY ENGINEERS (GODDARD MEDAL)**
SMSgt. David A. Ambelang, 97th CES, Altus AFB, Okla. (AETC)
SMSgt. Craig S. Burrell, 20th CES, Shaw AFB, S.C. (ACC)

★ **BRIG. GEN. MICHAEL A. MCAULIFFE AWARD (HOUSING)**
27th CES, Cannon AFB, N.M. (ACC)
76th CES, Kelly AFB, Texas (AFMC)

★ **AIR FORCE OUTSTANDING CE RESOURCES FLIGHT**
7thrCES, Dyess AFB, Texas (ACC)
601st CES, Sembach AB, Germany (USAFE)

★ **BRIG. GEN. ARCHIE S. MAYES AWARD (AF CE ENGINEERING FLIGHT)**
5th CES, Minot AFB, N.D. (ACC)
12th CES, Randolph AFB, Texas (AETC)

★ **CMSGT. RALPH E. SANBORN AWARD (AF CE FIRE PROTECTION FLIGHT)**
92nd CES, Fairchild AFB, Wash. (AMC)
72nd CEG, Tinker AFB, Okla. (AFMC)

★ **SMSGT. GERALD J. STRYZAK AWARD (EOD FLIGHT)**
48th CES, RAF Lakenheath, U.K. (USAFE)
7th CES, Dyess AFB, Texas (ACC)

★ **COL. FREDERICK J. RIEMER AWARD (READINESS FLT)**
20th CES, Shaw AFB, S.C. (ACC)
78th CEG, Robins AFB, Ga. (AFMC)

★ **MAJ. GEN. CLIFTON D. WRIGHT AWARD (OPS FLIGHT)**
97th CES, Altus AFB, Okla. (AETC)
4th CES, Seymour Johnson AFB, N.C. (ACC)

★ **AIR FORCE OUTSTANDING CE ENVIRONMENTAL FLT**
20th CES, Shaw AFB, S.C. (ACC)
AFDTC, Eglin AFB, Fla. (AFMC)

★ **NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS (NSPE) AIR FORCE MILITARY ENGINEER OF THE YEAR**
Lt. Col. Kenneth Knox, 820th RHS, Nellis AFB, Nev. (ACC)

★ **NSPE AIR FORCE CIVILIAN ENGINEER OF THE YEAR**
Mr. William A. Brown Sr., HQ USAF, Washington, D.C.

★ **AF CE BULLDOG AWARD (CE OFFICER WITH MOST ACTIVE-DUTY UNIT COMMANDER TIME)**
Col. Robert L. Bartlow, 72nd CEG, Tinker AFB, Okla (AFMC)

★ **AF OUTSTANDING CE UNIT AWARDS:**
LARGE UNIT
20th CES, Shaw AFB, S.C.
56th CES, Luke AFB, Ariz.
SMALL UNIT
14th CES, Columbus AFB, Miss.
Womara AS, Australia

Individual category award winners and representatives from unit and flight winners were recognized at the 33rd Annual Civil Engineer Awards Luncheon at the Bolling AFB Officers' Club, Washington, D.C., March 2. Each individual award category winner is entitled to wear the Air Force Recognition Ribbon (military) or the Air Force Recognition Lapel Pin (civilian). The following list denotes the 1994 winners and runners-up, respectively.

Students: realistic training to shorten learning curve

Continued from Page 20

program seemed pleased with the results, said SSgt. Brian Gheller, 380th Civil Engineer Squadron, Plattsburg AFB, N.Y. He was one of nine instructors providing cadets with heavy equipment training. "They were impressed by how complicated these machines are, and by how much skill it takes to do a job well."

On at least one occasion, the cadets were offered the opportunity to exhibit time management flexibility when a cement mixer arrived at a construction project site one hour behind schedule.

"The students saw how delivery delays and the shortages of skilled personnel can disrupt projects schedules," said SSgt. Mark Bragdon, 355th CES, Davis-Mothan AFB, Ariz. Bragdon, a reservist, taught carpentry techniques and helped cadets construct wood frame buildings. "Getting this type of experience early on will help them handle a host of issues ranging from initial design and cost estimates to personnel allocations and scheduling."

Future plans for the FERL site -- located within the gates of the Academy -- call for expansion to 25 acres in the coming years. There will also be a complex of permanent, all-weather buildings which can be used to conduct house demonstrations and displays. The site will also include a readiness training area, featuring a mock runway, taxiway, and air base facilities. This will provide all junior-level cadets with an environment to practice air base operability and base comprehensive planning concepts.

The department faculty expects this new course to fill a practical-knowledge gap which had previously been identified in undergraduate civil engineering programs by educational accrediting agencies. Air Force officials, also concerned about the matter, convened a panel of career-field experts in November 1993 to address potential solutions.

During a recent workshop held at Tyndall's Air Force Civil Engineer Support Agency, engineers from 13 bases and the Pentagon stressed the importance of providing future Air Force civil engineers with practical knowledge on construction management and design principles. Lt. Col. Randall Brown, an Academy instructor, is responsible for ensuring that the workshop recommendations are implemented in the new course criteria.

"The students deserve the opportunity to train realistically and the Air Force expects us to shorten the learning curve so that our [Academy] graduates transition effectively into becoming real-world project designers, managers and combat engineers," he said.

Officials are hopeful that the course curriculum also meets the expectations of the Accreditation Board for Engineering and Technology. This body certifies and monitors undergraduate engineering programs throughout the country.

"In 1990, ABET issued guidelines which were incorporated into the objectives of this course," said Col. David Swint, Academy civil engineering department chairman. "When ABET representatives review our program in 1996, they'll look for laboratory exercises which combine theory and practice, and that call for open-ended decision making and student experimentation. They recognize the importance of linking the three pillars of a sound education: the classroom, the laboratory and field experience."

> *"They will have tangible proof of their progress and the opportunity to improve their work."* **Col. Swint**

In other courses, cadets will conduct preliminary management planning for new FERL expansion projects. They'll also revisit field projects which they had previously built in an attempt to identify possible flaws and improve designs.

"As they progress through the courses, their level of expertise will increase," said Swint. "They will have tangible proof of their progress and the opportunity to improve their work. This combination of continuous improvement and true ownership of their work will prove to be a powerful and memorable incentive to master and apply the civil engineering principles they learn — and intuitively build upon them — now and in the future."

In an effort to gauge the effectiveness of this new "construct first, design later" educational approach, the department partnered with the Human Resources Directorate, Armstrong Laboratory, Brooks AFB, Texas, to conduct a multi-year evaluation of the program. Under the direction of Armstrong Lab scientists, an assessment team worked with the faculty before CE 351 was launched to identify learning objectives for each activity.

This team, which includes experts in industrial psychology and educational technology, is building a database from information collected during the summer exercises from observation and notes gathered from student and instructor logbooks. A series of examinations were also administered throughout the course, and after receiving their first assignment, cadet's work-history will be tracked by researchers during their initial year of active-duty Air Force civil engineering activities.

"The evaluators will also interview the new officer's supervisors, asking for comparisons to other officers who have worked under them," said Brown. "By combining feedback from the course participants and their bosses, we will continue to tailor and improve the program in an attempt to meet *all* our customer's expectations and requirements."

The assessment team will compare the results to similar information collected from a "control" group, the Class of 1995, whose graduates will not have enrolled in CE 351. This process will help the assessment team and the faculty to identify the strengths and weaknesses of the program.

"We're very grateful to Armstrong Lab for assembling this team of experts and for funding this five-year assessment effort," Brown said. "A knowledgeable, objective means of measuring the impact of this new program is essential if we are to determine how effective our approach is in improving the student's learning process."

Ski trip becomes survival ordeal

Fearing that he and his son would not be found until the spring thaw, an Air Force officer left the boy in a frigid, makeshift shelter and embarked on a desperate search for help.

In interviews with the Air Force Broadcasting Service and the international media, Lt. Col. Michael Couillard described the nine-day ordeal he and his 10-year-old son, Matthew, endured after becoming lost in deteriorating weather at a ski resort 120 miles northwest of Ankara.

"Plain and simple, we got lost," Couillard said. About 2:30 p.m. on a skiing trip with a party of U.S. military and embassy personnel from Ankara, Couillard and Matthew went up two lifts to the summit of the Kartalkaya ski area. The weather was snowy and became increasingly foggy at the higher elevation.

"At the top it was hard to see. There was a sign at the top of the lift that indicated you could go in two different directions," Couillard said. "I chose one to the right and we headed down."

As they skied, the deteriorating conditions further reduced visibility. They lost the trail and became disoriented among trees.

"We didn't see anything familiar," he said. "I decided at that point we were going to try to find our way back to where we were supposed to be. If we couldn't, we'd just ski down hill, and then we could at least keep our movement going and reach some semblance of civilization."

But that was not to be.

They continued skiing for about two or three hours, but darkness and cold began to overtake the pair and Couillard decided to stop for the night along a logging road near a stream. Heavy snowfall continued.

"The most suitable shelter turned out to be a tree along side the road," he said. "I took a lot of branches from surrounding trees and piled them up on top. That was our roof. I made a floor out of other branches."

As the temperature dropped to near zero degrees, their attention turned to staying warm.

"I was pretty dry, but I had to get Matthew out of what were very wet clothes by then. During the day of skiing, his clothes had soaked up a lot of water," Couillard said. "I gave him my jeans and put him inside my ski bib with me, and fortunately, my jacket was large enough for both of us. We bundled up together and slept that way."

They slept fitfully, being awakened by the cold. "During the night, I kept looking down and saw in the corner of our shelter a sort of glow" Couillard said. Upon further investigation, located a burrow beneath their tree shelter, covered by a large rock. The space was large enough for the pair and offered better shelter from the weather.

"It was a small, two-man cave," he said. "That's where we spent most of our time together."

Believing it best to stay in one place to be found, the two spent the next seven days sheltered from harsh weather in the burrow. Couillard added boughs from trees for bedding.

"The first few days were intensely cold, with a lot of snowfall. Everything I'd done to mark our path had been covered by snow," he said.

"We kept each other's feet warm and spent a lot of time talking," he continued. "It's amazing how much effort goes into just staying alive. We

See ***Choices,*** *Page 33*

Agency product available to civil engineers

The Air Force Civil Engineer Support Agency A-GRAM Index will be included in every issue of *The Civil Engineer.*

A-GRAMSs are single-page descriptions of management and technical "tools" which will be of assistance to BCEs.

The attachedA-GRAM Index covers all items that have been produced and distributed through February 1995.

Individuals requesting information or previously published A-GRAMs should first contact their BCE or major command civil engineer office for distribution; or AFCESA Professional Communications staff, DSN 523-6264, Commercial (904) 283-6264. The FAX is DSN 523-6499.

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY A-GRAM INDEX

NBR	TITLE	DATE
94-1	Reducing Solid Waste Disposal	August 94
94-2	Firefighter Multimedia Training System (FMTS)	August 94
94-3	Automatic Identification Technology (AIT)	September 94
94-4	Air Force Civil Engineer Doctrine	September 94
94-5	Aircraft Hangar Fire Protection	September 94
94-6	Mobile Ordnance Disrupter System	September 94
94-7	Mechanized Materials Handling Systems (MMHS) & Storage Aids Systems (SAS) Program	September 94
94-8	Readiness Challenge V (RC-V)	September 94
94-9	Full Cost Visibility	October 94
94-10	Vehicle Product Improvement	October 94
94-11	CEMIRT HVAC Assistance	October 94
94-12	Base Refrigerant Management Program (BRMP)	October 94
94-13	Location & Maintenance of Smoke Detectors in Military Family Housing	November 94
94-14	Facilities Computer-Aided Design-2 Contracts	December 94
94-15	Computer Based Training For Base Civil Engineer Logistics	December 94
94-16	Chlorofluorocarbon (CFC) Certification	December 94
1995		
95-1	Air Force Manpower Standards	January 95
95-2	Vulnerability of Existing Buildings to Natural Hazards	January 95
95-3	Pulse Battery-Charging Technology	January 95
95-4	The Engineering Technical Line: Your Gateway to AFCESA's Technical Support Resources	February 95
95-5	Computer Aided Drafting and Design (CADD) Details Library	February 95
95-6	Speciality Training Standards and Job Qualification Standards: Exploring the Mysteries	February 95
95-7	CEMIRT Emergency Power System (CEPS)	February 95
95-8	Scope Shield Radio Phase II (SSII)	February 95
95-9	Yard Waste Composting	February 95
95-10	Precision Lightweight Global Positioning System (GPS) Receiver (PLGR) AN/PSN-11	February 95

Choices: father, son make now or never decision

Continued from Page 32

spent a lot of our time changing clothes, changing positions, warming our extremities. We spent a lot of time talking about foods we were missing out on. Matthew made up several menus that he's still cashing in on.

"I went out and got water when we needed to be hydrated. Fortunately, the stream was close enough I could walk down." Couillard said he broke one of Matthew's ski poles to make a sipping tube and used a ski boot for a container to take water back to his son. Only when necessary did they eat snow. Two pieces of hard candy were about all they had to eat for nine days.

Couillard recalled some of the winter survival training lessons he'd learned as a cadet at the U.S. Air Force Academy. "When you have a real need there's certainly a lot of motivation to use those skills," he said.

The colonel said knowing people were looking for them helped to bolster their spirits, at least for the first couple of nights.

"We saw helicopters on four separate occasions, so it was encouraging to know at least someone was looking for us," he said. "Only when we were found did I learn there was a massive ground search."

On one occasion, the helicopter flew close enough for Couillard to recognize an American flag on the fuselage. However, their position and distance from the main search area on the slopes, the trees and snowfall made spotting them unlikely.

After not seeing a helicopter for some time, "I had no idea whether or not the search was still going. I guess in our darkest moments, we just knew that God knew where we were. It was our faith that kept us going."

On day seven, Couillard climbed to the pinnacle of the ridge in hopes of making himself more visible to an air search. With his feet already frostbitten, "It was extremely had to do any climbing," especially in ski boots, but when he reached the top, he was able to see cabins about three or four kilometers down the roadway. That glimpse of the group of structures brought about the difficult decision that may have saved their lives.

"Leaving my son there wasn't a spur-of-the-moment decision. It's the hardest thing I've ever done," Couillard said. "After seven days of keeping each other warm, I knew he'd acquired some skills to keep warm.

"I felt that if I didn't leave, we'd be found in the spring thaw. My strength was about gone. If I didn't go for help then, it would be too late," Couillard said. "I went back down and told Matthew, gave him a pep talk and told him I was going to look for someone. I fully expected that I was going to find someone at the cabins. There was plenty of daylight to come back and get him."

Couillard left Matthew with water and his outer ski jacket for warmth. He estimated it took him an hour and a half to ski down to what turned out to be a deserted Turkish forestry camp.

"It was a great disappointment when there was no one there. I couldn't really move. I had to crawl around on my knees. At that point, I just cried out to God for help. There was nothing else I could do."

Couillard did manage to enter three of the cabins, locating some dried macaroni and a blanket to replace his coat. The night soon fell. In the day that followed, Couillard struggled to obtain water and searched for matches, finding only one that failed to ignite his kindling. A second night came as he drifted in and out of sleep. "I thought I kept hearing drums," he said. "It was my heart beating."

He hoped and prayed for Matthew.

About 8 a.m. of the ninth day, Couillard went outside to gather some snow to melt for water. "It was quite a delight and surprise when a van pulled up," he said. "I started yelling in my best Turkish, 'Help!'"

In the van were Turkish woodcutters, who recognized Couillard from the extensive coverage given the search by the Turkish media. Couillard gave search authorities directions to the boy's location.

"They found Matthew quickly. It seemed like an eternity, but it was only about an hour," Couillard said. "I was very proud of him for the way he handled himself and hung in there a couple nights alone. It was a pretty scary experience. I was just thankful he did everything right and was in as good a shape as I left him.

The pair were transported to the 39th Medical Group hospital, Incirlik AB, Turkey. Both suffered frostbite to their feet and toes; however, full recovery is expected, according to hospital officials.

Couillard thanked Turkish and American searchers for their efforts and expressed a desire to meet again with the woodcutters who found him and his son.

"Everyone's prayers helped. I know we wouldn't be here if it wasn't for their prayers and thoughts," he said."I know that God saved us. All those men did what they could, but God saved us." **(AFNS)**

School needs officers

Squadron Officers School is looking for officers with a highly-professional image to serve as flight commanders.

There is a continuing need for faculty members to serve a three-year assignment and numerous openings are available for late-spring reporting dates, according to AFMPC officials. Interested officers need at least seven years commissioned service, have attended SOS in residence, have a strong military record and be physically fit. Officers wanting more information should contact TSgt. Gwynda Washington, DSN 487-4455/4951, Commercial, 210-652-4455/4951, or Maj. Stan Schrader, SOS, DSN 493-2573. **(AFNS)**

Beddown projects underway

Modifications to enlarge two maintenance hangers at Ramstein AB, Germany in support of the C-130 Hercules mission are now complete.

The combined cost of the two hangers was 5.3 million Deutsch Marks. They are one of 13 payment-in-kind projects, and are part of more than 40 beddown projects being worked to transition Ramstein from a fighter to an airlift mission.

Beddown leader, Maj. Dennis Jasinski, said the payment-in-kind projects are part of an $67 million agreement for the Air Force to return about 326 acres at Rhein Main for expansion of operations at Frankfurt International Airport. **(AFNS)**

Civil Engineer Senior Staff List

CIVIL ENGINEERING SENIOR OFFICERS

GENERAL OFFICERS

MAJCOM	RANK	NAME	LOCATION	POSITION
HQ USAF	Maj. Gen.	McCarthy, James E.	Pentagon	The Civil Engineer
HQ ACC	Brig. Gen.	Allen, John J.	Langley AFB	The Civil Engineer
HQ AFMC	Brig. Gen.	Courter, Robert, J. Jr.	Wright-Patterson AFB	The Civil Engineer
HQ AMC	Brig. Gen. (MG S)	Lupia, Eugene A.	Scott AFB	Director, Civil Engineering

COLONELS

AFMC	Col.	Baker, Paul D.	Edwards AFB	Commander, 650th CEG
AFCESA	Col.	Barker, Daniel J.	Tyndall AFB	Director of Contingency Support
HQ AETC	Col.	Bartel, Harvey D.	Randolph AFB	Assistant to The Civil Engineer
AFCEE	Col. (S)	Barthold, Bruce R.	Brooks AFB	Director of Construction Management
AFMC	Col.	Bartlow, Robert L.	Tinker AFB	Commander, 654th CES
HQ AMC	Col.	Baumgartel, Gary P.	Scott AFB	Chief, Base Realignment and Closure Division
AFMC	Col.	Beshore, Eric A.	Eglin AFB	Special Assistant for Environmental Management
HQ SPACECOM	Col.	Best, Eugene S.	Peterson AFB	Chief, Programs Division
AFCESA	Col.	Blanchard, Donald J.	Tyndall AFB	Vice Commander
HQ ACC	Col.	Brown, Fred N. Jr.	Langley AFB	Chief, Base Support and Closure
HQ ACC	Col.	Bryan, Richard T.	Langley AFB	Chief, Readiness Plans
SPACECOM	Col.	Bunner, Randle K.	Patrick AFB	Commander, 45th CES
ACC	Col.	Burns, Patrick A.	Ellsworth AFB	Commander, Support Group
HQ AFMC	Col.	Cannan, David M.	Wright-Patterson AFB	Deputy Command Civil Engineer
AMC	Col.	Cardinale, Richard O.	McGuire AFB	Commander, 438th CES
PACAF	Col. (S)	Charles, Jeffrey R.	Osan AB	Commander, 51st CES
HQ ACC	Col.	Chisolm, Stoney P.	Langley AFB	Assistant to The Civil Engineer
HQ USAF	Col.	Clark, Dwight E.	Pentagon	Director of Operations
PACAF	Col.	Coullahan, Patrick M.	Elmendorf AFB	Commander, 3rd CES
AFMC	Col.	Cuddihee, Michael A.	Kirtland AFB	Commander, 377th CES
ACC	Col.	Davis, James N.	Holloman AFB	Commander, 49th Bare Base Support Group
HQ USAF	Col. (S)	DeFoliart, David W.	Pentagon	Executive Officer to The Civil Engineer
HQ AFMC	Col.	Demoret, Guy W. II	Wright-Patterson AFB	Chief, Foreign Military Sales Construction
HQ PACAF	Col.	Destadio, Frank J.	Hickam AFB	Deputy Command Civil Engineer
HQ AFSOC	Col.	Drake, William J.	Hurlburt Field	Command Civil Engineer
HQ AMC	Col.	Dustin, Jacob D.	Scott AFB	Chief, Environmental Division
HQ AMC	Col.	Earls, Garry W.	Scott AFB	Chief, Programs Division
240 CEF/CC	Col.	Eden, Anthony	Buckley ANGB	Commander, 240th CEF (S-Team)
AMC	Col. (S)	Eng, William F.	Scott AFB	Chief, Housing Division
HQ USAFE	Col.	Engle, James W.	Ramstein AB	Special Assistant to USAFE Civil Engineer
HQ ACC	Col.	Estes, John H. IV	Langley AFB	Chief, Programs Division
SAF/MII	Col.	Feather, Joseph A.	Pentagon	Military Assistant for Reserve Affairs
AFIA	Col.	Fisher, Wayne T.	Kirtland AFB	Director, Management Inspections
HQ USAF	Col.	Fox, Dean.	Pentagon	Director of Environment
AFCEE	Col.	Garcia, Samuel E.	Brooks AFB	Director, Environmental Restoration
AFSOC	Col.	Gilbert, Russell L.	Hurlburt Field	Commander, Support Group
AFCEE	Col.	Gorges, Thomas W.	Brooks AFB	Commander,
SPACECOM	Col.	Griffith, Thomas M.	Vandenberg AFB	Commander, Support Group
AFCEE	Col.	Gross, Thomas H.	Brooks AFB	Director, Environmental Conservation and Planning
AMC	Col.	Guy, Homer L.	Travis AFB	Commander, 60th CES
AFMC	Col.	Haggstrom, Glenn D.	McClellan AFB	Commander, 652nd CES
AFCESA	Col.	Hains, Paul W. III	Tyndall AFB	Commander
AETC	Col.	Hanes, Richard M.	Wright-Patterson AFB	Dean, Civil Engineer and Services School
SPACECOM	Col. (S)	Hansen, Kevin P.	Peterson AFB	Assistant Chief, Construction Division
PACAF	Col.	Harrington, Jerrold B.	Yokota AB	5th Air Force Civil Engineer
HQ AFMC	Col.	Hauck, Louis F.	Wright-Patterson AFB	Chief, Operations Division
SAF/MIQ	Col.	Hollister, Cullen A.	Pentagon	Assistant for Reserve Component Affairs
SAF/MI	Col.	Hopson, Hunter S. Jr.	Pentagon	Military Assistant to SAF/MI
AFMC	Col.	Horsfall, John D.	Brooks AFB	Deputy Support Group Commander
HQ SPACECOM	Col.	Jackson, Charles A.	Peterson AFB	Assistant to The Civil Engineer
HQ ACC	Col.	Jeffrey, John R.	Langley AFB	Chief, Readiness Plans
11th Spt Wg	Col (S)	Judkins, James E.	Bolling AFB	Commander, 11th CES
PACAF	Col.	Kahler, James W.	Kadena AB	Commander, 18th CEG
HQ USAFE	Col.	Kennedy, James R.	Ramstein AB	Chief, Programs Division
AFCESA	Col. (S)	Kloeber, Peter K.	Tyndall AFB	Director, Operations Support
HQ AETC	Col.	Kochanek, Richard J.	Randolph AFB	Chief, Environmental Division
AMC	Col. (S)	Kukuk, Steven D.	Charleston AFB	Commander, 437th CES
PACAF	Col. (S)	Logan, Joseph M.	Osan AB	7th Air Force Civil Engineer
AFCEE	Col. (S)	Love, Francis E.	Brooks AFB	Chief, Base Closure Restoration Division
ANGRC	Col.	Lundgren, Samuel G.	Andrews AFB	Director of Engineering and Services
HQ ACC	Col.	Madrid, Marcos J.	Langley AFB	Chief, Environmental Division
AFMC	Col.	Marshall, James R.	Robins AFB	Director, Environmental Management
AFMC	Col.	Masuda, Martin D.	Arnold AFB	Director, Facility Management
HQ AMC	Col.	McDaniel, Harry R.	Scott AFB	Deputy Director of Civil Engineering
AETC	Col. (S)	McDonald, Thomas J.	Randolph AFB	Chief, Programs Division
ACC	Col.	McPherson, Michael F.	Offutt AFB	Commander, 55th CES
HQ PACAF	Col.	Meister, Donald J.	Hickam AFB	Chief, Environmental Division
HQ SD ANG	Col.	Mielke, Ronald W.	Sioux Falls, S.D.	Civil Engineering Staff Advisor
AFMC	Col.	Miller, Michael J.	Robins AFB	Commander, 653rd CES
AETC	Col. (S)	Minto, Paul E.	Maxwell AFB	Commander, 502nd CES
HQ USAF	Col.	Mogge, John W. Jr.	Pentagon	Director, Programs
HQ AFRES	Col.	Munter, Joseph C.	Robins AFB	Command Civil Engineer
HQ USAF	Col.	Murphy, Donald E.	Pentagon	Director, Housing
AMC	Col.	Norris, James A.	McGuire AFB	Deputy Commander, 438th CES
AFMC	Col.	O'Brien, David S.	Baltimore, MD	Chief, Technical Support Directorate
USFK	Col.	Osburn, Robert W.	Yong Son AB	Staff Engineer
OSD	Col.	Owendoff, James M.	Pentagon	OSD, Environmental Security
AETC	Col. (S)	Patrick, Michael R.	Keesler AFB	Commander, 81st CES
USAFE	Col. (S)	Pearson, William R.	Aviano AB	Commander, 31st CES

Civil Engineer Senior Staff List

HQ USAFE	Col.	Peters, Robert L. II	Ramstein AB	Chief, Environmental Division
OASD/RA	Col.	Potts, John L.	Pentagon	Deputy Director for Construction
HQ AFMC	Col.	Raymond, Neil V.	Wright-Patterson AFB	Director, Environmental Management Division
USAFA	Col.	Rhode, Charles G.	USAF Academy	USAFA Civil Engineer and Commander, 54th CES
HQ AFRES	Col.	Rider, Richard W.	Robins AFB	Director, Readiness Operations
ACC	Col.	Riggs, Gregory E.	Nellis AFB	Commander, 558th CES
HQ SPACECOM	Col.	Robbins, Earnest O. II	Peterson AFB	Command Civil Engineer
HQ USAF	Col.	Rothenberg, Karsten H.	Pentagon	Director, Engineering
HQ PACAF	Col.	Schauz, William G.	Hickam AFB	Chief, Operations Division
HQ ACC	Col.	Scott, Charles W.	Langley AFB	Commander, ACC CES
235th CEF/CEC	Col.	Shero, Henry C.	Baltimore, MD	Chief, Technical Support Directorate
HQ AMC	Col.	Skrypczuk, Oleh	Scott AFB	Commander, AMC CES
AETC	Col. (S)	Smith, Scott L.	Sheppard AFB	Commander, 366th Training Squadron
AFCESA	Col.	Stanley, Duane A.	Tyndall AFB	Reserve Program Manager
AFMC	Col.	Stanley, Tad A.	Hill AFB	Commander, 649th CES
HQ AETC	Col. (BG S)	Stewart, Todd I.	Randolph AFB	Command Civil Engineer
HQ PACAF	Col. (BG S)	Stowell, Philip G.	Hickam AFB	Command Civil Engineer
USAFA	Col.	Swint, David O.	USAF Academy	Professor and Dept. Head, Civil Engineering
AFMC	Col.	Tickel, Jobe C. Jr.	Wright-Patterson AFB	Commander, 88th CEG
HQ USAFE	Col.	Vernon, James N.	Ramstein AFB	Command Civil Engineer
AMC	Col. (S)	Wallett, Robert M.	Scott AFB	Commander, 375th CES
NGB	Col.	Walsh, Thomas M.	Pentagon	The Civil Engineer
ACC	Col.	Waylett, Susanne M.	Hurlburt Field	Commander, 823rd RED HORSE
AETC	Col. (S)	Wiles, Carl L. Jr.	Lackland AFB	Commander, 37th CES
USAFE	Col.	Wilson, Thomas F.	Ramstein AB	Commander, 86th CEG
PACAF	Col.	Woods, Clinton C.	Osan AB	Commander, 554th RED HORSE

Effective Feb. 16, President Bill Clinton nominated the following civil engineers to the Senate for appointment to the grade of:
Major General -- Brig. Gen. Eugene A. Lupia Brigadier General -- Col. Todd I. Stewart and Col. Philip G. Stowell

CIVILIAN SES

HQ USAF SES	Wolff, Robert D.	Pentagon	Deputy Civil Engineer

CIVILIAN GS-15

AFCEE	GS-15	Bakunas, Edward J.	Brooks AFB	Chief, Planning Division
AFMC	GS-15	Brunner, Paul G.	McClellan AFB	Environmental Manager
ACC	GS-15	Calfee, James R.	Langley AFB	Chief, Engineering Flight
AFMC	GS-15	Clark, Michael J.	Eglin AFB	Deputy BCE
AFRES	GS-15	Clary, Bobby G.	Robins AFB	Deputy Civil Engineer
ANG	GS-15	Conte, Ralph	Andrews AFB	Chief, Programs Division
AFCESA	GS-15	Corsetti, William V.	Tyndall AFB	Director, Technical Support
AFMC	GS-15	Daniels, Ralph	Wright-Patterson AFB	Chief, Programs Division
AFCESA	GS-15	Daugherty, Patrick C.	Tyndall AFB	Chief, Mech/Fire Division
REA	GS-15	Edward, William E.	Bolling AFB	Dep. Dir., AF Real Estate Agency
AFCESA	GS-15	Firman, Dennis M.	Tyndall AFB	Executive Director
AFMC	GS-15	Garcia, Marvin L.	Wright-Patterson AFB	Chief, Engineering Division
AFIC	GS-15	Hoffman, Larry W.	Kelly AFB	Chief, CE Ops Division
REA	GS-15	Jonkers, Anthony R.	Bolling AFB	Director, AF Real Estate Agency
AFMC	GS-15	Kilp, Stephen G.	Edwards AFB	Environmental Manager
AFCEE	GS-15	Lammi, Phillip E.	San Francisco	Director, Reg. Comp Office
AFCEE	GS-15	Leehy, Lawrence R.	Brooks AFB	Technical Asst., Const. Mgmt. Div.
AFCEE	GS-15	Lopez, Edward	Dallas	Director, Reg. Comp Off
SPACECOM	GS-15	Lowsley, James P.	Vandenberg AFB	Deputy BCE
AETC	GS-15	Lynch, Robert E Jr.	Randolph AFB	Chief, Construction Division
AMC	GS-15	Mack, Robert D.	Scott AFB	Chief, Ops & Readiness Division
HQ USAF	GS-15	Moldonado, Rita	Pentagon	Chief, RPMA Program Division
HQ USAF	GS-15	Myers, G. Hammond III	Pentagon	Chief, Plans/Policy Division
AFCEE	GS-15	Nelson, Glenn E. Jr.	Brooks AFB	Technical Asst. Env. Rest. Director
AFMC	GS-15	Ninneman, Gene A.	Wright-Patterson AFB	Technical Director, Env. Mgmt. Div.
ACC	GS-15	Parker, Paul A.	Langley AFB	Chief, Housing Division
AFCEE	GS-15	Perritt, Rolan M.	Brooks AFB	Chief, Architecture Division
AFMC	GS-15	Polce, Ronald L.	Arnold AFB	Technical Area Manager
HQ USAF	GS-15	Reinertson, Kenneth	Pentagon	Chief, Environmental Planning Division
AFMC	GS-15	Ritenour, Donald L.	Brooks AFB	Director, Design Group
USSPECOPS	GS-15	Robinson, Gary W.	MacDill AFB	Command Engineer
BDA	GS-15	Sailer, Gilbert E.	Arlington	Spec. Asst., Real Property
AFMC	GS-15	Sculimbrene, Anthony F.	Wright-Patterson AFB	Environmental Manager
AFMC	GS-15	Shoup, Thomas E.	Wright-Patterson AFB	Deputy BCE
AFCEE	GS-15	Sims, Thomas D.	Atlanta	Director, Reg Comp Off
USAFE	GS-15	Thompson, John D.	Ramstein AB	Assistant Director
AMC	GS-15	Van Buren, John L.	Scott AFB	Chief, Project Eng. Division
NGS	GS-15	Vangasbeck, David C.	Andrews AFB	Chief, Environmental Division
AFMC	GS-15	VanOrman, James R.	Hill AFB	Environmental Manager
ANG	GS-15	Whitt, William B.	Andrews AFB	Chief, Facilities Division
AFCESA	GS-15	Wilson, Edward E. Jr.	Tyndall AFB	Chief, Civil/Structural Division
AFMC	GS-15	Wolcott, John V.	Vandenberg AFB	Acquisition Civil Engineer
PACAF	GS-15	Yasumoto, Stanley Y.	Hickam AFB	Chief, Engineering Division
BDA	GS-15	Yonkers, Terry A.	Arlington	Chief, Env. Programs Division
AFCEE	GS-15	Zugay, Anthony	Brooks AFB	Technical Director

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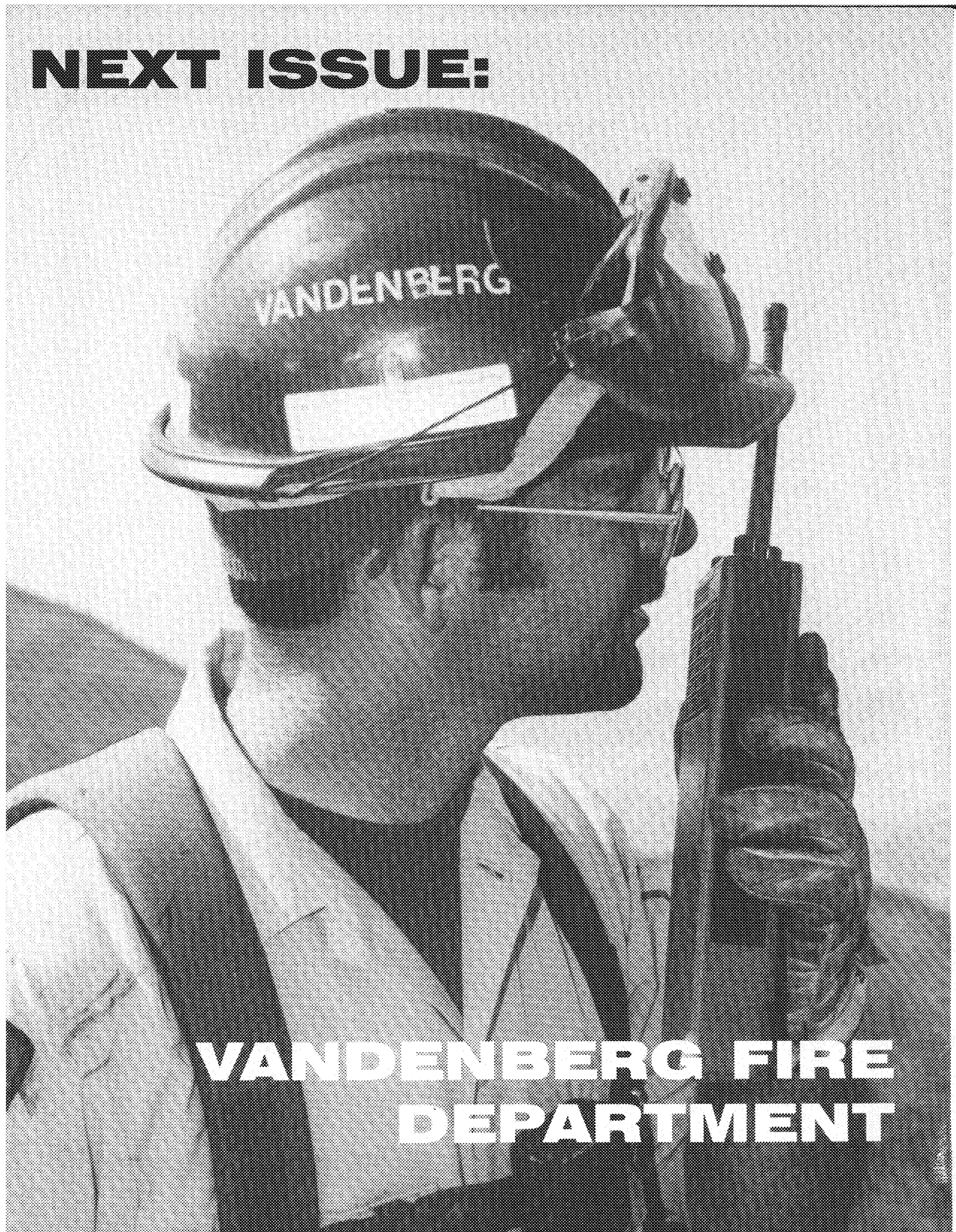

VANDENBERG FIRE DEPARTMENT