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JSLIST
Chemical Wear
for the EAF

The Civil Engineer - United States Air Force



FROM THE TOP

Weapons of Mass Destruction: A CE Role

“When there is a visible foe to fight in open combat ... many serve, all applaud and the tide of patriotism runs high. But, when there is a long, slow struggle with no immediate, visible foe, your choice will seem hard indeed.”

— President John F. Kennedy

Weapons of Mass Destruction (WMD) are among the gravest threats facing our Air Force today. Due to the loss of global security provided during the Cold War, countries lacking conventional military superiority have turned to development of chemical and biological weapons, often called the “poor man’s nuke.” To further complicate things, terrorists, non-state actors and religious cults have managed to develop and weaponize WMD; take the Tokyo subway Sarin nerve agent incident for example. What it all comes down to is not *whether* a WMD incident is going to occur in our homeland or overseas, but *when* it is going to occur. From fire protection to readiness to explosive ordnance disposal, civil engineers play a major role in the response to potential WMD incidents at (or near) Air Force installations.

In October 1998, the Major Commands attended the *United States Air Force Chemical and Biological Threat Response Conference*. MAJCOM attendees were instrumental in helping develop our current WMD response. Essentially, we will respond to WMD incidents similar to the way we respond to HAZMAT incidents. Fire protection, along with medical first responders and security forces, will form the initial response. EOD will augment this initial response force if there is a suspected explosive device. The CE Readiness Flight, responsible for WMD planning, will assist and advise the on-scene commander in making decisions.

There are a number of tools needed to accomplish this mission effectively. We provided the MAJCOMs interim guidance on conducting a WMD incident response in April 1999. More formal guidance in the form of an Air Force 90-series policy directive and handbook became available in December. An Air Force instruction is also in the works. Finally, we are in the process of providing the MAJCOMs a baseline equipment list that can be used to determine equipment needs and program for additional equipment as necessary.

So we see the light at the end of the tunnel, and I assure you it’s not an oncoming train. And, by the way, remember that you *need to train*. Effective training, from an integrated, interagency approach, including local community first responders, will be the key to success in WMD incident response. I’m confident that our civil engineer community can, and will, make this important aspect of our mission a success story.



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

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THE CE

The U.S. Air Force Civil Engineer

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On the cover ...

TSgt Ron Childs, Air Force readiness training manager, demonstrates the JSLIST ensemble and the newly fielded M-22 Automatic Chemical Agent Alarm — two of the latest advancements in NBC protection and detection. Story page 12.

As a civil engineer who has served the Air Force in active duty, Reserve and civilian engineering positions and who has worked as an electrical engineer in the private sector, Michael A. Aimone, P.E., understands the CE business from every angle. As the Deputy Air Force Civil Engineer, he draws on this experience when articulating the needs of CE to the corporate Air Force. In this interview with The CE Magazine, he discusses what's on the horizon for Air Force civil engineering as we look toward the ...



Future Total Force

The Air Force emblem is centered behind the title. It features a globe with a star on top, wings on the sides, and a gear at the bottom. The words "AIR FORCE" are written in a circular path around the globe.

The CE: It's been almost a year since you came on board as the Deputy Air Force Civil Engineer on January 4, 1999, serving first under Maj Gen Eugene A. Lupia and now under Brig Gen Earnest O. Robbins II. What are your primary responsibilities and what goals have you set for yourself in this position?

Mr. Michael A. Aimone: My first responsibility is to work the agenda of my boss, as any deputy in the Air Force does — from our deputy base civil engineers to deputies here in the other offices of the Air Staff. That agenda is pretty clear: support the policy development and resource allocation processes of Headquarters U. S. Air Force and the Secretariat.

As for goals, my main objective is to listen well to the needs of the Air Force then translate them through the special role I have as a member of the Air Force corporate process, called the Air Force Board. In that, I serve by looking not only at the engineering issues or the installation issues of a base, but at all the support forces issues in what's called the installation support area.

The CE: While commander of the 819th RED HORSE Squadron at Malmstrom Air Force Base, Mont., you were part of the

initial Air Force presence in Central America during Hurricane Mitch relief efforts last fall. Relief efforts have continued this year under the New Horizons '99 exercise. What is your impression of the value of these humanitarian relief efforts as training exercises for Air Force civil engineers?

Mr. Aimone: The role that the expeditionary combat support team plays in humanitarian operations is critical to the Air Force. The amount of nation building the U.S. military provided during initial hurricane relief efforts in El Salvador, Nicaragua and Guatemala has set a standard for the Air Force. The same is true with the follow-on Nuevo Horizons missions in Central and South America and with the Air Force Civil Engineer humanitarian operation — HUMRO — mission in support of the Kovesar refugees in Albania called Operation Shining Hope. A new standard in timeliness, quality and responsiveness has been established.

In my opinion, Air Force civil engineers need to understand that HUMRO is a mission area and treat it as a mission area. It's not simply a training opportunity. It is, in fact, doing emergency lifesaving work. When we bring U.S. military forces together with another country's military engineer forces, we raise and

strengthen and build trust while leaving behind something the community desperately needs, such as water wells and new schools.

At one time I would have said that U.S. Southern Command's New Horizons team exercises were great training opportunities for our RED HORSE and Prime BEEF teams. But after my first-hand experience during Hurricane Mitch relief operations, I'm absolutely convinced that HUMRO is a decisive area of MOOTW, or military operations other than war. Like any military skill, HUMRO requires a Concept of Operations, training, and commitment to mission execution.

The CE: There is a new division in the Office of The Civil Engineer, the Readiness and Work Force Management Division. What brought about this reorganization and what are the main responsibilities of this new division?

Mr. Aimone: This is an exciting change that we've put in place to make sure that readiness and work force issues, from military training to the computer business, achieve the right kind of oversight and resourcing, and are not lost in the vision of The Air Force Civil Engineer.

The CE: How is the Total Force effort within CE progressing? Can we expect any Total Force CE squadrons to stand up in the near future?

Mr. Aimone: The Air Force has published its vision for what is called "Future Total Force," which sets as a goal having an integrated Total Force at the wing level. The long-term vision could literally be to have Air Force active duty, National Guard and Reserve forces working side by side in our Air Force squadrons. Of course, the 819th RHS at Malmstrom was a precursor to that, and we're following suit with the 554th RHS at Osan Air Base, Korea. This will be a second addition to the

Future Total Force vision to integrate, at the squadron level, active duty, Guard and Reserve. We're looking forward to the 554th fully standing up its active duty, Guard and Reserve flights over the next two years.

While the 819th is one-third Air National Guard and two-thirds active duty, the 554th will be just the opposite of that — one-third active duty and two-thirds Guard and Reserve. That's what Future Total Force is about, having the best integration — whether it's a Guard lead with an active duty

component full-time on station or otherwise.

The CE: What advice do you have for Air Force CE civilians on how to be successful in their career fields? How will the new Aerospace Expeditionary Force structure affect the civilian workforce?

Mr. Aimone: My recommendation to our young civil engineer civilians is to remain flexible in how they go about achieving their goals. There's not a single "right" career path. Each

civilian has to decide what goal he or she wishes to pursue in their career, and know that there's not just one set of stairs that will get them to where they want to be.

As an institution, we need to allow our civilians to achieve the right kinds of growth. They need to become the technically schooled experts that we need to provide the long-term continuity that we desire, but they also need to have a breadth of experience so they can go beyond a single position.

Clearly, our civilians wish to be promoted within the system, and the promotion system is geared toward generalists as you move to the higher positions. What that means to young civilians is that they need to take the time to become career-broadened in their technical skills as well as across the Air Force levels — from the base level to the major commands to the headquarters of the Air Force.

"The Air Force has published its vision for what is called 'Future Total Force,' which sets as a goal having an integrated Total Force at the wing level."



General Richard E. Hawley (left) officiated at the 819th RED HORSE stand up ceremony in August, 1997, at Malmstrom AFB, Mont. Aimone (right) commanded the 819th while an Air Force Reserve colonel. (HQ AFCESA photo)



Michael Aimone in his office at HQ U.S. Air Force. (Photo by Keith Fred)

We need our civilians to understand the military environment they operate in — that is to say they need to participate in professional military education from the Squadron Officers' School through Air War College.

Regarding GS-14s and 15s, we're going to ask those civilians to be more mobile than they have been in the past. This doesn't mean that every civil engineer civilian has to be mobile, but that will be one of the things we'll look for in filling a position.

We're literally blessed in our career field in that we have three senior executive service, or SES, positions. Many career fields don't have that number — in fact some career fields don't have SES billets assigned. If you include those within the Secretariat and the Office of the Secretary of Defense with the Air Force, there are actually seven SES positions in our engineer community for which we can compete. So there's a tremendously large set of senior positions available if one is willing to look beyond just the narrow view.

Many people don't realize that those in SES are deemed to be very mobile by management. We're expected to move at some point in our career, which of course opens up positions for others.

One other point that needs to be said: AF CE civilians have an important role to play in the Expeditionary Aerospace Force. My goal is to make sure that we provide, with our civilian leadership, the continuity and the ability to allow the military to proceed with military operations. The key is making sure the

"As Air Force civil engineers we need to lead the challenge in how we describe not only those bases that we already know about, but those potential expeditionary air bases that we don't know much about — those we've yet to walk into."

civilians are trained appropriately and that the confidence of the commanders is there for them to be able to operate and sustain home base as the military does more of the expeditionary mobility missions.

The CE: What areas of global technology are we looking at using to enhance civil engineer training and prepare for mission readiness in the 21st century?

For years we have used computers in our business for everything from computing calculations to geographic information systems to providing 3-D pictorials of things. What's needed in the next five to 10 years is an integration of our electronic hardware and software computer power and capability.

One concept we're working on is called "GeoBase." The GeoBase planning system will provide the ability to describe, in a truly interactive database and geographic information system format, the information on an air base. Whatever information we can bring down from space assets will provide that 3-D picture.

As Air Force civil engineers we need to lead the challenge in how we describe not only those bases that we already know about, but those potential expeditionary air bases that we don't know much about — those we've yet to walk into. Having GeoBase capability will allow us to work with the war planners from both space and air to find those assets wherever they are in the world and wherever an aerospace power is required to be forward based. The GeoBase system can provide the warfighter that expeditionary combat support planning he or she's going to require to bed down in places where we have limited familiarity, like Africa and South America.

While the technology isn't there yet to be able to determine the hardness of a runway via satellite, that would be an

ultimate goal. It's far-fetched today, but that doesn't mean that in a future time we won't have the right algorithm to, from space, assess a runway's condition and determine if a C-17 could land on it or not.

The CE: What other issues do you see on the horizon for CE in the year 2000 and beyond?

Mr. Aimone: I think our biggest issue is that as we continue to sustain the best aerospace force in the world, we need to ensure that installations are maintained at a level consistent with modernization efforts in aircraft and missile systems. What we are going to be challenged to do is maintain the integrity of the infrastructure. We currently just don't have enough resources — people as well as money.



It's On Again!

Readiness Challenge VII

by TSgt Michael Ward
HQ AFCESA Public Affairs

Readiness Challenge, the Air Force's multi-national contingency support competition for civil engineers, services and chaplain service personnel, will be held April 29 to May 5, 2000, at the Silver Flag Exercise Site, Tyndall Air Force Base, Fla.

The event is a make-up for the 1999 edition of Readiness Challenge, which was canceled due to military and humanitarian commitments in Southern Europe. Readiness Challenge VII would have been held April 24-30, 1999, but was canceled just 10 days before it was to begin.

"A very hard decision had to be made," said Col Bruce Barthold, commander of the Air Force Civil Engineer Support Agency. AFCESA sponsors the event along with the Air Force Services Agency, the Air Force Chaplain Service and Detachment 1, 823rd RED HORSE Squadron, owner of the competition site. "After spending months honing their skills, teams were not only ready for the competition, but some, like the team from the United Kingdom, were already en route."

Colonel Barthold said Air Force leaders waited as long as they could to make the decision, but it became evident the bombing campaign in Serbia would last longer than initially expected and would require greater support and manpower.

"We turned the competition off, turned our efforts to real-world concerns and achieved great success," he said. "And, the skills we would have displayed during the competition were instead showcased by opening dormant airfields and supporting our warfighters. Our civil engineers played to a much bigger audience, and for much higher stakes, than they would have during the competition."

Each of the 17 teams chosen for the 1999 competition is eligible to compete in 2000, although AFCESA officials say they expect some changes in teams, or team composition, because of personnel changes and mission requirements.

"It's good to have this back on the calendar again," said Col Bruce McConnell, AFCESA's Contingency Support director. "It's good for the competitors, and it's good for the

Air Force. By the time April rolls around, it will have been three years since the last Readiness Challenge and the commands have told us their teams are looking forward to going head-to-head once again."

The Events

More than 20 events will be divided into three main categories: Prime BEEF, Prime RIBS and Chaplain Service. The events will test the major mission areas of force beddown, base recovery and chaplain services. Events are designed to challenge the competitors with realistic scenarios, as well as incorporate new technology and equipment. Teams will not know exactly what events will be competed until they arrive at the competition.

The Participants

Each major command, the Air National Guard, the U.S. Air Force Academy and the 11th Wing will field a 32-person team composed of one officer; 20 Prime BEEF personnel, including firefighter, readiness and explosive ordnance disposal specialties; six Prime RIBS services personnel; one chaplain and one chaplain service support person. Each team may bring as many as three personnel from any of the three functional specialties as alternates.

Several international allies plan to participate in this year's competition. Canada will participate for the fourth time, the United Kingdom for the second time, and Japan and Norway for the first time. Observers are expected from Australia, France, Greece, Israel and the Republic of Korea.

Similar to previous Readiness Challenge competitions, Founders' Week will once again be held concurrently with RC-VII.

Hurricanes, Typhoons, Take Aim at Bases

1999's hurricanes and typhoons came a little too close for comfort at several coastal Air Force installations around the world. While bases in or near their paths escaped heavy damage, the storms still managed to churn up plenty of extra work for civil engineer squadrons.

Super Typhoon Bart Blasts Kadena

by Maj David Lehosit
Kadena AB, Japan

Super Typhoon Bart blew into Kadena Air Base, Japan, Sept. 22, causing an estimated \$5.7 million in property damage. 718th Civil Engineer Squadron officials estimate the operations and maintenance damage at more than \$4.6 million and military family housing losses at \$1.1 million.

Most O&M damage was attributed to flood-damaged roads, uprooted trees, and four small buildings that housed runway barriers that were completely destroyed. Housing areas received storm water flooding and scattered tree and roof damage.

"We had tree damage throughout the base," said Dave Gannon, 18th CES Operations Flight. "Many old trees were uprooted and we had limited flooding in some homes, industrial

buildings and roads. Some buildings lost siding and roofing. However, most of our buildings weathered the storm and people are safe, which is great." No casualties or typhoon-related injuries were reported on Kadena.

According to Lt Col Douglas Tucker, 18th CES commander, the key to the success of the cleanup effort was quick formation of a team composed of the 18th Command Post, weather and security forces.

"This allowed our Damage Assessment and Repair Teams to get out into the base before residents were allowed to leave their quarters," he said. "We were able to clear roads and make repairs to areas that were not safe or passable — preventing base residents from inadvertently stumbling across a downed power line or other hazard."

With the storm came sporadic power outages, leaving crews working throughout the night to get power fully restored to the base.

"The types of damage we experienced from this storm caused us to rethink the emergency response equipment we

A weather front associated with Typhoon Olga delivered torrential rains and 50- to 60-mph winds to Osan Air Base, Republic of Korea, for several days in August. (Right) SrA Jonathan Ohrt, 51st CES, checks the water level of the river that runs adjacent to Osan AB on Aug. 3, after the base received 8 inches of rain in 36 hours. (Photo by TSgt Lance Cheung)



keep on-hand,” said Tucker. “A lot of our electrical systems are underground at Kadena, but we still had problems with shorted circuits. We were able to restore power to the main part of the base within four hours, but we were ready with items in stock for just such occasions. The base’s electrical system is very outdated in some areas, so we keep parts readily available for emergencies.

“We’ve also found that it is a good idea to have plenty of wet vacs available to soak up water. Numerous facilities were flooded and carpets would have been completely unusable if we had not moved quickly to remove the water. We were able to provide facility managers with the means dry their carpet before it mildewed.

“We learned quickly that CE can’t make the recovery effort happen alone. Legal and the base photo lab have a lot to contribute to recovery efforts. We had a lot of damage to

privately owned vehicles, most of them hit by trees or flying debris, or stalled in a road. Unless it was a life-threatening situation we did not immediately remove trees from the tops of cars or remove cars that were in the middle of flooded streets. We waited until legal had taken pictures and talked to the owner, then we went to work.”

Kadena hadn’t seen a storm of Super Typhoon Bart’s magnitude since Super Typhoon Faye in 1957. With wind gusts on Kadena reaching 145-mph and maximum winds in the eye at 184 mph, Bart was the equivalent of a Category 5 hurricane, the strongest category of hurricanes in the Atlantic.

East Coast Bases Feel Effects of Floyd

CE Staff Report

Hurricane Floyd was a storm the size of the state of Florida with 155-mph winds while it was in the Atlantic, but was downgraded to a Category 1 hurricane by the time it moved on shore near Pope Air Force Base, N.C., Sept 15. Damage to Air Force bases along the East Coast was minor compared to the potential for damage had Floyd remained a Category 4 storm. Civil engineer squadrons all the way from Florida’s east coast to Virginia took Floyd’s threat seriously, putting a lot of effort into preparing for the storm so that damage to the bases was minimal.

The eye of the storm stayed at sea as it passed close to Charleston AFB, S.C., bringing tropical force winds of 50 to 60 mph to the area. The storm caused over \$1.8 million in damage on base to more than 80 buildings and 15 power poles and knocked down more than 100 trees, seven of which fell on homes.

A 20-member team from the 375th Civil Engineer Squadron from Scott AFB, Ill., spent a week at Charleston assisting the



18th CES personnel work to restore power after Super Typhoon Bart blew through Kadena AB in September. *(Photo courtesy 18th Wing Public Affairs)*



43rd CES personnel repair a 40-foot by 40-foot sink hole underneath the flightline taxiway, which was revealed the morning after Hurricane Floyd passed by Pope AFB. *(Photo courtesy 43rd CES)*

SrA Jerimie Alger and another member of the 1st CES place sand bags on a 40-foot trailer during Hurricane Floyd preparations at Langley AFB. *(Photo by SSgt Vincent Parker)*

437th CES with cleanup efforts such as restoring power, fixing and inspecting damaged facilities, cleaning up fallen trees and repairing fences.

“The Scott folks came to us with their tool boxes in hand and ready to run ... we immediately put them to work helping us expedite base recovery efforts,” said Lt Col Jon Roop, 437th CES commander. “We appreciated the quick response from headquarters.”

By the time Floyd made landfall near the North Carolina border, the 43rd CES at Pope AFB, N.C., was ready. Preparation for cleanup began before the storm. According to Maj Pete Bahm, 43rd CES Operations Flight commander, approximately 50 43rd CES personnel, including 20 firefighters, remained at Pope through the storm as members of a “hurricane ride-out team.” The team was in place and ready to do initial damage assessments and repairs as soon as the storm passed.

Floyd’s winds blew down 20-30 trees and power lines and damaged roof tiles, while rains flooded basements, caused a portion of a road to collapse, and created a 40-foot by 40-foot sink hole underneath Pope’s primary flightline taxiway.

At Seymour Johnson AFB, N.C., about 75 miles northeast of Pope, Floyd’s high winds downed trees and did minor damage to roofs, but the majority of damage on base was due to flooding. Seymour Johnson experienced local flooding during the storm and area flooding later from the Neuse River, which reached record flood levels.

According to Henry Labrecque, 4th CES deputy base civil engineer, some 38 buildings on base were flood-damaged. “Most significantly, the Munitions Storage Area, National Airborne Operations Center area and the west end of the runway were flooded,” said Labrecque. “The runway approach lights as well as electrical systems in the buildings were affected.” Hurricane Floyd inflicted more than \$1.5 million in O&M damage at Seymour Johnson.

When floodwaters threatened to overrun the local water treatment plant, 15 people from the 4th CES and 20 airmen from Seymour Johnson’s First Term Airmen Center volunteered to help. They filled 3,000 sandbags in three hours to help protect the facility.

Hurricane Floyd wasn’t through once it made landfall. The storm struck Langley AFB, Va., Sept. 16, generating the equivalent of four months’ rainfall in less than 24 hours. The heavy rainfall



A11C James Bollinger III, above, and other Langley AFB firefighters used boats to evacuate more than 200 residents of base housing when it flooded due to Hurricane Floyd. Floyd, a Category I hurricane when it reached Langley, delivered more than 17 inches of rain and winds in excess of 75 mph. (Photo by TSgt Jack Braden)

caused a drinking water reservoir to overflow into base housing. 1st CES firefighters used boats to evacuate more than 200 residents from the knee- to waist-deep floodwaters.

In addition to flooding, Langley suffered power outages, downed trees, damaged lift stations and sewer lines, damaged roofs and torn siding on hangars. According to Bruce MacDonald, 1st CES deputy base civil engineer, Langley sustained about \$2.5 million in damage.



TSgt Lance Filler, 4th CES, removes fallen trees from the Seymour Johnson AFB family housing area. The 4th CES began clean-up immediately after the storm passed. (Photo by SrA Kevin Kuhn)

Reusing Excess RPIE Saves Time, Money

by MSgt Gerald Stroud
910th Airlift Wing Public Affairs

Inoperative generators or power distribution equipment can create mission-threatening conditions on an Air Force base. It's the base civil engineer's responsibility to keep this equipment running in the most efficient and economical way possible. The "RPIE Reutilization Program" is available to help BCEs do this. It's a cost-effective alternative to purchasing new electrical generation and distribution equipment.

RPIE is an acronym for Real Property Installed Equipment. It consists of permanently installed items that are part of a utility system, such as electrical generators and power distribution equipment. In many locations where other electric power systems are non-existent or unstable, base generators ensure quality of life is maintained for Air Force members and families. This equipment doesn't come cheap — but it is essential to accomplishing the mission.

The excess RPIE reutilization program is administered by the Air Force Civil Engineer Support Agency's Civil Engineer Maintenance, Inspection and Repair Team (CEMIRT). "We act as a clearinghouse and broker to evaluate excess equipment, primarily diesel generator sets that are 100 kilowatt or larger and high-value distribution equipment," said Gary Tyree, CEMIRT director. "We source it out to major commands to meet current and future requirements."

CEMIRT's operating locations are at Dover AFB, Del.; Travis AFB, Calif.; and Tyndall AFB, Fla. If a unit has excess equipment or capacity, or if a base closes or has a mission change that will affect their generator requirements, they are required by AFI 32-1063 to contact one of the CEMIRT sites. Once the equipment is identified to CEMIRT, it is inspected to determine if it can be used at another location or if the repair and maintenance cost would be more than the cost of

purchasing new equipment.

"Sometimes it's more cost-effective to pull the equipment out, overhaul it and reinstall it at another location. We have that capability at all three CEMIRT locations," said Tyree. "The excess RPIE reutilization program is a huge cost avoidance to major commands because we provide this material as government-furnished equipment. Right now we are holding several million dollars worth of equipment with about \$5 million being programmed for placement."

Equipment recently replaced at Beale AFB, Calif., is a perfect example of how the excess RPIE reutilization program works. "Their power plant was antiquated. It was a White Superior diesel system for which we could no longer purchase parts from the manufacturer," said Tyree. "We replaced it with four 600-kilowatt generator sets and electrical switchgear from Hill AFB, Utah, that we had identified as excess. This resulted in a cost avoidance to the government of approximately \$1 million."

CEMIRT receives equipment from all the services. Two generator sets recently placed at Lajes Field, Azores, came from the U.S. Naval Academy.

Not all equipment offered to CEMIRT



is placed in the reutilization program. Cost and condition, as mentioned, are always taken into account. Additionally, some good equipment is refused because CEMIRT cannot find or project a need for it within the Air Force.

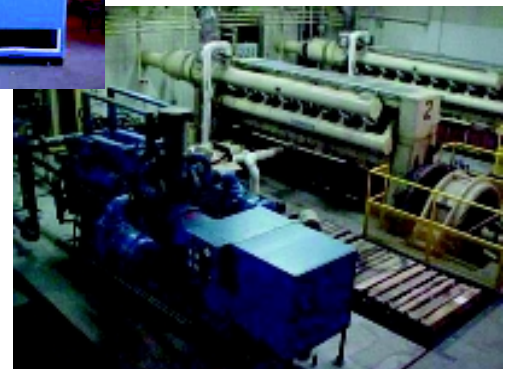
Equipment placed in the program is treated in two ways. Because this type of

equipment often weighs 100,000 pounds plus, if possible it is left in place at its present location, or "pickled" as CEMIRT personnel call it, until needed. This was done with the previously mentioned Hill AFB equipment before it was installed at Beale. If the equipment must be moved because the base is closing or because the present unit needs the space, then it is moved to one of the three CEMIRT operating locations. Because CEMIRT sites have limited inside storage space but acres of outside storage, most of the equipment moved must be suitable for outside storage.

CEMIRT's involvement in reusing RPIE generators had its beginnings in the mid-1970s. According to Tyree, it started by accident while generators were being removed from missile silos and shipped to Kelly AFB, Texas, for storage, then overhauled and reused in other locations. The idea took hold and evolved into what is now the excess RPIE reutilization program.

"There will always be mission changes and mission relocations — I think this is a given," said Tyree. "It only makes sense to reuse the equipment we have invested so much in. Someone has to do this type of job and no one in the Air Force has the

networking capabilities CEMIRT has when it comes to power generating and electrical distribution equipment. I think the program will continue to be a big money saver for the Air Force."



Chemical Wear for the EAF

JSLIST — The Latest in NBC Protective Gear

by MSgt Gerald Stroud
910th Airlift Wing Public Affairs

The proliferation in recent years of weapons of mass destruction, particularly nuclear, biological and chemical (NBC) weapons, means that U.S. forces must be prepared for conflict in a chemical warfare environment. This demands development of new force protection strategies and technologies to fight and win on a contaminated battlefield.

One of the latest innovations in this arena comes from the Joint Service Lightweight Integrated Suit Technology (JSLIST) program. JSLIST's chemical protective duty uniform (CPDU) answers the need for a durable, comfortable and lightweight uniform that provides increased protection against NBC agents.

"This new uniform is the next generation of chemical protective gear for our ground personnel," said MSgt Troy Stalvey, Air Force program manager for NBC defense equipment, Headquarters Air Force Civil Engineer Support Agency, Tyndall Air Force Base, Fla. "The goal of this program is to field a better fitting, lightweight and launderable chemical protective uniform for personnel operating in NBC environments."

The current means of protection against NBC agents is the battledress overgarment, or BDO. One problem with the BDOs is that they are worn over clothing, making them hot and bulky. Wearing one decreases an individual's dexterity. The JSLIST CPDU is designed to be worn next to the skin as a part of the standard duty uniform, providing better movement and more dexterity,

while generating less body heat.

The CPDU is a two-piece garment made using carbon sphere technology. Instead of layering charcoal protection into the suit fabric, as in the BDO, the protective charcoal is formed into tiny beads and woven into the suit fabric. This carbon sphere technology traps less heat against the body.

If a liquid chemical agent contacts the CPDU, the outer layer repels the agent, causing it to bead and evaporate. Any agent that penetrates the outer layer is absorbed in the charcoal-impregnated fabric.

"A main advantage of the JSLIST CPDU over the current battle dress overgarment chemical suit is we no longer have to use charcoal impregnated foam," said Stalvey. "There were problems with the foam releasing charcoal particles into an individual's skin. Since the beads of charcoal in the JSLIST CPDU are woven into the fabric, it can be worn with direct skin contact. The old suit can be worn as an overgarment only."

According to Stalvey, the CPDU is split sized and will be split issued. The jacket and pants are packaged separately and are configured in upper torso and pant-length sizes. Personnel can mix and match sizes to meet their needs.

The CPDU jacket comes with an integrated hood, so the rubber hood that is part of the present chemical warfare ensemble is no longer needed. The integrated hood enables the wearer to achieve a better fit with the gas mask. It will also reduce the time it takes to don the suit.

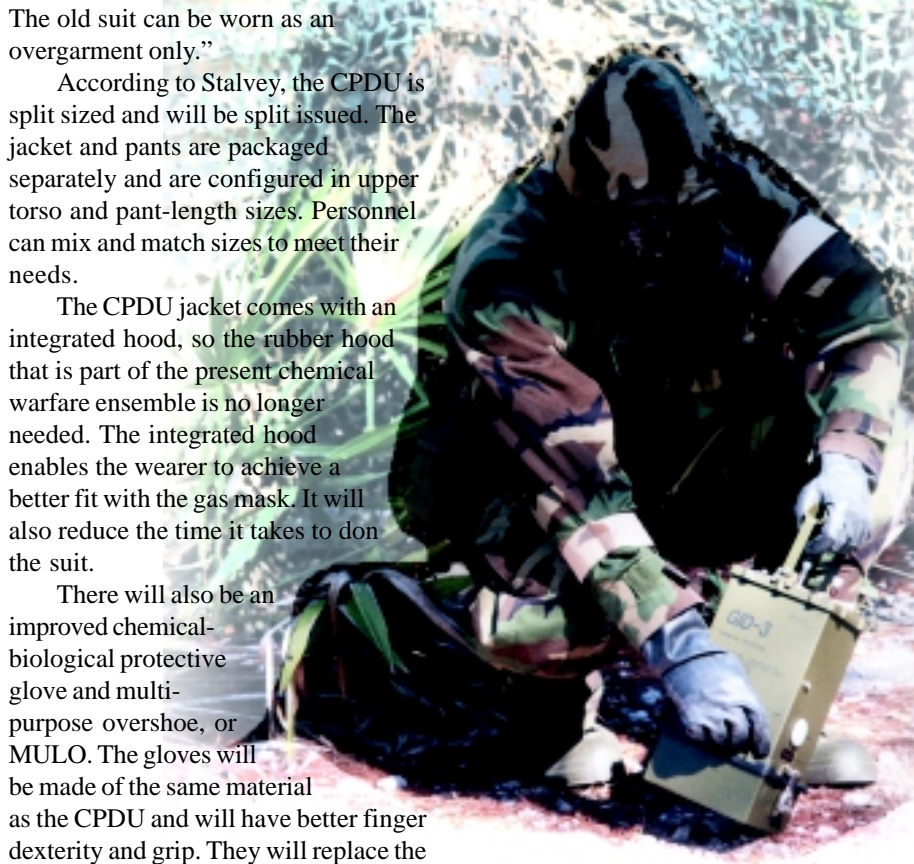
There will also be an improved chemical-biological protective glove and multi-purpose overshoe, or MULO. The gloves will be made of the same material as the CPDU and will have better finger dexterity and grip. They will replace the

current vinyl gloves, which have a shelf-life of 15 years, as they expire. The overshoes are made of a rubber compound that is weather-proof and chemical- and petroleum-resistant. The MULO has better soles for more traction than the current vinyl overboots, and will come sized to fit combat boots. A size 8 MULO will fit a size 8 combat boot.

The JSLIST CPDU is currently being fielded to firefighters and explosive ordnance disposal personnel worldwide. Next in the fielding priority are in-place chemical-biological warfare threat area personnel, followed by overseas/CONUS deployable personnel.

The current Air Force CPDU funding requirement is approximately \$1.28 million. The Services' combined requirements are more than \$5 million. "Funding for this program is projected through fiscal year 2010, so some CONUS Air Force units will not see JSLIST for several years," Stalvey said.

According to Stalvey, there is an



The JSLIST and J-FIRE ensembles are among the latest innovations in NBC agent protection. *(The CE Staff photos)*

existing plan for product improvement in the JSLIST program. "The next stage of the program, as the CPDU is being fielded, is to improve the fabric," he said. "We need to move on to the next generation of fabric that is supposed to provide a significant reduction in heat burden with, basically, a thinner fabric that provides the same protection."

"Our goal is to continue development in this area to ensure that those who are put in harm's way are equipped with the best that technology has to provide in protective gear," said Stalvey. "We will continue to do our best to protect our forces in the field."

J-FIRE Protects in NBC Environments

by CMSgt Carl Glover
HQ AFCESA, Tyndall AFB, Fla.

Air Force fire departments are now better equipped to conduct fire fighting operations in a chemical environment thanks to new, state-of-the-art J-FIRE protective equipment.

J-FIRE (an acronym for Joint Firefighter's Integrated Response Ensemble) is an element of the Joint Service Lightweight Integrated Suit Technology (JSLIST) program. The JSLIST chemical protective duty uniform (CPDU) has been integrated into specialized fire fighting gear, providing total protection for firefighters during operations where a nuclear, biological or chemical (NBC) threat is present.

Previously, firefighters wore the same chemical warfare suit as everyone else. The problem was that aluminized proximity fire fighting outergarments couldn't be worn over the old overgarment. This left troops to fight fires as best they could from outside a building or aircraft if an NBC threat was present.

Additionally, filters in the standard MCU-2A/P chemical mask didn't protect firefighters from smoke, oxygen-deficient atmospheres, or hydrazine (an emergency fuel source for F-16s), hindering their response to incidents and mishaps

where use of a self-contained breathing apparatus was required. Also, the rubber-like hoods in the old suits could melt when exposed to the intense temperatures inside a burning building or aircraft.

With the J-FIRE, firefighters can hook their new masks into air tanks, put on protective silver outer gear, and respond to a fire or aircraft mishap. After fire fighting is complete, firefighters now have the capability to switch from supplied air back to the chemical environment canister air, without removing their mask.

The J-FIRE is made up of several key components: JSLIST CPDU, Interspiro NBC firefighter's mask, modified structural/ARFF helmet, nomex hood, standard firefighter proximity coat and trousers, standard firefighter's boots, and firefighter chemical warfare proximity gloves.

Fielding of JSLIST CPDUs and proximity gloves is currently underway. Each UTC-assigned firefighter will receive four "real-world" suits as well as



one "practice" suit for exercises and training. Fielding is scheduled to be complete by the end of 1999.

Several fire departments have put the new chemical protective equipment to the test during base-level contingency response exercises requiring base members to don full NBC protective gear. The new gear provided increased capabilities for firefighters, but not without limitations.

The JSLIST CPDU, like the current NBC overgarment, can contribute to increased body heat build-up, fatigue and restricted mobility when worn under standard firefighting gear. Feedback on the CPDU, mask and gloves will be monitored during this first year of fielding to determine if enhancements are needed.

CMSgt Carl Glover is the Air Force fire protection career program manager, Headquarters Air Force Civil Engineer Support Agency, Tyndall AFB, Fla.



Operating Successfully in an International Environment

The mission at Tirana-Rinas International Airport was unique — requiring special capabilities, dedication, and the ability to coordinate between the 19 NATO countries and 16 other nations participating in Joint Task Force Shining Hope.

by Capt Aaron Orluck
Nellis AFB, Nev.

Over 3,600 cubic meters of concrete, 13,800 cubic meters of base course and ballast rock, and 20 tons of steel dowels, skillfully constructed into a 1,016- by 90-foot, 15-inch thick taxiway in the middle of Albania — it would have been a monumental task for any engineer squadron or construction company.

And this taxiway had a catch — it had to be completed within 45 days without interrupting flight operations crucial to the Kosovar humanitarian effort. The call went out to RED HORSE, the only unit ready and capable to successfully meet the challenge.

Eighty-one personnel from the 820th RED HORSE Squadron, Nellis AFB, Nev., set up 24-hour operations at Tirana-Rinas International Airport, placing concrete at night into forms prepared by the day shift. Work was done concurrently placing culverts at the intersections of the new taxiway with the runway and commercial ramp and rerouting underground utility lines. It was a coordinated effort between

all of the RED HORSE craftsmen.

Their efforts were frequently complicated by the need to temporarily vacate the construction area to allow arrivals and departures of C-17s and C-130s that were the lifeblood of Joint Task Force Shining Hope. However, RED HORSE rose to and met the challenges — placing all required concrete within 20 days and successfully completing the project in 40 days, with the 4th of July as their only day of rest.

Many aspects of this contingency support mission were unique and permitted the 820th RHS to use their special capabilities in a “real world” environment. Chief among these was RED HORSE’s organic security defense capability.

After the bombing campaign against Serbia proved successful, changes in objectives of the deployed forces called for the withdrawal of Joint Task Force Shining Hope forces from Albania. As these forces redeployed from Tirana-Rinas, the secure perimeter was reduced until the taxiway project was outside the secured area. RED HORSE stepped up to provide job site and work party security. This security extended far beyond visibility from the camp as RED HORSE was called upon for convoy operation and security between Tirana-Rinas and the port of Durres, Albania. RED HORSE met this challenge, successfully conveying 95 pieces of heavy equipment, over 890 short tons, to Durres without incident.

RED HORSE was further able to use their special

An aerial view of Tirana AB, Albania, taken on July 21, 1999, shows the flightline and the newly completed taxiway built by the 820th RHS. (Photo by SrA Gina Prescott)

capabilities to provide assistance to the U.S. Army explosive ordnance disposal team at Tirana-Rinas. A combined team of three JTF-SH EOD personnel and six members of the 820th RHS Demolition Team disposed of excess live ordnance prior to departing Albania. In total, the joint team used 24 cases of C4 explosive to dispose of over 4,500 pounds of ordnance, including five HELLFIRE missiles, a LAW rocket, a 155mm Howitzer round, and a variety of small arms ammunition.

Members of the 820th RHS also stepped up to their role as U.S. ambassadors while in Albania. They adopted an Albanian school as part of a project initiated by the JTF-SH Chapel. Four squadron members constructed and installed new doors, hung blackboards, repaired 38 pieces of furniture and conducted miscellaneous structural repairs to the facility.

They also provided support to other nations represented at Tirana-Rinas. Upon first arriving at the airfield, team members constructed a protective berm over 300 meters long to protect the Austrian and Swiss camps from small arms fire outside the airport perimeter.

The team also took advantage of an opportunity to work with French engineers. To assist in French construction of a concrete helicopter apron, the 820th RHS loaned two light carts and a truss concrete screed to the unit and provided training on their proper use. The French subsequently returned the favor by loaning RED HORSE concrete one night when the supplier brought an insufficient quantity to complete the pad being placed.

The 820th RHS also supported United Arab Emirates helicopter operations. To properly prepare the helicopters for air transport out of Albania, the 820th RHS provided a crane and operator to remove helicopter rotors. The UAE previously had been extremely supportive of RED HORSE by lending a paving machine to the asphalt crew during construction of the asphalt access road to the airfield.

Engineering, construction, security, explosive ordnance disposal, international relations — RED HORSE proved yet again that they are prepared to provide rapid response and independent operations in remote, high-threat environments worldwide.

Capt Aaron Orluck is executive officer for 820th RED HORSE Squadron, Nellis AFB, Nev.

(Top photo) SSgt Michael Streh, an 820th RHS pavement and equipment specialist, guides fresh concrete from the truck during construction of taxiway Bravo at Rinas Airport in Albania. *(Center)* SrA Mike Stokes, an 820th RHS pavement and equipment specialist, removes metal stakes from the forms that mold the concrete for the taxiway. *(Bottom)* SSgt Joseph Ingram (left), a heating, ventilation, air conditioning and refrigeration specialist, and SrA Dennis Maldonado, an electrician, both from the 820th RHS, construct the forms used to make the new taxiway. *(Photos by SrA Patty Zimmerman)*



First Two-Phase Design-Build Proves Successful

by Vincent Delli Carpini
Wright-Patterson AFB, Ohio

Tinker AFB Corrosion Control Facility — A Lesson In Short Fuse Construction

It was Sept. 10, 1999, at Tinker Air Force Base, Okla., and several dignitaries, including Sen. Jim Inhofe, Rep. Ernest Istook, and Tinker installation commander Maj Gen Michael E. Zettler, were gathered to cut the ribbon on a brand new \$15 million dollar corrosion control facility that the depot at "Oke City" had been asking for since 1995. The project had taken two years to be approved and 18 months to be constructed. What very few people at the ribbon cutting knew was that this project signaled a new era in construction execution and management — two-phase design-build.

What became the first Department of Defense project executed as a two-phase design-build began in spring 1997. Construction of a corrosion control facility at Tinker AFB had been on hold while the feasibility of acquiring the facility through privatizing was explored.

An announcement was released requesting expressions of interest from private industry, followed by a request for proposals to nail down specific costs. The results were not promising and after a period of review the privatizing effort was abandoned. Air Staff released Air Force Materiel Command to pursue execution through the regular military construction, or MILCON, program.

The project came to AFMC in April 1997 with zero design effort completed and a need to be awarded before funds expired in the year of appropriation, FY97. Tinker needed an operational corrosion control facility by November 1999 to meet the National Emission Standards for Hazardous Air Pollutants (NESHAP) deadline. As a result, a newly enacted procedure called two-phase design-build was selected for execution as it provided the only viable method for accomplishing construction within the timeframe established by the customer.

Using this procedure, the Tinker project was awarded nine months earlier

and construction was completed six months faster than could have been accomplished by traditional methods.

"Tinker's two-phase design-build project was successful in meeting the goal of obtaining the best-designed aircraft facility for the best value," said Jerald Terrell, industrial engineer for the Facilities Engineering Section of the Oklahoma City Air Logistics Center Aircraft Division. "The entire project, from defining the requirements to completion and operation, was accomplished in a timeframe that would have been impossible using the traditional design and construction method, eliminating a serious paint capacity shortfall and bottleneck in the repair of C/KC 135, B-52, E-3 and B-1 aircraft."

"This procurement method was a great help on this project," said Mark Hill, 72nd Civil Engineer Group project engineer, Tinker AFB. "Not only did it allow the facility to be constructed before the funds expired, but it allowed the base more direct input and participation in the process."

The Tinker AFB two-phase design-build project was accomplished by a partnership between the Air Force as the facility user, the U.S. Army Corp of Engineers as the contracting authority, and The Austin Company as the design-build contractor.

What does Two-Phase Design-Build mean to the Air Force and the rest of DoD?

Two-phase design-build was an option thanks to a change in Federal law and the Federal Acquisition Regulation (FAR) in January 1997, which provided for use of a new procedure for selecting contractors for award of design-build contracts. Following this change, the government could evaluate initial offers without regard to price, and select up to five contractors for a final evaluation, which included price. This procedure is particularly encouraged by the FAR when design work must be performed by offerors, and the offerors will incur a substantial amount of expense in preparing offers.

A major advantage of the two-phase design-build method is the time saved in overall project schedule. The duration of physical construction is shorter than with traditional methods due to better design and construction integration and fewer delays due to design disputes.

"The two-phase design-build process is extremely useful when highly complex projects must be fielded on short notice due to critical mission requirements," said Bob McCollum, project manager, Tulsa District Corps of Engineers. "In the case of this hangar, the capability and experience of potential contractors for designing and building this specific type of facility was crucial and this was the only process which allowed us to capitalize on those factors."

"Also, because design work must be performed by the offerors before developing price or cost proposals, this process insures that the total responsibility for the design and construction lies with the successful offeror. For single-phase (traditional) design-build projects we occasionally have issues arise concerning the intent of the RFP versus the completed design. The two-phase design-build process eliminates this potential source of confusion in the contract."

As another advantage, total "delivery time" — the period between the customer's decision to build and beneficial use of the facility — is shorter because many of the two-phase design-build planning and procurement activities are concurrent.

"I believe this method increased the level of competition on the project," said Rick Hedrick, Tulsa District Corps of Engineers contracting officer. "In a normal design-build acquisition, we require all potential contractors to spend a great deal of time and effort preparing proposals for consideration," he said. "In the two-phase method, we greatly reduce this requirement in the first phase and make it more attractive for offerors to submit a proposal. Only during the second phase, when the competition has been reduced to the top three to five firms, do we require an extensive pro-

posal. According to our feedback from the contractor community, this is a definite plus for them.”

According to William Niksch, vice-president of The Austin Company, this project was well suited for a design-build contractor to respond and participate. “Major proposals of this nature can represent a significant investment for the design-build contractor, and the Phase I pre-qualification allows for a deferral of the significant proposal costs until a short list is established,” he said. “The knowledge that you are considered one of a small number qualified to compete for a specific project is an incentive to spend the time and effort appropriate to creating a thorough proposal.”

The key to successful execution of two-phase design-build is the transfer of responsibility for both design and construction to one entity. The RFP must include sufficient information on how the facility must “perform” so various designs can be proposed by the pre-qualified design-build firms. By allowing latitude to develop innovative and competitive designs that meet project needs, the Air Force and DoD can benefit from a “best value” cost-versus-technical trade-off.

To accomplish this at Tinker, we departed from the traditional “prescrip-

tive” type of design specification. Instead we defined the functional “performance” needs of the project so that the pre-qualified firms were able to prepare responsive and innovative proposals.

According to Niksch, the use of performance specifications without other restrictive, preconceived solutions allowed the design-builders the opportunity to think “outside the box” and develop “best value” solutions, fully utilizing their specific design expertise and experience.

“By giving the contractor some flexibility in the process, we were able to evaluate three totally different approaches to meeting the project requirements,” said Hill. “This made it much easier to evaluate technical differences in the proposals and allowed us to consider much more than just who is giving us the best finishes and quality of materials.”

Using Two-Phase Design-Build to Produce a Quality Facility

The two-phase design-build process should be considered as a possible acquisition strategy on all projects, particularly those involving highly complex facilities. To fully capitalize on the benefits:

- define the project performance criteria early and completely
- pre-qualify the best firms based on past performance and management capability
- allow the design-builder enough latitude to add value to the project while fulfilling performance and quality requirements
- minimize user changes during construction

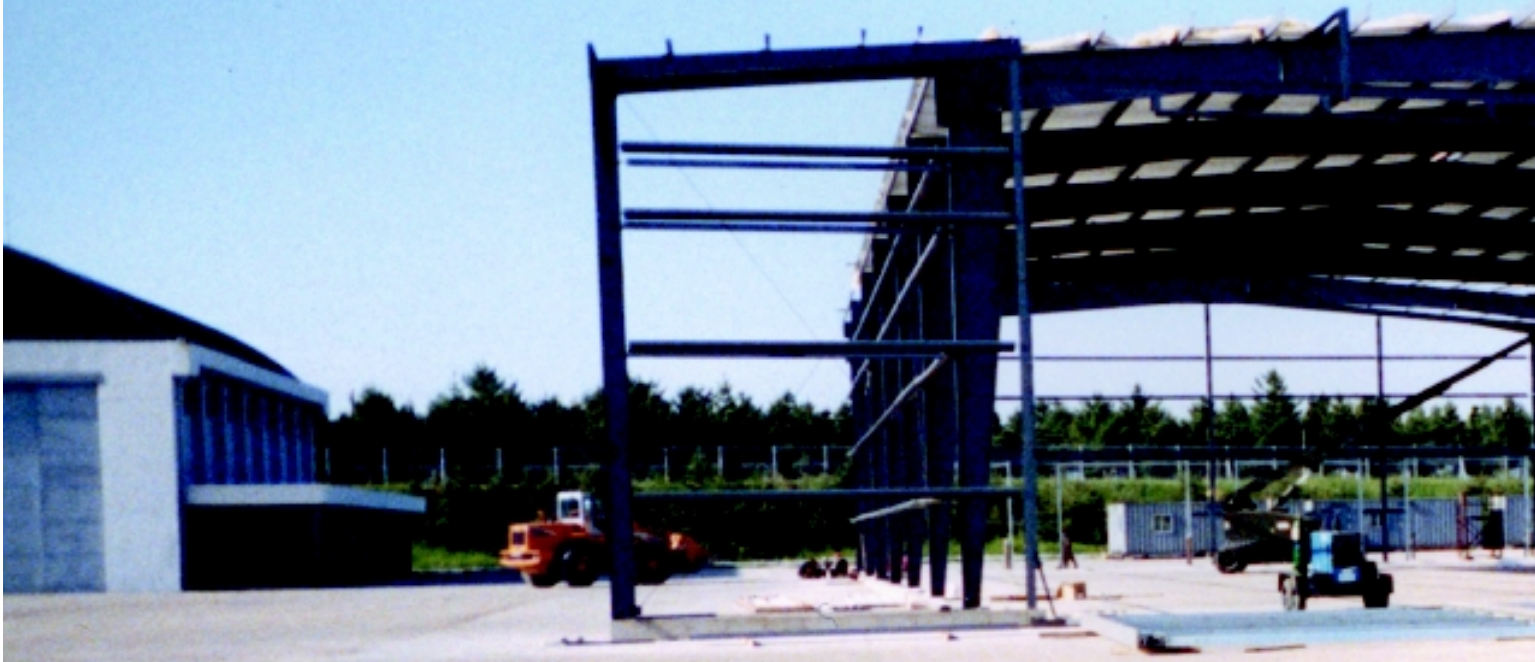
The success of the Tinker project was attributed to achieving these objectives, thereby shortening delivery time and enhancing construction value. For more information on the Tinker AFB project and the two-phase design-build process, contact the author at DSN 787-5126, commercial (937) 257-5126, or e-mail Vince.DelliCarpini@wpafb.af.mil.

Vincent Delli Carpini is the military construction program manager, Engineering Division, Headquarters Air Force Materiel Command, Wright-Patterson AFB, Ohio.



Successful execution of two-phase design-build resulted in this new corrosion control facility at Tinker AFB, Okla. (Photos courtesy 72nd CEG)

RED HORSE Leads Construction



This *Total Force* project involved *active duty Air Force* and *Guard* civil engineers using *Pacific Air Forces, Guard* and *Air Mobility Command* funding and *U.S. Army* and *Marine* contract support to construct a *U.S. Navy/Republic of Korea* Marine facility in a true display of today's commitment to *Joint Operations*.

by 1st Lt Thomas Waldron
Osan AB, Korea

The mission: Deploy to the Republic of Korea Marine Corps Base at Pohang to construct a combination helicopter hangar/warehouse facility for the U.S. Marine Corps and Air Mobility Command. The Air National Guard would provide teams on two-week rotations to construct the facility. Logistical and engineering design support would come from the 554th



RED HORSE and Air National Guard civil engineers work together to construct an aircraft hangar on a Korean military installation. (Photos courtesy 554th RHS)

RED HORSE Squadron, Osan Air Base, Korea.

A typical RED HORSE project. However, with the involvement of all four services, two major commands, the Air National Guard, and the ROK, not to mention the contingency construction environment on the Korean peninsula, a unique set of challenges was presented.

Pohang is 220 miles southeast of Osan, but it might as well have been an entire world away. The only construction support available at Pohang was a small pre-engineered building (PEB) for billeting, along with very limited support from the base's small Marine and Navy permanent party contingent and the nearby Marine Expeditionary Camp.

Several other obstacles made this project particularly challenging. There was no dining facility available, the tap water on base was not potable, there was no local source for vehicle fuel and there was not enough commercial electricity available to sufficiently power the billeting PEB.

This meant all our supporting equipment and supplies would need to be trucked in — no small task as the 554th RHS vehicle fleet, at its peak, numbered 38. Nearly half of these vehicles were either driven or trucked down from Osan and the remainder were pulled out of war reserve materiel storage at Taegu and Kimhae ABs. In addition to typical construction equipment, a 5,000-gallon water trailer for potable water, a 1,200-gallon fuel truck, a mobile kitchen trailer, refrigerator boxes and numerous generators were needed.

The project kicked off March 15 with a full week dedicated

at Pohang



to line haul assets to Pohang from Osan and Taegu. In all, it took 20 tractor trailer trips from Osan and another 10 from Taegu and Kimhae ABs to get all the vehicles and construction supplies in place.

Rations were provided by the U.S. Army and delivered to the project site weekly from a storage depot at Pusan. Fortunately for the team, they also received help from the Defense Energy Office in Taegu in facilitating fuel deliveries with as little as a 24-hour lead time. Contracting support was provided by the Army contracting office and the U.S. Marine Corps Liaison Team at Camp Henry in Taegu. Potable water was trucked from the Army's Camp Carroll at Waegon. The project's logistical tail was rather large as we pulled together assets from all over the

Korean peninsula. It took a supreme effort from all the services and personnel involved to make this happen.

When the first ANG construction team arrived at Kimhae on March 28, all of the equipment, the vehicles and the building had been delivered to the project site. The Guardsmen, from the 202nd RHS, Florida ANG, Camp Blanding, Fla., and the 154th Civil Engineer Squadron, Hawaii ANG, Hickam Air Force Base, Hawaii, set to work immediately, clearing off three 80-foot-long stands of metal bin revetment to make way for the new 90- by 180-foot PEB.

Work crews also began making the first of approximately 800 linear feet of concrete saw cuts. The building was sited on an existing piece of aircraft parking ramp that was between 16 to

18 inches thick. To speed construction, holes were cut so that the footers and piers could be formed and poured. The remainder of the pavement was left in place to serve as the floor of the building. This not only saved construction time, but also saved significant costs in disposal fees as concrete rubble is treated as hazardous waste in Korea.

By the time the second rotation of ANG personnel arrived two weeks later, three-quarters of the foundation had been completed. However, the most complicated part of the work remained — the door pockets for the massive aircraft hangar doors. The front portion of the building featured an 80-foot-wide by 28-foot-tall aircraft hangar door to support maintenance of Marine CH-53 helicopters. The rear portion needed four roll-up doors to



(Top) The front of the 8,000 square foot hangar accommodates an 80 foot by 28 foot hangar door to enable USMC helicopters to be moved into and out of the facility. (Above) The rear of the hangar is for storage of materiel handling equipment with access through four roll-up doors.

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by Gil Dominguez
HQ AFCEE Public Affairs and
Maj Dave Funk
Pentagon, D.C.

Pollution prevention is fast becoming a way of life as the Air Force attempts to reduce or eliminate use of hazardous materials (HAZMAT) at the source rather than at the "end of the pipe." Many tools have been developed to institutionalize this effort which, in many ways, comes down to individual daily activities such as recycling and chemical usage.

The U.S. Department of Defense mandated that the services reduce their generation of hazardous waste by 50 percent in 1999, using a 1992 baseline. A key tool in meeting this objective was development of the Air Force Environmental Management Information System (AF-EMIS). AF-EMIS is used to record the acquisition, use and disposal of HAZMAT on Air Force bases.

The heart of AF-EMIS is a database that serves as the central repository for HAZMAT tracking. It allows environmental managers to follow a product from procurement authorization (before it is acquired) through its final disposal as hazardous waste. The database resides on a Windows NT server at each base. Client computers with Windows-based AF-EMIS software connect to the database via base local area networks.

A centralized authorization process

Before AF-EMIS came on the scene, information on hazardous material was scattered throughout different systems, making it difficult to get an overall picture of where HAZMAT was located and how much of it there was, said AF-EMIS program manager Bill Kivela. "With AF-EMIS, this information is in one place and is easily accessible through standard and *ad hoc* reports," he noted.

The system centralizes the HAZMAT authorization process. It contains information such as which shop on base is authorized to have what material and for what purpose. Shops that want to use hazardous products — anything from paint to solvents — must first obtain purchase authorization from the

base hazardous material pharmacy or "HAZMART," where such items are stored and issued.

To request authorization, users specify what they are asking for, how much they'll need, how often they'll use it and in what process, and how they will dispose of it. Requestors must also provide a technical order reference that mandates use of the HAZMAT over a more environmentally friendly product.

The HAZMART staff feeds this information into the database. The AF-EMIS system then tracks the status of the authorization as the base's Hazardous Materials Management Process (HMMP) team reviews it and either approves or disapproves the request, based on a number of factors.

The HMMP team consists of representatives from base bioenvironmental engineering, logistics, safety, and the environmental section of the civil engineer squadron. AF-EMIS helps HMMP team members make their decision on "yeas" or "nays" by supplying them with regulatory, training, health, safety and environmental protection information on all materials being requested. Cross-functional HMMP teams are required at every installation, at major commands and at the Air Staff. They serve as the "governing body" for HAZMAT management.

AF-EMIS also works hand-in-hand with the HAZMART, which Kivela calls the "hub" of the HAZMAT management program on a base. HAZMART personnel use the data supplied by AF-EMIS to determine if requesters really need materials in the quantities they request or if they could do the same job with less, and to learn if safer alternatives are available.

The common sense questions employed by the system sometimes help users determine that they don't actually need to use a HAZMAT to get their job done.

A highly effective pollution prevention tool

Environmental managers can look at where HAZMATs are being used, and can focus their reduction efforts where benefits can be gained. AF-EMIS makes it simpler to stop the procurement of materials that cause environmental, safety, or health problems at an installation.

By limiting the amounts of hazardous products being purchased, the system reduces the amounts of materials with expired shelf life, which then likely become hazardous waste. It also facilitates the reuse and redistribution of leftover material that can be approved for other uses.

AF-EMIS data makes it possible to track HAZMATs down to their chemical constituents, which helps environmental managers with product research. They can find out, for example, which materials contain a certain chemical that is of concern to them. The system also provides a history of the products used on base that contain the chemical. This type of information is valuable for disaster preparedness and safety awareness, as well as in overall environmental management.

The Air Force has begun stressing pollution prevention as a means of reducing the regulatory burden as well. Besides helping to reduce hazardous waste, AF-EMIS provides, in one neat package, all the data needed for reports required by law and regulatory agencies. For example, it provides information needed by the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Toxic Release Inventory (TRI).

The new and improved AF-EMIS 6.0 version was released August 30, 1999. It contains significant changes that greatly enhance the system's ability to produce EPCRA and TRI reports. Also included is a new all-electronic HAZMAT authorization system.

The new authorization system allows requestors to enter their hazardous material requests directly into AF-EMIS, after which the HMMP team can review and approve or disapprove the authorization electronically. The system will alert each reviewer to the fact that they have authorizations pending that require review and approval.

"This should greatly improve efficiency over the current hard copy HAZMAT authorization process," Kivela said.

AF-EMIS has been making its way throughout the Air Force during the past few years and is now being used by active duty, Guard and Reserve units at 168 installations worldwide. The system was originally developed at Kelly Air

Force Base, Texas, and is now fielded for the Air Force by the Air Force Center for Environmental Excellence, Brooks AFB, Texas. AFCEE is responsible for the system's technical, developmental and deployment aspects, as well as training Air Force personnel on its use.

As the Air Force continues to institutionalize pollution prevention efforts, AF-EMIS has become a hard-hitting vehicle to effectively monitor, track and thus significantly reduce the amount of HAZMAT used on our installations. This is evidenced by the Air Force's reduction in hazardous waste generation from 25,277 tons in 1992 to 9,760 tons in 1998; surpassing the DoD reduction requirement three years early.

The bottom line is that by encouraging reductions in the use of hazardous substances, AF-EMIS makes possible very large savings in

costs associated with materials purchasing and disposal and handling of hazardous waste. AF-EMIS is a key instrument in our pollution prevention tool kit to advance the pollution prevention cause ... a responsibility we all share.

For more information on AF-EMIS, contact Bill Kivela, AF-EMIS program manager, Environmental Quality Division, Air Force Center for Environmental Excellence, at DSN 240-3769, or e-mail William.Kivela@hqafcee.brooks.af.mil.

At the December 1999 DoD Pollution Prevention Conference, the Air Force unveiled a web-based "Shop-Level Pollution Prevention Course" to instruct all shop personnel on the "what, who and how" to make individual contributions to reducing HAZMAT usage and preventing pollution.

1999 Colonel-Selects

Congratulations to the following civil engineer officers who were recently selected for promotion to the rank of colonel.

Peter J. Baldetti
Maryann H. Chisholm
Patrick R. Daly

Marvin N. Fisher*
Steven E. Hoarn
Edmond B. Keith*

Robert D. Kopp
Jeffrey L. Leptrone
David T. Peters

Paul W. Somers
Arvil E. White III

*Below-the-Promotion Zone

1999 Chief Master Sergeant-Selects

The following civil engineer NCOs have been selected for promotion to the rank of chief master sergeant. Congratulations to all on their dedication and accomplishment.

Jeffrey Alt
Jerry L. Bock
Danny M. Brock
Garrick Burney
Paul Dersarkisian
David G. Force
Linnard F. Ford

Terry G. Ford
Keith P. Hinners
Steven W. Kembel
Myrl F. Kibbe
Daryle L. Lopes
Gilbert Lozano
Roger D. Maynor

Dane R. Monell
Thomas M. Morris
Kevin L. Mortenson
Gilbert Noel
Rhea A. Pratt
Alvis G. J. Roberson
Antonio Savo

Thomas J. J. Scheide
Peter K. Smith
Randy A. Stone
Curtis N. Walker
Eppie L. Walker



CE Helps Ready "Warrior" Site

CE Staff Report

Air Force civil engineers who deployed to Lackland Air Force Base, Texas, this summer received not only a great training opportunity, but a chance to contribute to a changing Air Force.

CEs converged on Lackland to help complete basic training's "Warrior Week" site in time for the Oct. 1 kick off. Warrior Week is a new addition to Air Force Basic Military Training.

Established as a foundation for the Expeditionary Aerospace Force, the seven-day, contingency training exercise is designed to produce mission-ready airmen straight from basic training while exposing them to a deployed environment.

"This was a great training tour," said Capt Dan Connors, chief of operations for the 914th Civil Engineer Squadron, Niagara Falls Air Reserve Station, N.Y. "It was nice to have an opportunity to contribute to such a big change in the Air Force."

The 820th RED HORSE Squadron, Nellis AFB, Nev.; the 175th CES, Maryland Air National Guard, Baltimore, Md.; the 165th CES, Georgia ANG, Garden City, Ga.; the 927th CES, Selfridge Air National Guard Base, Mich.; the 307th RHS, Kelly AFB, Texas; and Lackland's own 37th CES, transformed the 57-acre site into the beginnings of a tent city with water, sewer and electricity. They also widened the road leading to the site and built a concrete headwall to prevent erosion of the road where a stream crosses under it.

"Our objective in constructing the site was to keep the natural vegetation intact to provide a real atmosphere complete with coverage and concealment," said SMSgt Steve Kisling, 820th RHS member and Warrior Week encampment project supervisor.

According to Maj Rob Hill, 37th CES chief of operations, several Reserve and National Guard CE units visited Lackland this summer to help complete the Warrior Week site.

"Between the 820th RED HORSE Squadron construction crew who built most of the Warrior Week site, and Reserve and National Guard teams who came after them, the project moved along in a seamless manner," Hill said. "They made it possible

for the 737th Training Group to begin this newest improvement to basic training on time."

The \$1.5 million site features 56 concrete tent pads, a large tent pad for a dining facility, a 6,000-square-foot cadre building for both instructors and supply storage, and four permanent facilities for showers, shaving and laundry. (*Wayne Bryant and SrA Chad Hackney of the 37th Training Wing Public Affairs Office contributed to this article.*)

AFCAP Implemented to Aid Earthquake Victims

by TSgt Michael Ward
HQ AFCESA Public Affairs

The Air Force Civil Engineer Support Agency, Tyndall AFB, Fla., activated the Air Force Contract Augmentation Program to send approximately 4,800 tents along with generators, latrines and water bladders to aid victims of the Aug. 17 earthquake in Turkey.

The AFCAP contractor, Readiness Management Support of Panama City, Fla., a subsidiary of Johnson Controls Inc., shipped the equipment to Turkey.

Much of the equipment was already overseas in warehouses in Greece, Albania and Turkey, where it had been stored since June. The equipment was ordered earlier this year as the U.S. set up relief camps for Kosovo refugees displaced by Serb forces.

"USAFE had a plan to put a good chunk of material left over from Kosovo into a prepositioned humanitarian relief package for just this type of emergency," said Col Bruce McConnell, AFCESA's Contingency Support director, "but we needed it before we even had a chance to complete the plan."

Colonel McConnell said if the equipment hadn't already been in Europe, it would have taken two or three weeks, instead of two or three days, to ship this portion of the U.S. relief effort.

Hundreds of thousands were left homeless due to the 7.4 magnitude earthquake. Because of the extent of the damage in Turkey, it could be months before many of the survivors find homes.



Gen Michael E. Ryan (*center*) visits with Maj Efrén García, Office of The Civil Engineer, Environmental Division (*left*) and Capt Kurt Bergman, 823rd RED HORSE Squadron, Hurlburt Field, Fla. (*right*), who were manning CE displays during Operation Allied Force Appreciation Day.

Operation Allied Force Appreciation Day

Air Force personnel were recognized for their contributions to the Balkan campaign during an Operation Allied Force Appreciation Day at Andrews Air Force Base, Md., on Sept. 15. Gen Michael E. Ryan, Air Force Chief of Staff, visited civil engineering displays which highlighted the outstanding efforts of CE professionals supporting Operation Allied Force.

554th RED HORSE Hangar

continued from page 19

facilitate rapid movement of AMC material handling equipment.

The door pocket footers and walls were formed and poured in four separate increments over a 10-day period. As work progressed, it became clear that the airlift scheduled to bring the remaining ANG construction teams into Korea was going to dry up as the U.S. increased its involvement in Kosovo. Project cost limitations prohibited further ANG construction team participation.

Only three Guardsmen from the 202nd RHS and one from the 219th RHS were able to remain for the project's duration. As the majority of the Guard personnel departed for the CONUS via commercial airlines, the 554th RHS stepped in with 15 personnel. This in itself was remarkable, considering that in February this would have been impossible, but with plus-up of the squadron underway sufficient personnel were available.

With the help of one 20-ton and one 10-ton crane, the structural steel was erected in less than three weeks. This became a major task when the weather played havoc with construction. Strong winds blowing onshore in the afternoon limited the type of work that could be performed. The team also had to work around frequent helicopter takeoffs and landings on a helipad about 50 feet from the edge of the construction site.

When the wind wasn't a factor, the building provided other challenges. The main challenge was the hangar door. As an add-on to the facility, the door required an extensive amount of field work. The upper and lower guide rails had to be field located and installed. Since the hangar door was not motorized, the guide rails had to be within one-eighth of an inch of level to ensure that the doors could be opened by hand — not an easy task when the guide rails are 130 feet long.

The final three weeks of the project were devoted to

installing the roof and wall panels and insulation. Wind again played havoc with construction. On several occasions the wind was simply too strong to do any work with the metal paneling. On these days, the electrical system and roll-up doors were installed. High bay lighting was installed throughout the building and two floodlights were installed over the hangar door. Since no commercial power was available to permanently power the facility, a generator quick disconnect was installed. When contingencies require use of the building, a single 30-kW generator will power the entire facility.

As the project neared completion, there was still a lot of work left in redeploying RED HORSE assets back to Osan, returning vehicles to WRM storage and packing ANG tools and equipment for sea shipment back to Florida. This took the better part of a week, ending when the last convoy left Pohang for Osan June 10.

The key to this project's success was the great support provided by everyone involved. The construction team on the ground at Pohang was the focal point for the effort, but they had help from an extraordinary supporting cast from all over Korea and the U.S. The ANG construction teams were great Total Force partners. The U.S. Navy and Marine Corps and the ROK Marine Corps were outstanding hosts at Pohang. The U.S. Army provided us with great food, clean water and timely contracting support. AMC stepped in with funding and worked airlift requirements. Completion of the project on time and within budget is a credit to all involved.

1st Lt Tom Waldron is a project engineer for the 554th RED HORSE Squadron, Osan AB, Korea.

CE TRAINING

Steel Art is USAFA Teaching Aid

CE Staff Report

The latest edition to the U.S. Air Force Academy's Field Engineering and Readiness Laboratory (FERL) site is a complicated steel structure that stands only 10 feet high and, unlike the warehouses and two-sided pre-engineered buildings on the site, provides no protection from the weather. In fact, most would not label it a structure at all, but a piece of artwork.

Maj Carl Jerrett, a member of the Department of Civil and Environmental

Engineering when the sculpture was erected this summer, described it as a "steel sculpture and teaching aid."

Set between a concrete pad upon which cadets make concrete beams and a laboratory where cadets get hands-on experience with welding and steel construction, the 4,000 pound sculpture is a signature piece of artwork that defines the types of activities that take place at FERL. The sculpture illustrates about 30 different steel connection and construction details, allowing cadets to visualize many aspects of steel construction.

"Now that we have this sculpture, cadets can touch and see in three dimensions construction details that previously were only seen by looking at drawings in a textbook — it's a very effective teaching tool," said Jerrett.

The \$15,000 sculpture, including all foundation and delivery costs, was donated by the Rocky Mountain Steel



This new edition to the Field Engineering and Readiness Laboratory at the U.S. Air Force Academy functions as both art and instructional tool. (Photo courtesy USAFA)

Construction Association. It is one of about 35 sculptures RMSCA has erected at universities across the United States.

Integrating Multimedia Into Readiness Training

by TSgt Ron Childs
HQ AFCESA, Tyndall AFB, Fla.

In these days of doing more with less, do you ever wonder how civil engineers are going to get trained on the equipment and the many procedures we're currently required to use? Not to mention all the new equipment that will be fielded over the next few years.

Part of the solution is a new series



of multimedia training packages being developed by the Air Force Civil Engineer Support Agency (AFCESA) at Tyndall Air Force Base, Fla., for Readiness Flights throughout the Air Force. Ultimately, there will be a single Readiness Training Package (RTP) for each course that Readiness Flights are required to teach, and a Qualification Training Package (QTP) for each complex

operation and piece of equipment that is a core task in the career field specialty training standard (STS).

The purpose of these new RTP and QTP training packages is to provide instructors with a high quality, integrated course that allows them to tailor subject areas to specific class types, incorporate professional graphics and video, and truly standardize the curriculum taught throughout the Air Force.

The first multimedia RTP being developed is Nuclear, Biological and Chemical (NBC) Warfare Defense. It will be fielded in mid- to late-December 1999. HQ AFCESA will send two CDs to each active duty, Guard and Reserve Readiness Flight. The RTP will provide instructors with a high quality slide show that can be used on a PowerPoint-based, computerized projection system. It also provides a plan of instruction, written

tests, a performance checklist and the ability to print student handouts and note taking guides.

Following fielding of the NBC Warfare Defense RTP, AFCESA will begin developing multimedia RTPs for Base Emergency Preparedness Orientation, the Senior Leaders NBC Defense Course and the Disaster Preparedness Support Team course. Readiness Flights that are currently using slide shows they would like to submit for incorporation into the Air Force product can contact the author by e-mail at Ron.Childs @tyndall.af.mil or by phone

at DSN 523-6458 or commercial 850-283-6458.

Some of the multimedia QTPs that are either in the field or awaiting distribution are the M90 Chemical Agent Alarm, the M22 Automatic Chemical Agent Alarm, and the Global Positioning System. AFCESA is also developing QTPs for the following subject areas, with many more to follow:

- NBC Plotting and Hazard Prediction
- Camouflage, Concealment and Deception Assessment
- Camouflage Netting

- Air Base Threat and Protective Action Assessment
- Chemical Agent Monitor (CAM), Improved CAM (ICAM), and CAM Simulator (SIM CAM)
- Lightweight NBC Reconnaissance Vehicle

These multimedia QTPs will be distributed to each Readiness Flight through the squadron's training section. For a complete list of the multimedia QTPs available to instructors, visit the training page on AFCESA's web site at www.afcesa.af.mil.

CE Civilian Careers: The Second Ladder

by Ron Smith
Pentagon, D.C.

As Air Force civil engineering professionals, we all have to make decisions about the directions our careers should take. Whether we choose engineering, housing, real estate, or firefighting, most of us begin by pursuing the technical experience and training necessary to achieve proficiency at the journeyman level. Once full technical proficiency is obtained, the next decision usually facing us is whether to continue pursuing greater technical expertise, or to begin taking on leadership responsibilities.

This is not an easy decision to make, because choosing the leadership path requires learning a new set of skills — very different ones from those acquired on the way to achieving technical proficiency. In effect, having reached the top of one ladder, we must contemplate whether the potential rewards merit beginning to climb another.

For those who choose this second ladder, the Department of Defense and the Air Force have made a substantial investment toward ensuring that you will have every chance to succeed. Following is an outline of the comprehensive catalog of programs resulting from that investment. These programs are designed to provide you with the leadership skills and experience necessary to succeed if you choose to

climb the second ladder. Your part of the bargain is to apply them toward ensuring the success of the Air Force.

The largest group of programs available is administered by the Civil Engineer Career Program (CECP). These are:

- the Long-Term, Full-Time Masters Program, which pays for selected applicants to obtain a master's degree in residence at a university
- Career Broadening Assignments, which facilitate development of new skills through same-grade transfers into positions set aside for rotational assignments
- the Air Force Civilian Competitive Development Program (CCDP), which is intended to identify and develop candidates with leadership potential, Air Force-wide, who are in grade levels GS-12 through 15. It offers opportunities to attend intermediate and senior service schools such as the service war colleges, legislative fellowship assignments, and post-graduate academic programs such as the Sloan Fellowships
- the U.S. Office of Personnel Management's Management Development Center courses
- developmental assignment opportunities
- Education With Industry, which is a 12-month program providing career-

broadening experience through placement in a management development program with a private-sector employer

- tuition assistance that pays for or reimburses tuition costs for those obtaining a bachelor's or master's degree on their own time

In addition to these Air Force programs, the Defense Leadership And Management Program (DLAMP) is a DoD-managed program that seeks proven civilian leaders at the GS-13 through 15 levels, with the purpose of preparing them, through a six-year training and development regimen, to fill future Senior Executive Service positions. The CCDP complements DLAMP by preparing Air Force civilians to be competitive in the DLAMP selection process.

The CECP has published a Master Development Plan for each of its career fields to help you decide how these programs can help you achieve your career objectives. View the plan on-line at http://www.afpc.randolph.af.mil/cp/Career_Paths/default.htm.

For more detailed information about any of these career development tools, contact the CECP.

Ron Smith is a military construction program manager in the Engineering Division of The Office of The Civil Engineer, Washington, D.C.

CEPEOPLE

TSgt Michael Ward
HQ AFCESA Public Affairs

The Air Force picked up three of four Department of Defense firefighter awards presented at the International Association of Firefighters convention in Kansas City, Mo., Aug. 30 to Sept. 2.

- SrA Delton Tills, U.S. Air Force Academy, Colorado Springs, Colo., was named Military Firefighter of the Year.
- Tetsuro Hayashi, assistant fire chief at Kadena Air Base, Japan, was named Civilian Firefighter of the Year.
- The 314th Civil Engineer Squadron, Fire Protection Flight, Little Rock Air Force Base, Ark., was named Fire and Emergency Services Department of the Year.

(left to right) Brig Gen Earnest O. Robbins II, The Air Force Civil Engineer; Tetsuro Hayashi, assistant fire chief, Kadena AB, Japan; Harold Stringfellow, fire chief, 314th CES, Little Rock AFB, Ark.; SrA Delton Tills, U.S. Air Force Academy, Colorado Springs, Colo.; and Col Bruce Barthold, commander, HQ AFCESA, Tyndall AFB, Fla.; during the awards presentation at the International Association of Firefighters convention.



In addition, David LaPlante, Moody AFB, Ga., received the Air Force Heroism Award for his actions in extinguishing a flowing gasoline fire at a gas station while protecting nearby businesses, automobiles and bystanders from danger.

This year's conference was hosted by the U.S. Army. Next year, the convention will be held in Dallas and the Air Force Civil Engineer Support Agency, Tyndall AFB, Fla., will represent the Air Force in hosting the conference.

Cannan Promoted to Brigadier General

Col David M. Cannan was promoted to the rank of brigadier general on November 1. Brig Gen Cannan was assigned as The Civil Engineer, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio, in December. He was previously The Civil Engineer, Air Education and Training Command, Randolph Air Force Base, Texas.



Brig Gen David M. Cannan

Gen Cannan has held a variety of Air Force civil engineer positions at the squadron, major command, and Air Staff levels, including commander of the 3380th Civil Engineering Squadron, Keesler Air Force Base, Miss. While commander there, his squadron earned the 1986 Air Force Association Verne Orr Award as the unit with "the most effective use of human resources in the United States Air Force."

The general's positions at the Pentagon, Washington, D.C., have included chief, Program Requirements Branch, Programs Division, and chief, Closure Integration Division, both in the Directorate of Engineering and Services, Headquarters U.S. Air Force, and Director, Air Force Base Disposal Agency in the Air Force Secretariat.

Among Gen Cannan's awards and decorations are the Legion of Merit, the Bronze Star, and the Meritorious Service Medal with three oak leaf clusters. He is also last year's recipient of The Society of American Military Engineers' Newman Medal.

DoE Awards Energy and Water Saving Efforts

The Department of Energy honored 51 groups and individuals with Federal Energy and Water Management Awards for implementing improvements that saved more than \$60 million in energy costs this past fiscal year. The awards recognize outstanding contributions in energy efficiency, renewable energy, water conservation, and cost-beneficial landscaping.

Award winners were selected from 166 nominations submitted by federal agencies representing all parts of the U.S. government, including the Department of Defense, the Department of Agriculture, the Department of Energy, the General Services Administration and the National Aeronautics and Space Administration, among others.

Air Force individuals and organizations won in the following categories:

Energy Efficiency/Energy Management

Elizabeth Clement, P.E., C.E.M., base energy engineer at the U.S. Air Force Academy, Colorado Springs, Colo., was recognized with an individual award in this category. Clement is the key person for initiating and executing the Academy's energy program, which had a measurable energy reduction of three percent below fiscal year 1997 levels, representing a cost savings of \$140,000.

Energy Efficiency/Energy Management

The small group award in this category went to Kirk Spudy, Carl Bruning and Thomas Meyers of the 56th CES, Luke Air Force Base, Ariz. The team used plate and frame heat exchanger technology for cooling in lieu of electric chillers. By using this technology, Team Luke efficiently cooled almost 250,000 square feet of facilities while saving almost 1,400,000 kilowatt-hours of electricity and \$50,000 in associated costs in less than one year.

Alternative Financing

The organizational award in this

category went to Dyess AFB, Texas, for the 7th CES's efforts in implementing a West Texas Utilities Demand Side Management Task Order. The Dyess team eliminated problems with insufficient lighting for 345,798 square feet of space in seven hangars, increasing light levels over 1,000 percent and improving the quality of life in 27 buildings through retrofits in air conditioning and office lighting, while saving \$347,428 per year in energy costs.

Water Management

The organizational award in this category went to Andersen Air Force Base, Guam, to recognize water conservation results achieved by the 36th CES. More than 140 million gallons of water were saved through aggressive maintenance and repair of the base's water distribution system and implementation of water conservation measures. Actual savings in energy, water production and sewage treatment costs exceeded \$490,000 in FY98, while projected cost savings in FY99 are \$789,000.

The awards were presented Oct. 28 at a ceremony in Washington, D.C., as the finale to Energy Awareness Month. A complete list of the 1999 winners can be viewed on the web at: www.eren.doe.gov/femp/newsevents.html.

For more information on Federal Energy and Water Management Awards, contact Tim Adams, Air Force Civil Engineer Support Agency, at DSN 523-6168, commercial (850) 283-6168, or e-mail Tim.Adams@tyndall.af.mil.

CE Selected Top Reserve Officer

by Gil Dominquez
HQ AFCEE Public Affairs

Capt Mark Gillem, a reservist with the Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas, has been named the Air Force Reserve Outstanding Junior Officer for 1999.

He will be presented the award by the Air Force Reserve Officers Association at the organization's annual conven-

tion Jan. 23-26 in Washington, D.C.

Gillem, a licensed architect and certified planner, is assigned to AFCEE's Design and Construction Directorate. He is currently a Ph.D. candidate and graduate student instructor at the University of California at Berkeley.

"Receiving the award is not only exciting but also quite an honor because there are other officers out there equally as qualified," Gillem said. "I know because I work with a number of them at AFCEE."

Center officials said the reservist's "innovative and award-winning" master plans for Air Force installations were recognized by senior leadership as models of "mission effectiveness, environmental stewardship and customer involvement." They noted also that the captain had displayed "extraordinary leadership" abilities as leader of design assistance teams sent to three Air Force installations, including one overseas. The teams prepared long-range base master plans for construction totaling \$130 million at those installations.

Gillem has received a number of other awards in the past, including the 1998 Design Excellence Award and the Crocker Award that same year for excellence in teaching at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio.

General Officer Moves

Maj Gen Robert J. Courter, Jr., has been reassigned from Director, Plans and Programs, Headquarters Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio, to Director, Defense Commissary Agency, Fort Lee, Va.

Maj Gen Todd I. Stewart has been selected for reassignment from Command Civil Engineer, to Director, Plans and Programs, Headquarters AFMC.

Brig Gen David M. Cannan has been selected for reassignment from Command Civil Engineer, Air Education and Training Command, Randolph AFB, Texas, to Command Civil Engineer, AFMC.

Col Russell L. Gilbert, Deputy Command Civil Engineer, AETC, replaces General Cannan as the AETC Civil Engineer.

A Tradition of Excellence



by Lois Walker
HQ AFCESA Historian, Tyndall AFB

The annual Air Force Civil Engineer Awards program recognizes civil engineer organizations and individuals for outstanding achievements and contributions to the Air Force mission. This is the final article in a three-part series on the civil engineers whose contributions we honor each year. The following seven awards recognize outstanding Air Force civil engineer flights.



Brigadier General Archie S. Mayes Award

The most outstanding Engineering Flight is recognized each year with an award named for Brig Gen Archie S. Mayes, a former Deputy Chief of Staff for Civil Engineering at HQ Tactical Air Command, HQ Pacific Air Forces, and HQ Strategic Air Command.

General Mayes was born in 1920 in Warrensburg, Mo., and was one of the few civil engineer general officers to rise to a position of leadership from the enlisted combat engineering ranks of World War II. He began his military career with the Missouri National Guard in 1938. In December 1940 his National Guard unit was called to active duty and he rose to the rank of technical sergeant in the Army. In 1942 he went to Officer Candidate School at Ft. Belvoir and was commissioned a second lieutenant in May 1942. His first assignment was as a platoon leader in the 301st Engineer Combat Battalion at Ft. Meade, Md. During World War II, he served with the Army in Europe and earned the European-African-Middle Eastern Campaign Medal with five service stars. The unit in which he was a battalion operations officer participated in 43 river assaults and bridging operations for General George Patton's Third Army.

Following the war, General Mayes held engineering jobs in Alaska and Pennsylvania. He transferred to the Air Force in September 1949, and in the early Air Force era served as base civil engineer at Castle Air Force Base, Calif., Fairchild AFB, Wash., and Loring AFB, Maine. He served two tours at HQ Eighth Air Force at Westover AFB, Mass., and was the commander of Goose Bay Air Base, Labrador, for one year. In 1963, he graduated from the Industrial College of the Armed Forces.

General Mayes made stellar contributions to the civil engineering community during the 1960s. He was the DCS for Civil Engineering at HQ TAC from 1963 to 1966. From January 1966 to July 1967, he wore four hats while serving in Vietnam: director of civil engineering for Seventh Air Force, head of the Air Force Regional Civil Engineer (AFRCE) office for Vietnam, head of the RED HORSE program to whom the five RED HORSE squadron commanders reported, and program director for Project Turnkey. Project Turnkey represented the first time the Air Force acted as its own construction agent to construct a complete air base from the ground up. In General Mayes' words, "It demonstrated to all the services that Air Force civil engineering had come of age and was fully capable of building an Air Force base on its own." According to General Mayes, it was the only base in Vietnam built within the money allocated (\$52 million) and on schedule.

His experience in Vietnam prepared him well for his next job as the DCS for Civil Engineering at HQ PACAF, from 1967 to 1969. His final assignment was as the DCS for Civil Engineering at HQ SAC. Following retirement, he worked for 13 years as director of maintenance for the Dallas-Fort Worth international airport.

General Mayes retired from active duty in 1973 and makes his home in Texas.



Brigadier General Michael A. "Mick" McAuliffe Award

This award honors Brig Gen Michael A. McAuliffe, former Command Civil Engineer for Air Combat Command. It recognizes the year's most outstanding Housing Flight.

General McAuliffe was born in Ashland, Wisc., in 1941. He entered the Air Force through the Reserve Officer Training Corps program at Kansas State University, where he earned his bachelor's degree in civil engineering in 1965. He began his Air Force career as a project engineer for the Air Force Regional Civil Engineer, Western Region, in Portland, Ore., and later in San Francisco, Calif.

In 1968, he embarked on a series of overseas tours, first with Prime BEEF Team 71 at Osan AB helping bed down the airpower buildup in Korea following capture of the Navy ship *Pueblo* by North Korea, and then as chief of design at HQ Seventh Air Force in South Vietnam. In the spring of 1970, he helped charter and was assigned as first commander of the 7002nd Civil Engineering Flight at Ramstein AB, West Germany. The 7002nd was a design and construction flight made up largely of German nationals and civilians from other countries.

In 1974 he returned to the United States and worked for HQ U.S. Air Force, Washington D.C., first in the Environmental Planning Division then as executive officer to then Directors of Engineering and Services, Major Generals Robert Thompson and William D. Gilbert. He completed a master's degree in industrial management at The George Washington University in 1977 and was a distinguished graduate of the Armed Forces Staff College in 1979.

From 1979 to 1982, he commanded the 834th Civil Engineering Squadron at Hurlburt Field, Fla., and also served as the Peacekeeper consultant for the Air Force Ballistic Missile Office. He attended Air War College in residence, graduating in 1983, then had two more assignments at HQ USAF, as chief of the Housing and Services Division and chief of the Programs Division for the Director of Engineering and Services.

General McAuliffe served as the DCS for Engineering and Services at HQ Air Force Logistics Command from 1988 to 1990. As the DCS for Engineering and Services for HQ TAC from 1990 to 1992, he provided civil engineering support to Operations Desert Shield/Desert Storm. He also oversaw the complex merger of civil engineer operations from TAC and Strategic Air Command into a single command, then served as the first Command Civil Engineer for ACC from 1992 to 1994. He was the recipient of The Society of American Military

Engineers' Newman Medal in 1987.

General McAuliffe retired in 1994. He and his wife Nancy make their home in Virginia.



Colonel Frederick J. Riemer Award

This award honors the lifetime accomplishments of Col Frederick J. Riemer, the first Air Force officer to be assigned to the disaster preparedness career field. It recognizes the year's most outstanding Readiness Flight.

Colonel Riemer was born in Little Falls, Minn., in 1934. He served eight years with the U.S. Navy as a combat aircrew member in an anti-submarine squadron during the 1950s, then joined the Air Force as an enlisted radar technician in 1960. He was commissioned in 1963 after receiving his bachelor's degree in electronics from Oklahoma City University. His first assignment was as a plans officer with the 455th Strategic Missile Wing at Minot AFB, N.D. He received a master's degree in management from the University of Southern California in 1972.

Colonel Riemer's distinguished career as a disaster preparedness officer began in 1967 at Fifteenth Air Force, March AFB, Calif. From there he was assigned to HQ PACAF in 1972, then to HQ USAF where, among other positions, he served as an operations officer in the Project Checkmate office. In 1978 he was assigned to the 832nd Combat Support Group at Luke AFB, Ariz., as chief of the Disaster Preparedness Division and subsequently as deputy base commander.

He is best remembered for his outstanding contributions to disaster preparedness while assigned to HQ U.S. Air Forces in Europe from 1983 to 1985 and as commander of the 36th Combat Support Group at Bitburg AB, West Germany, from 1985 to 1987. While there, he became the first officer in the disaster preparedness career field to be promoted to full colonel and saw expansion of the disaster preparedness discipline into what became known as air base survivability. The career field moved from Operations to Civil Engineering in 1985.

Colonel Riemer retired from active duty in 1989 as commander of the 4th Combat Support Group at Seymour Johnson AFB, N.C. Because he helped mold and develop the disaster preparedness program at all strata — from base level to the Pentagon — during his career, Colonel Riemer was selected as the namesake for today's Outstanding Readiness Flight Award. He is still active in organizing reunions for former disaster preparedness personnel. He and his wife, Jean, make their home in Arizona.



Chief Master Sergeant Ralph E. Sanborn Award

This award honors Fire Chief (former CMSgt) Ralph E. Sanborn, who dedicated his 44-year career to improving Air Force fire protection equipment and capabilities. It recognizes the year's most outstanding Fire Protection Flight.

Chief Sanborn was born in 1924 in Hollis Center, Maine. He enlisted in the Army Air Corps in 1943 and trained as a combat engineer at Baton Rouge, La. He served in England, Belgium and Germany during World War II as a firefighter assigned to a C-47 troop carrier unit. Following the war he came back to the United States, but returned to Germany as a firefighter during the Berlin Airlift.

In the early 1950s, he served in assignments at Ft. Wayne, Ind., at O'Hare Airport in Chicago, Ill., and in Alaska. In 1955 he began his long career with Strategic Air Command at Forbes AFB, Kan. In 1959 he served a tour in the Pacific at Andersen AFB, Guam, and in the early 1960s moved to Offutt AFB, Neb., where he worked in technical services with the base fire department. He was among the first rounds of Air Force enlisted personnel to be promoted to chief master sergeant.

Aside from a tour with the 72nd Bomb Wing at Ramey AFB, Puerto Rico, beginning in 1963, and a deployment to U Tapao, Thailand, in 1969-1970, Chief Sanborn spent the remainder of his military career, and subsequently his civil service career, at HQ SAC. He retired from active duty in 1973 and was a mainstay in the SAC fire protection program for 14 additional

years until his death in 1987.

Chief Sanborn is survived by his wife Lina, two sons Greg and Glen, and daughter Sandra Bowers.

The Sanborn Award was originally a SAC award. After inactivation of SAC in 1992 and transfer of its mission to ACC, the award was adopted as the Air Force Civil Engineer Fire Protection Flight Award in 1994.



Senior Master Sergeant Gerald J. Stryzak Award

This award honors SMSgt Gerald J. Stryzak, an explosive ordnance disposal technician who died in an aircraft crash during a tactical rapid response exercise in Egypt in 1980. It recognizes the year's most outstanding EOD Flight.

Sergeant Stryzak was born in 1940 in Philadelphia. He graduated from Upper Moreland High School in Willow Grove, Pa., in 1958 and enlisted in the Air Force in February 1962. After attending technical training at Lowry AFB, Colo., he was assigned as a munitions specialist at Morbach Ammunition Storage Station in West Germany from August 1962 to February 1966. He returned to the United States and served as the EOD Team Chief with the 2701st Explosive Ordnance Squadron at Hill AFB, Utah, from 1966 to 1970.

Sergeant Stryzak served in Vietnam as NCOIC of the EOD branch of the 431st Munitions Maintenance Squadron at Tuy Hoa Air Base from February to November 1970. He was recognized for supervising the safe recovery and disposal of over 135,000 U.S. and foreign ordnance items during his tour.

In 1970 he reported to Cannon AFB, N.M., as assistant



Major General Eugene A. Lupia Award

In July 1999, the Outstanding Civil Engineer Manager of the Year Awards were renamed in honor of Maj Gen Eugene A. Lupia, to recognize his extraordinary efforts as a champion of junior enlisted and commissioned civil engineer personnel. The first two awards, for candidates in the airman through technical sergeant category and the second lieutenant to captain category, will be awarded in February 2000.

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

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

NCOIC for EOD at the 27th Munitions Maintenance Squadron. From 1972 to 1976 he served as EOD Superintendent at HQ TAC at Langley AFB, Va., and from July 1976 to July 1977 as NCOIC of the EOD Element of Detachment 5, 425th Munitions Support Squadron, Canadian Forces at Base Comox, British Columbia.

In August 1977 he returned to Cannon AFB as NCOIC of the EOD Section of the 27th Equipment Maintenance Squadron. On November 12, 1980, Sergeant Stryzak and two other members of the EOD unit for the 27th Tactical Fighter Wing, SrA Raymond Bianchi and A1C Blaine Meyer, were killed when their C-141 aircraft crashed on landing at Cairo West, Egypt, during a tactical rapid response exercise. Sergeant Stryzak was posthumously awarded the Meritorious Service Medal (First Oak Leaf Cluster). He is survived by his wife, Susan, and two children, Michelle and Jeffrey.



Major General Robert C. Thompson Award

This award honors Maj Gen Robert C. Thompson, who served as Director of Engineering and Services from 1975 to 1978. It recognizes the year's most outstanding Resources Flight.

General Thompson was born in Tyrone, Pa., in 1920. He served in the Army Air Forces in enlisted status from the fall of 1942 until January 1944, when he graduated from Officers' Candidate School and was commissioned as a second lieutenant. His first assignment was with the Special Weapons Test Group at Wendover Field, Utah, as Post Engineer and Test

Range Officer. He was relieved from active military duty in January 1947, but returned to active duty in October 1948 and was sent to Okinawa as the Post Engineer and headquarters commandant for the U.S. Army Quartermaster Group. During the Korean conflict he was assigned to Lowry AFB, Colo., as chief of operations and maintenance with the 3415th Technical Training Wing.

In 1955 he transferred to the Joint U.S. Military Group, Spain, where he worked in the Directorate of Construction and was engaged in construction of Air Force and Navy bases throughout Spain. After graduating from Air Command and Staff College in residence in 1960, he worked at the Pentagon for five years as a facilities programming officer in the Office of the DCS for Research and Development. From there he was transferred to the Air Force Western Test Range at Vandenberg AFB, Calif., as chief of the Programs and Operations Division. During his career he completed a bachelor of science degree and a master of arts degree from the University of Maryland and completed all coursework for a doctoral degree.

General Thompson served in Vietnam as chief of the civil engineer Programs Division at Seventh Air Force at Tan Son Nhut AB. Following his tour in Vietnam, he was assigned as the DCS for Civil Engineering in three different locations, at HQ Eighth Air Force at Westover AFB, Mass., at HQ Second Air Force at Barksdale AFB, La., and at HQ USAFE. It was during his tenure that HQ USAFE moved from Wiesbaden AB to Ramstein AB, West Germany.

In 1974 General Thompson returned to Washington as the Deputy Director of Civil Engineering under Maj Gen Billy McGarvey, and in 1975 was named the Director of Civil Engineering. It was under his leadership that services merged with the civil engineering community. He also oversaw creation of the Air Force Commissary Service, the Air Force Engineering and Services Agency, and the Civil Engineering and Services Management Evaluation Team (CESMET). General Thompson served as director until his retirement in 1978.

General Thompson passed away in March 1982. He is buried at Arlington National Cemetery.

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

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

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

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

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

EOD Memorial Moves to Eglin

by Lt Col Tom Dombrowsky
HQ AFCESA, Tyndall AFB, Fla.

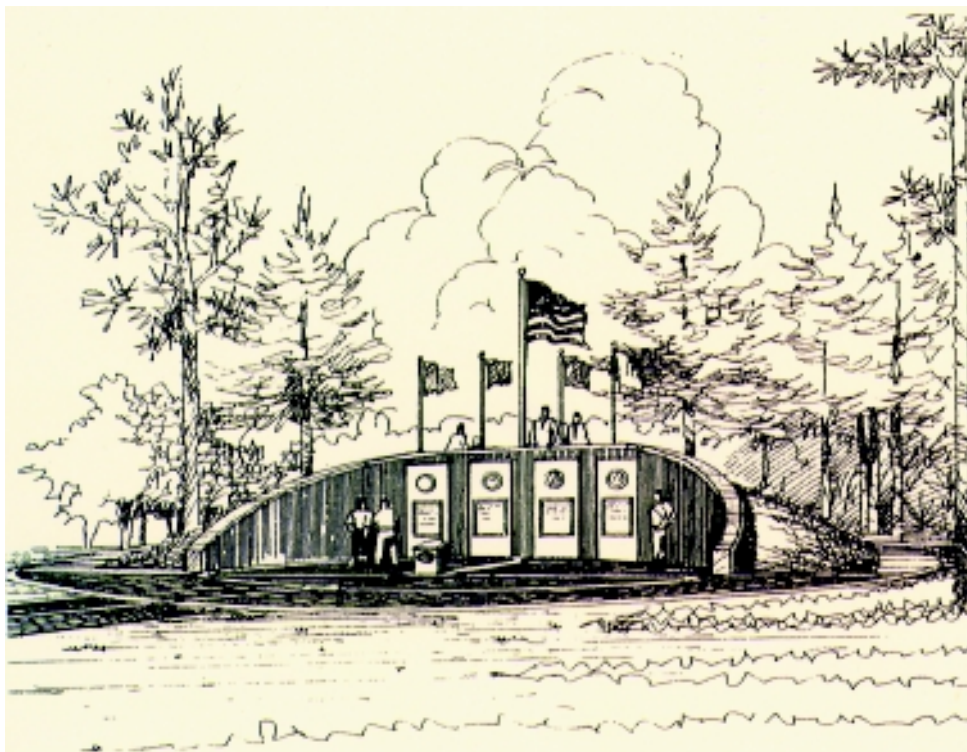
Those in explosive ordnance disposal have a tradition of remembering and honoring fellow EOD technicians who have died in the line of duty. The first official EOD memorial was dedicated in 1970 at the Naval School, Explosive Ordnance Disposal at Indian Head, Md. Then in January 1999, the ribbon was cut on a new EOD training complex at Eglin Air Force Base, Fla., where all EOD training was to be consolidated.

With the move and consolidation of the EOD School from Indian Head to Eglin, the EOD memorial needed to move as well. The EOD Memorial Scholarship Committee raised funds to relocate and reconstruct the memorial at Eglin, where it would be an inspiration to new EOD technicians as they train and are indoctrinated into the EOD community.

Brig Gen Lawrence Enyart, mobilization assistant to The Air Force Civil Engineer and Joint Explosive Ordnance Disposal Program Board member for the Air Force, participated in the memorial's official ground-breaking ceremony at Eglin in May.



(Left to right) Capt Jerry Reeves, U.S. Navy, director, Enlisted Training and Education Division, chief of Naval Education and Training; Col Rick Fernandez, commander, 96th Civil Engineer Group; Capt John Fraser, USN, commanding officer, Naval School Explosive Ordnance Disposal; Brig Gen Lawrence Enyart, mobilization assistant to The Civil Engineer and U.S. Air Force Program Board Member, DoD EOD Program Board; CWO4 Charles Doak, USN EOD Representative, EOD Memorial Committee; Jonathan Green, president, The Green-Simmons Company, Inc.; and Reate Davis, architect, participated in the official ground-breaking ceremony for the new joint-service EOD memorial at Eglin AFB, Fla. *(Photo courtesy AF/ILE)*



Artist's rendering of the new EOD Memorial at Eglin AFB, Fla.

"EOD training used to be partly at Indian Head and partly at Eglin," said Gen Enyart. "With the entire school at Eglin, it was appropriate for the memorial to be moved."

Construction was completed in December and the memorial is now open to the public. An official dedication ceremony is scheduled for Feb. 3, 2000.

The 83- by 29-foot memorial stands directly across from the new EOD school. It will be used as a troop formation area during special ceremonies.

Its design resembles an ammunition bunker, with the backside rounded and the front side flat. The front four inset plaques, one for each of the services, bear the names of the deceased honorees. The dedication is on a plaque in front of the wall. Sixty-nine names were placed on the memorial when it was first dedicated at Indian Head. There are 154 names, 12 Air Force, on the new memorial at Eglin.

The memorial move and reconstruction was funded by brick sales and individual donations. The bricks, which are inscribed with the names of donors who contributed to the relocation and construction fund, pave the walkway and the area in front of the memorial. Individuals or organizations may still purchase inscribed bricks, with proceeds going to the EOD Scholarship Fund. For more information, visit the EOD Memorial Scholarship Committee's web site at <http://eodscholarship.dreamhost.com>.

Civil Engineer Senior Officers and Civilians

Editor's Note: A list of Air Force Reserve and Air National Guard civil engineer colonels and their billets will be published in the next issue of The CE magazine. The next issue will also include a list of active duty civil engineer chief master sergeants and their billets.

General Officers

HQ USAF	Maj Gen (S) Robbins, Earnest O. II	Pentagon	The Air Force Civil Engineer
HQAFMC	Brig Gen Cannan, David M.	Wright-Patterson AFB	Command Civil Engineer
HQ DeCA	Maj Gen Courter, Robert J., Jr.	Fort Lee	Director, Defense Commissary Agency
HQ USAF	Brig Gen Enyart, Lawrence (AF Res.)	Pentagon	MA to The Civil Engineer
HQAMC	Brig Gen Fox, L. Dean	Scott AFB	Command Civil Engineer
HQ USAF	Brig Gen Sheehan, Lawrence F.	Pentagon	MA to SAF/MI
HQAFMC	Maj Gen Stewart, Todd I.	Wright-Patterson AFB	Director, Plans and Programs

Colonels

HQ USAFE	Alston, Lavon	Ramstein AB	Deputy Command Civil Engineer
AETC	Amend, Joseph H., III	Wright-Patterson AFB	Dean, CE & SVS School, AFIT
HQAMC	Baldetti, Peter J.	Scott AFB	Chief, Environmental Programs Division
SAF/MI	Baldwin, Carey	Pentagon	Director, Facility Management
HQAFMC	Ballog, Dennis F.	Wright-Patterson AFB	Chief, Engineering & Construction Division
HQAFCESA	Barthold, Bruce R.	Tyndall AFB	Commander, AF Civil Engineer Support Agency
PACOM	Baughman, James D.	Yong San, Korea	DACOS, Engineer, HQ ROK-US CFC
AMC	Bird, David F., Jr.	Travis AFB	Commander, 60 SPTG
ACC	Borges, Scott K.	Langley AFB	Chief, Agile Combat Spt. Mission Area Team
AFSPC	Boyce, Steven C.	Vandenberg AFB	Commander, 30 CES
OSD	Bradshaw, Joel C., III	Pentagon	Chief, Air Force Programs
HQAFCESA	Brendel, Lance C.	Tyndall AFB	Director, Operations Support
HQ PACAF	Burns, Patrick A.	Hickam AFB	Command Civil Engineer
HQ USAF	Byers, Timothy A.	Pentagon	Chief, Readiness & Work Force Mgt Division
HQACC	Carmody, Cornelius J.	Langley AFB	Assistant Command Civil Engineer
AFMC	Charles, Jeffrey R.	Wright-Patterson AFB	Commander, 88 CEG
HQACC	Chisholm, Maryann H.	Langley AFB	Deputy Chief, Programs & Constr. Division
HQAFCEE	Coke, Ronnie L.	Brooks AFB	Director, Environmental Restoration
HQAFCESA	Cook, Michael J.	Tyndall AFB	Director, Technical Support
PACAF	Coullahan, Patrick M.	Elmendorf AFB	Eleventh Air Force Civil Engineer
AFMC	Cuddihee, Michael A.	Tinker AFB	Vice Commander, 72 ABW
AFMC	Daly, Patrick R.	Hanscom AFB	Deputy Commander, 66 SPTG
HQ USAF	DeFoliart, David W.	Pentagon	Chief, Programs Division
HQACC	Destadio, Frank J.	Langley AFB	Command Civil Engineer
AETC	DiRosario, Joseph P.	Maxwell AFB	Commander, 42 SPTG
HQ PACAF	Drake, William J.	Hickam AFB	Deputy Command Civil Engineer
AMC	Elliott, Gus G., Jr.	Fairchild AFB	Commander, 92 SPTG
HQ USAF	Eng, William F.	Pentagon	Chief, Engineering Division
AETC	Eulberg, Delwyn R.	Randolph AFB	Commander, 12 SPTG
HQ USAFE	Fernandez, Richard	Ramstein AB	Chief, Programs Division
HQ USAFE	Fetter, Clifford C.	Ramstein AB	Chief, Environmental Division
HQAETC	Fink, Patrick T. (BSC)	Randolph AFB	Chief, Environmental Management Division
ACC	Fisher, C. Brian	Holloman AFB	Commander, 49 Materiel Maintenance Group
HQ USAF	Fisher, Marvin N.	Pentagon	Spcl Asst. to CE Congr. Fiscal Matters
ACC	Fitz, Michael S.	Shaw AFB	Commander, 20 SPTG
AETC	Floyd, William R.	Maxwell AFB	Air War College student
PACAF	Formwalt, William A.	Osan AB	Seventh Air Force Civil Engineer
ACC	Fouser, John D.	Offutt AFB	Commander, 55 CES
ACC	Fukey, Michael F. (Pilot)	Langley AFB	Chief, Base Support Division

HQAFCEE	Garcia, Samuel E.	Brooks AFB	Exec. Director, AF Center for Env. Excellence
HQAETC	Gilbert, Russell L.	Randolph AFB	Command Civil Engineer
HQAFMC	Griffith, Thomas M.	Wright-Patterson AFB	Chief, Programs & Operations Division
PACAF	Guy, Homer L.	Yokota AB	Fifth Air Force Civil Engineer
HQ USAFE	Haggstrom, Glenn D.	Ramstein AB	Command Civil Engineer
HQ PACAF	Hayden, Thomas F., III	Hickam AFB	Chief, Readiness Division
ACC	Hoarn, Steven E.	Langley AFB	Deputy Chief, Base Support Division
AETC	Horsfall, John D.	Maxwell AFB	HQ AU Inspector General
HQ PACAF	Howell, Richard C.	Hickam AFB	Chief, Operations Division
HQAFSOC	Hrapla, Michael F.	Hurlburt Field	Command Civil Engineer
ACC	Hutchinson, Darrell B.	Nellis AFB	Commander, Det. 1, 99th SPTG
PACAF	Ingenloff, Richard J.	Hickam AFB	Commander, 15 SPTG
ACC	Janiec, Gordon R.	Holloman AFB	Commander, 49 SPTG
AMC	Jeffreys, John R.	McChord AFB	Special Asst. to CC for Readiness
AFMC	Judkins, James E.	Edwards AFB	Commander, 95 CEG
AETC	Kanno, Neil K.	Maxwell AFB	Air War College student
ACC	Keith, Edmond B.	Langley AFB	Commander, 1 CES
HQAFMC	Kennedy, James R.	Wright-Patterson AFB	Chief, Organization & Privatization Division
HQ USAF	Kopp, Robert D.	Pentagon	Chief, Readiness Programs Branch
AFMC	Korslund, Per A.	Hill AFB	Commander, 75 CEG
HQ PACAF	Lancaster, Louis K.	Hickam AFB	Chief, Programs
AMC	Leptrone, Jeffrey L.	MacDill AFB	Commander, 6 CES
HQANG	Lundgren, Samuel G. (ANG)	Andrews AFB	The ANG Civil Engineer
HQAFCEE	Lyon, James D.	Brooks AFB	Director, Env. Conservation & Planning
ACC	Mayfield, Edward D.	Hurlburt Field	Commander, 823 RHS
HQAFCESA	McConnell, Bruce F.	Tyndall AFB	Director, Contingency Support
HQAFMC	McDonald, Thomas J.	Wright-Patterson AFB	Exec. Director, Installation Support
HQ USAF	Miller, Brian L.	Pentagon	Chief, Environmental Division
HQAFCEE	Miller, Ross N. (BSC)	Brooks AFB	Director, Environmental Quality
HQACC	Minto, Paul E.	Langley AFB	Chief, Readiness Division
HQAFRC	Mogge, John W., Jr.	Robins AFB	Command Civil Engineer
HQAFCESA	Moreau, David C. (ANG)	Tyndall AFB	Director, Executive Support/CE ANG Advisor
AFMC	Norrie, Michael D.	Robins AFB	Commander, 78 CEG
ACC	Parker, Richard P.	Nellis AFB	Commander, 820 RHS
HQACC	Patrick, Michael R.	Langley AFB	Chief, Environmental Programs Division
HQAFSPC	Perry, Gilbert T., Jr.	Peterson AFB	Deputy Command Civil Engineer
OSD	Peters, David T.	Pentagon	Pollution Prevention Team Leader
HQACC	Peters, Robert L., II	Langley AFB	Chief, Programs & Construction Division
USAFE	Pokora, Edward J.	Ramstein AB	Commander, 86 CEG
AFMC	Purvis, Quincy D.	Eglin AFB	Commander, 96 CEG
PACAF	Quinn, William R.	Kadena AB	Commander, 18 CEG
JCS	Richardson, Cardell K.	Pentagon	Engineer Staff Officer
AFMC	Riggs, Gregory E.	Kelly AFB	Special Asst. to the Commander
AMC	Rojko, Paul M.	Pope AFB	Commander, 43 SPTG
AMC	Romano, Sebastian V.	McGuire AFB	Commander, 305 CES
AMC	Ryburn, James T.	McGuire AFB	Commander, 305 SPTG
HQAFSPC	Schmidt, Michael H.	Peterson AFB	Chief, Programs Division
OSD	Selstrom, John P., Jr.	Pentagon	Director, Env. Restoration Program Management
PACAF	Showers, Duncan H.	Elmendorf AFB	Commander, 3 CES
HQAETC	Singel, Kenneth R.	Randolph AFB	Chief, Programs Division
HQAMC	Skrypczuk, Oleh	Scott AFB	Deputy Command Civil Engineer
HQ USAF	Smith, Emmitt G.	Pentagon	Chief, Housing Division
AETC	Somers, Paul W.	Columbus AFB	Deputy Commander, 14 SPTG
HQAFMC	Stanley, Tad A.	Wright-Patterson AFB	Deputy Command Civil Engineer
HQ USAF	Streifert, Scott E.	Pentagon	Chief, Comp. Sourcing & Privatization Division
AFMC	Strom, Randie A.	Kirtland AFB	Commander, 377 CEG
AETC	Sweat, David A.	Maxwell AFB	Air War College student
USAFA	Swint, David O.	USAF Academy	Prof. & Dept Head, Civil & Env. Engineering
11 Wing	Thady, Randall J.	Bolling AFB	Commander, 11 CES
HQAFSPC	Tickel, J. Carlton, Jr.	Peterson AFB	Command Civil Engineer
HQAETC	Turner, Randall L.	Randolph AFB	Chief, Operations Division
HQAMC	Verlinde, Jon D.	Scott AFB	Chief, Planning and Programming Division
ACC	Wallington, Cary R.	Moody AFB	Commander, 347 SPTG
USAFA	Waylett, Susanne M.	USAF Academy	USAFA Civil Engineer/Commander, 10 CEG
AETC	White, Arvil E., III	Tyndall AFB	Commander, 325 CES
HQANG	Willcocks, Raymond H. (ANG)	Andrews AFB	Deputy ANG Civil Engineer
ACC	Woods, Clinton C.	Malmstrom AFB	Commander, 819 RHS

Senior Executive Service

HQ USAF Aimone, Michael A.
 HQAFCEE Erickson, Gary M.
 AFBCA Lowas, Albert F., Jr.



Pentagon Deputy Air Force Civil Engineer
 Brooks AFB Director, AF Center for Env. Excellence
 Arlington VA Director, AF Base Conversion Agency

GS/GM-15s

HQAFCESA Anderson, Myron C.
 AFMC Bailey, Lawrence O., Jr.
 HQAFCEE Bakunas, Edward J.
 HQ USAF Barrett, Robert C., III
 HQAFSPC Bratlien, Michael D.
 AFMC Brunner, Paul G.
 AFMC Clark, Michael J.
 HQANG Conte, Ralph
 AFBCA Corradetti, John J., Jr.
 JCS Corsetti, William V.
 HQAFRC Culpepper, Hilton F.
 AFMC Dalpais, E. Allan
 HQAFMC Daniels, Ralph F.
 HQAFCESA Daugherty, Patrick C.
 USSOCOM Dwight, Stephen F.
 AFREA Edwards, William E.
 HQ USAF Ferguson, Kathleen
 HQAFCESA Firman, Dennis M.
 AFBCA Frank, Joyce K.
 HQ USAF Franklin, George H., Jr.
 HQ PACAF Fujimoto, George
 HQAFMC Garcia, Marvin L.
 AFBCA Jackson, Dale O.
 AFMC Johnson, Gary K.
 SAF/MI Leehy, Lawrence R.
 HQAFCEE Leighton, Bruce R.
 AFMC Lester, Ronald J.
 AFCEE Lopez, Edward
 AFSPC Lowsley, James P.
 HQAMC Mack, Robert D.
 HQAFSPC Maher, Gary
 HQ USAF Maldonado, Rita
 HQ USAF McCard, Sidney
 HQ USAF McGhee, Michael
 HQACC Moore, Robert M.
 HQAFCEE Nelson, Glenn E., Jr.
 HQACC Parker, Paul A.
 AFCEE Pennino, James
 HQAFCEE Perritt, Rolan M.
 HQ USAF Pohlman, Teresa
 AFMC Polce, Ronald L.
 HQ USAF Reinertson, Kenneth
 HQAFCEE Ritenour, Donald L.
 HQAFMC Sculimbrene, Anthony F.
 HQAFCEE Shebaro, Bassim D.
 AFCEE Sims, Thomas D.
 AFBCA Smith, John Edward B.
 AFMC Stephens, Eric L.
 HQ USAFE Thompson, John D.
 AFMC Tuss, Margarita Q.
 HQAMC Van Buren, John L.
 HQANG VanGasbeck, David C.
 AFMC Whitney, Richard G.
 HQANG Whitt, William B.
 AFMC Wood, Richard A.
 HQ PACAF Yasumoto, Stanley Y.
 SAF/MIQ Yonkers, Terry A.
 HQAETC Zugay, Anthony

Tyndall AFB
 Kelly AFB
 Brooks AFB
 Pentagon
 Peterson AFB
 McClellan AFB
 Eglin AFB
 Andrews AFB
 Arlington VA
 Pentagon
 Robins AFB
 Hill AFB
 Wright-Patterson AFB
 Tyndall AFB
 MacDill AFB
 Bolling AFB
 Pentagon
 Tyndall AFB
 Arlington VA
 Pentagon
 Hickam AFB
 Wright-Patterson AFB
 Arlington VA
 Wright-Patterson AFB
 Pentagon
 Brooks AFB
 Wright-Patterson AFB
 Dallas TX
 Vandenberg AFB
 Scott AFB
 Peterson AFB
 Pentagon
 Pentagon
 Pentagon
 Langley AFB
 Brooks AFB
 Langley AFB
 San Francisco CA
 Brooks AFB
 Washington D.C.
 Arnold AFB
 Pentagon
 Brooks AFB
 Wright-Patterson AFB
 Brooks AFB
 Atlanta GA
 Arlington VA
 Brooks AFB
 Ramstein AB
 Wright-Patterson AFB
 Scott AFB
 Andrews AFB
 Wright-Patterson AFB
 Andrews AFB
 Edwards AFB
 Hickam AFB
 Pentagon
 Randolph AFB

Chief, Civil/Pavements Division
 Director, Environmental Management
 Chief, Comprehensive Planning
 Masters Program, University of Southern California
 Chief, Engineering Division
 Director, Environmental Management
 Deputy Base Civil Engineer
 Chief, Programming Division
 Program Manager, Division A
 Strategic Planner, J5, Strategy Division
 Assistant Command Civil Engineer
 Director, Environmental Management
 Director, Programs Division
 Chief, Mechanical/Electrical Division
 Command Civil Engineer
 Director, AF Real Estate Agency
 Chief, Programs and Analysis Branch
 Exec. Director, AF Civil Engineer Support Agency
 Deputy Director, AF Base Conversion Agency
 Chief, Facility Privatization Branch
 Chief, Environmental Division
 White House Task Force on Recycling
 Program Manager, Division D
 Deputy Base Civil Engineer
 Director for Installations Management
 Technical Assistant, Env. Conservation Planning
 Director, Environmental Management
 Director, Central Region Environmental Office
 Deputy Base Civil Engineer
 Chief, Housing Division
 Chief, Environmental Division
 Chief, Operations & Maintenance Division
 Chief, Program Management
 Chief, Environmental Planning Branch
 Industrial College of the Armed Forces
 Technical Assistant, Environmental Restoration
 Chief, Operations Division
 Director, Western Region Environmental Office
 Chief, Design Group Division
 Industrial College of the Armed Forces student
 Technical Director for Facilities
 Program Manager, Office of Policy, Dept of Trans.
 Director, Design and Construction
 Exec. Dir, Dayton Aviation Heritage Commission
 Director, Operations and Development
 Director, Eastern Region Environmental Office
 Chief, Environmental Programs and Plans
 Human Systems Engineer
 Chief, Engineering Division
 Chief, Engineering Division
 Chief, Project Engineering Division
 Chief, Environmental Division
 Chief, Acquisition ESH Division
 Command General Engineer
 Director, Environmental Protection
 Chief, Engineering Division
 Deputy for Resource Management
 Chief, Engineering Division



820th RED HORSE Squadron personnel combined with Reserve and National Guard civil engineer teams this summer to construct the new "Warrior Week" site at Lackland Air Force Base, Texas. Story page 22. *(Photo courtesy 37th Training Wing Public Affairs)*