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In This Issue...

Energy Management

Special Section: Facing Terrorism

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Fort Belvoir Fire Department at the Pentagon after September 11.

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LETTER FROM THE EDITOR

Where were you when the first plane crashed into the World Trade Center? Can you ever forget what you were doing when you first learned of the attacks taking place on U.S. territory? I was at my computer working on an article for this issue when a friend called to tell me the incredible news. Even after I watched the second crash on the front office TV, seemingly in painful slow motion, it took some time to digest as reality.

While the Digest normally doesn't cover topics of this nature, this one affected us all too deeply to ignore. The events of September 11, 2001 will be emblazoned in our hearts and minds forever. Our first section, "Facing Terrorism," is dedicated to the many friends and co-workers who lost their lives on that infamous September morning.

Even though we have all been following this national tragedy as it unfolds before our eyes, many of you may not be aware of the tremendous work being done at the crash sites by Corps personnel. In addition to my update on Corps assistance both at the Pentagon and the World Trade Center, there are articles by co-worker Bill Crambo, Navy Commanders Steve Szyszka and Bill Braswell and others who had the misfortune of being at the Pentagon and the World Trade Center. We see what happened through their eyes. Commander Braswell also notes the value of force protection designed into the Pentagon renovation of Wedge 1.

Chief of Engineers LTG Bob Flowers has visited both crash sites on numerous occasions in recent weeks and his article provides us with both guidance and support during these trying times. There is also a short e-mail from an ensign at sea that I think you will enjoy reading as well as a message from NAD's Steve Browning, who was deployed to the recovery operation in New York.

Appropriately enough, Omaha District has submitted articles about their Protective Design Center of Expertise, which offers anti-terrorism and force protection support, and information about the Rapid Response Team.

Pushed a little further back in this issue are the many articles relating to energy and water conservation, the traditional theme for October/November. Don't miss the complete line-up of this year's Secretary of the Army and Department of Energy awards. Our installation stories salute the energy managers on Army installations worldwide. Their task is not an easy one, yet each year, they somehow manage to do better than the last.

The December 2001 Digest will feature an Annual Report for the Directorate of Military Programs, particularly the Installation Support Division. This will be our turn to brag. For those of you who are not familiar with our work, that issue will explain how we operate and show you what we have accomplished on your behalf over the past year. This last Digest of the year will also showcase accomplishments in the area of installation support performed by the Huntsville Center of Expertise and some of our labs as well as the Office of the Assistant Chief of Staff for Installation Management.

As we prepare to go to print, we learn that the DPW Worldwide Training Workshop originally scheduled for 11-13 December in Virginia has been relocated for security reasons to the Wyndham Baltimore Hotel in Baltimore, Maryland. The article on p.42 provides more details. Hope to see you there!

Until next time...

Alexandra K. Stakhiv

Alexandra K. Stakhiv, Editor, *Public Works Digest* PWD

Serving in War

by LTG Bob Flowers, Chief of Engineers

Photo by F.T. Eyre

On 11 September, the United States of America became a country at war. Our war is against those who commit acts of terrorism and the countries that support them.

Like almost all wars, the United States will use all its elements of national power; diplomatic, economic, intelligence and informational, and military, to fight against the terrorist networks and their supporters. Like most wars, our success is dependent upon our ability to develop coalitions among nations and sustain our united efforts over a long period of time.

Yet unlike most conflicts, this is a global war to be waged on many fronts to include the continental United States. The national campaign plan against terrorism will challenge us all in ways never experienced before. U.S. Air Force aircraft will patrol the skies above our nation's cities. Security in our airports, in our sporting events, in our workplace and elsewhere will be unprecedented.

All citizens will be affected, whether serving in the military at locations abroad or merely responding to new measures of security in their hometowns. To be successful in the campaign against terrorism, all citizens must participate with perseverance, vigilance and patience. Our victory is dependant upon the collective unity and will of our great Nation.

Our post-Cold War, peacetime Army is now confronted with the challenge of winning the Nation's war on multiple fronts. Success is dependant upon synchronizing the Army's efforts with that of the other Services, our coalition partners, the other agencies of Federal, State and local government, and the private sector.

The Total Army, active, Guard and Reserve, will be called upon to support this long-term campaign. We, the United States Army Corps of Engineers, must do all we can to support, and at times lead, the Army's efforts in this campaign. In support of the combatant commands, the regional CINCs, engineers must be totally involved in the planning for all phases of combat operations.

We also must be involved in the planning for humanitarian operations to insure that supportive requirements are met. Wherever our service members are deployed, critical infrastructure such as airports, seaports, roads and facilities, must be sustained and protected. Our MACOM must begin planning for extensive support to major OCONUS locations for a very extended period of time.

In the continental United States, the Corps of Engineers can be an invaluable and leading contributor to Homeland Security. Our experience in consequence management and interagency efforts from natural disasters has great relevance in fighting the war against terrorism at home.

As a federal agency, we will be very involved in the identification, prioritization and security of critical infrastructure across the country. We will continue to advise and assist our Army and Air Force commanders on how to improve force protection and security around their military installations.

We must expand upon our centers of expertise in Force Protection and Electronic Security. Security Engineering should be a capability of every organization in the Corps. Our research and development capability should be focused on the problem to continually improve our ability as engineers and our understanding of the technology advances. We must work to develop projects and programs that enhance the security of critical infrastructure against terrorism while minimizing manpower manning requirements.

We must quickly learn from the new Army missions that become defined in Homeland Security and adapt our efforts to support them. We must put in place the doctrine, training, skills, equipment and leadership that will enable the Army to successful in the mission.

Before 11 September, the Army was in the early stages of Transformation to prepare itself for future conflict. Now the Army must transform itself while at war. Transformation will continue, adapting our plans as we learn from the new challenges. The Corps of Engineers must likewise adapt its plans in support of the Army's Transformation.

An Army at war cannot do business in a peacetime manner. As a MACOM, we must challenge every procedure, process, regulation and law that impedes our ability to support the war effort. There is great sentiment throughout the Army to challenge the way we do business today in the acquisition arena, resource management, budgeting, personnel and the environmental laws and regulations by which we must abide. We must identify what should be changed.

Our success as a MACOM in supporting the Army relies, as always, on our people. Throughout Corps history, our people have always met the challenge of every crisis, every emergency and every war effort. With full engagement of all, this command can be a real force multiplier for the Army and the Nation.

Internal communication, now more than ever, is vital. Our people need to know what is going on, where they can contribute and how their efforts will make a difference. They need to know now that they live and work in a theater of war. They need to know that they can no longer take for granted the security that our country provides. And they need to know what their country and Army are doing to fight this war, at home and abroad.

We will never live again as we did before 11 September. Yet, we may never again feel the American unity, patriotism and resolve as we have since 11 September. We must capitalize today on our National will. As individuals, as a MACOM and as an Army, we can be a part of winning this war. When we do, life in America will be better than before 11 September.

Essayons! PWD

Corps shines in recovery efforts at World Trade Center, Pentagon

Did you know that the Corps of Engineers built the Pentagon? Ironically, construction of this massive five-sided building began on September 11, 1941. By the time it was completed in early 1943, in a record 16 months, the Pentagon was the largest office building in the world.

Nearly 60 years later, the Corps' Huntsville Center would provide procurement and technical services for the renovation of the Pentagon's Wedge 1, the first of the 5 wedges to be renovated, to bring the Pentagon up to current health, fire, safety, and energy codes and regulations. The renovation of Wedge 1 took three years to complete and only seconds to destroy. The delays turned out to be a Godsend. Many more would have perished in the September 11 terrorist attack if they had moved in on the dates originally planned.

Almost immediately after the attacks, 122 US Army Corps of Engineers personnel were deployed to New York City. They included representatives from every Corps division, laboratory as well as the 249th Engineer Battalion. Nine more were deployed to support the Pentagon mission, and seven in support of the Emergency Support Team. Additionally, the Army Reserve Command provided 20 of the 32 personnel supporting headquarters.

On the day of the World Trade Center attack, it was next to impossible to get out of Manhattan by car or other ground transportation once the towers collapsed. As shown on TV, all types of boats come together across the water on an impromptu basis to help the many people trapped because of the attack to get out of Manhattan.

Among those boats were seven owned by the Corps. Transporting more than 2,000 stranded citizens from Manhattan to Brooklyn, Jersey City and Staten Island, New York District crews brought emergency response people back into Manhattan. Later, these crews provided not only transportation, but delivered food, medicine and other supplies such as fuel.

As Disaster Field Offices were established in Manhattan, New York, and Arlington, Virginia, the Corps began providing help with debris removal planning, emergency power, structural safety assessment in New York and technical assistance in both New York and at the Pentagon.

Once President Bush declared both New York City and Virginia Federal Disaster Areas, the soldiers of the 249th Engineer Battalion (Prime Power) from Fort Belvoir and Fort Bragg started providing much needed liaison support between ConEd, the local power company, and FEMA. They performed power assessments and generator installations at multiple financial buildings (including the New York Mercantile Exchange and the NASDAQ Electrical Hub) to ensure that the financial district would be powered and ready to re-open. The prime power soldiers also worked with ConEd to set up generators at medical triage facilities and transient lodging centers in support of the relief effort.

At the Pentagon, the Military District of Washington requested assistance from the 249th Engineers to consolidate the power needs of the entire relief effort located just outside of the Pentagon. The battalion deployed two of its 500 kW low-voltage generators to the site and personnel to install and maintain these generators in an ongoing mission.

Corps structural analysts assisted the city in the urban search and rescue mission. Along with deployed Corps surveyors, they helped the city's engineers in evaluating some of the more complicated building situations.

Public Affairs personnel were also deployed to New York City to support FEMA and NAD/NAN public information efforts by the media on Corps involvement, and in providing the talking points and information for Corps members to use to ensure consistency of Corps messages.

Many mobilized members of the United States Army Reserve supported the Corps in performing reconstitution operations, force protection and security, and support to CINCs at the headquarters, four divisions, ERDC and TAC. Several of the reservists were regularly Corps employees now activated to support the Corps in a uniformed role. Additionally, more reservists are or will be serving on temporary tours of active duty to support civil works infrastructure assessment missions.

A significant mission for the Corps was to develop a total debris estimate for FEMA and the city. Part of the debris challenge was in determining appropriate disposition for the material in terms of identifying what can be recycled, placed in landfills or at offshore disposal areas. By New York City estimates, debris removal as of the end of October topped more than 360,212 tons. An additional 89,664 tons of recyclable steel has been recovered, which puts the total collected at nearly 450,000 tons of material recovered. The official total debris estimate is 1.2 million tons.

The Corps was also involved in dredging to facilitate barge access for debris removal. More than 55,000 cubic yards of dredged material was removed and transported to the Newark Bay Confined Disposal Facility, significantly speeding up the removal process with a corresponding reduction in the number of heavy trucks tearing city roads up to do debris removal.

Forty-four USACE personnel supporting the Deployable Tactical Operations System and Logistics Primary Response Team in New York City came from as far away as Seattle. They were involved with transporting, positioning, issuing, operating and maintaining the two Rapid Response Vehicles (RRVs) and two Deployable Tactical Operations Centers (DTOCs) that responded to this crisis in the early hours of the mission.

The RRVs and DTOCs formed the backbone of the communications system supporting the New York Fire Department and FEMA around Ground Zero during recovery operations. The fire department lost many of their communications vehicles in the collapse of the World Trade Center towers, and relied heavily on the DTOS and its supporting personnel for the management of critical communications. Working in two shifts, 24 hours per day, seven days a week, these outstanding men and women operated radios and telephones, and performed a myriad of other tasks to facilitate the search and rescue mission being performed by the fire department.

Corps personnel recently met with other federal agencies and local government and organizations in New York City to discuss plans for the rebuilding of the damaged area around the World Trade Center site. Follow-on meetings of the Federal Clearing House "Rebuild New York" are being planned.

USACE missions in New York City for FEMA are unchanged. They include regional activation (9 personnel), debris oversight (10 personnel), debris landfill management (18 personnel), and waterborne transportation (5 personnel on call). Ten of the 14 FEMA missions have been closed to date.

(A special thanks to LTC Eugene Pawlik, public affairs officer at HQ USACE, for providing the on-the-scene updates on which this article was based.)

We stand strong!

by Bill Crambo, Installation Support Division, HQUSACE

I can't get the images out of my mind. I don't want to get them out either. I don't want to forget, be consoled or in any way diminish the forever-present memories of the 11th of September, 2001.

There are times and events which we should remember and for which we should make our stand. This is one of those times. I will live with the images.

The vast destruction and death rooted in unimaginable hatred, followed by the smallest expressions or actions of infinite kindness and love that saved lives on this particular sunny, summer Tuesday morning, are the contradictions that nobody will ever put into words.

Like most American's and friends throughout the world, I was glued to my television in the days that followed, trying to get words to understand, and never forget.

Unlike most people, I personally witnessed the fireball at the Pentagon, listened and spoke with many people who got out minutes later, listened and consoled people who saw the plane attack the building, watched the fire progress and a section of the building collapse.

Like all people, my prayers and thoughts are with everyone who has been personally affected by this diabolical attack and tragedy.

Beyond that, as an American and temporary resident of this planet I have engaged in self-reflection to understand for myself if we can make it so nobody will live with horrific events and images as experienced and witnessed this particular and forever-remembered September day.

Disbelief, shock and confusion prevailed during the first hour after the attack. There were no reporters or TV crews other than a passing NBC crew in the area where I parked and stood. Everyone there either had been passing by, witnessed some part of the attack or had been evacuated from the Pentagon.

We knew a plane hit the Pentagon; we could see none of it. Only boiling orange and black flames shot out of the Pentagon. We talked about the images that burned into our memories. We had to, there seemed to be no evidence of any plane. It seemed we had to convince ourselves we were really there and had witnessed this indescribable event that was too rooted in evil to physically see.

We looked and asked, "Where is the plane?" "Did anyone see the plane after it hit?" What kind of plane was it?" We wondered aloud what might come next because nobody believed it was over.

One woman named Isabel described driving down Columbia Pike with her husband who is in the Navy and works in the Pentagon. Isabel related that the plane flew so low overhead she could only see the silver bottom of the plane and immediately told her husband, "It is headed for the Pentagon. It's going to hit it!"

Eleven seconds later it did. Another man said the plane powered up as it passed over the Navy Annex. Nobody heard of any advance warnings, but I saw many police cars rushing at full speed toward the Pentagon and DC prior to the crash. Clearly somebody knew, somebody must know, they must be responding!

Still, I tried to call 911 on two different cell phones, but all circuits were busy. Fire equipment and ambulances started to arrive. Each vehicle visibly paused as crews looked in stunned disbelief before proceeding to their directed positions. Some of the disbelief, some of the shock and some of the confusion will live with us forever because it should.

A reporter for the German press at some point during the hours after the attack, asked, "How do the events of today make you feel as an American." It seemed a dumb question. I had many feelings. Foremost, I was still stunned. The image of a section of the Pentagon collapsing tore at my preconceived beliefs that we have some level of protection in our country – yet, here, in front of me, the Pentagon was burning and collapsing.

Hearing about the collapse of the twin towers of the NY World Trade Cen- ➤

...Nothing but fireballs

by Don Braswell, Commander, USN

The 11th was a rough day, but all of OPNAV N7 got out alive. That's not a small miracle.

Just about every Navy three star in the Pentagon has an E-ring office and they all got out alive with their staffs. The majority of the Air Warfare (N78) spaces are (were) located in 5D453. For those of you who didn't see our new spaces, we had moved there about 3-4 months ago. These were part of the newly renovated Pentagon spaces. Fifth floor, D ring, between the 4th and 5th corridors.

Like every other American, we were watching the footage from the World Towers. Things had settled down a bit after the President's message, and a few bubbas had mentioned that the Pentagon, White House and the Capital building were probably targets. We knew that things had just changed for the worse and that the day would be a long one in the Pentagon.

Suddenly the building jumped 2-3 inches. Everyone instinctively looked out. We had probably 20-30 windows, each about four feet across, in our spaces. We saw nothing but fireball towards the E ring. None of the glass broke, the lights stayed on, and the computers ran for a few more seconds. In the corner, some of the acoustic roofing fell down, but that was all the damage.

It takes a few seconds to process that kind of information.You realize that a plane probably just slammed into th Pentagon. You want to call home and tell everyone you're okay. You want to grab your computer, wallet and keys that are 10 feet away. But you decide to leave everything and just get out.

Everyone came to the same conclusion at the same time, and we started heading to the door. About 100 of us have an office there and we walked/ran out. You could see the smoke starting to filter in from the E-ring. Then you saw people starting to exit the E-ring. Only about 20 folks came from that direction. When the last one came through, the smoke was too thick for them to see. They came out holding hands to keep everyone together and crouched low to the ground. They followed our shouting voices and eventually broke into the clear. We exited to the center of the Pentagon and went out into the parking lot. It'll be a long time before I forget that smell.

We all looked towards the Capital building and the White House, relieved to not see black plumes of smoke there. Only later did we learn that the aircraft had circled above those buildings before crashing into the Pentagon.

When we left our office, it was still intact. However, the airplane had traveled directly under us on the first and second floors. When you look at the collapsed E-ring, you can see our windows behind the debris. For the first two days you could see someone's potted plant through the window. Yesterday, you couldn't. Our floor had completely collapsed and took every thing with it. You don't realize how much you have invested in an office until it's gone.

Like you've heard on TV, the new construction probably saved hundreds of lives. The reinforced concrete walls slowed the airplane. The outer, blast-proof windows contained the blast and allowed us to exit with only two slight injuries instead of multiple wounds from flying glass. We're lucky to be alive and we know it. PWD

(continued from page 6)

ter, I couldn't muster up a plausible image. Someone must be wrong. Time must reverse itself. At the same time, I was angry. I could not understand how anyone could perpetrate such violence, such cold blooded suicidal cruelty.

I could not understand why it took 20 minutes before an F-16 flew overhead, over the Pentagon and Washington. Why wasn't that F-16 here sooner? Defiance took over me as Arlington County police drove by announcing another plane was on its way. Everyone was ordered to move away and to take cover under the nearby bridges.

I moved some. I stepped back the short distance as ordered, but I refused to take cover. Images of people running for cover in Sarejevo or Beirut came to mind. I always wondered why anyone hung around in those areas to begin with. Now, here I was. I could easily have gotten in my truck and driven away. I did not. My line was drawn and I knew I had to remain where I was. I had to help in any way I could; this is my home. This is where I drive everyday. I know people here and I won't leave them.

As I looked up, pride came forth, pride in my country. I watched an F-16 overhead and realized this specific pilot wasn't going to allow another hit in this location while I stood there as an American with fellow Americans under attack. In the end, some questions can't be answered with a terse blurb; some questions should be considered too stupid to ask.

Within hours of returning home from the Pentagon, relatives and friends started calling from around the country, from Poland, Germany, Russia and England, and from right next door. Everyone asked one question, "Are you OK?" My short answer was "Yes. Some friends are not. We are strong though. We will move on, but we will never forget."

We know as Americans that we have a culture which is hated by some people, respected by others, and loved by more. We have a unique culture as a people with mixed heritage, with diverse backgrounds and means, and with common beliefs, values and vision. It isn't just our dream; it is our common ground. Those who hate us, I think, don't understand that, choose not to understand that, and won't ever understand. Everyone else, in times of decision, stands with us proud and strong, yet humble at the thought of it all, where we've been and where we might go from here. PWD

The following articles were written by eye-witnesses to the attacks on the World Trade Center and the Pentagon on September 11, 2001.

The entire building shuddered...

by Steve Szyszka, Comander, USN

I'll try to describe my morning and day yesterday, in the hope that it helps answer some of your curiosity.

For those who are unfamiliar with the Pentagon, it is, oddly-enough, five-sided, and has ten primary corridors radiating like spokes from the center outward. They are numbered 1-10 (duh!) clockwise. The location where you see the collapsed roof and greatest damage on the TV pics is where corridor 4 reached the outer ring. The plane entered the building at the first and second floor (total of five floors) height in that spot. The area of corridors 3 (around the corner to the right of your photos) and 4 had just been renovated and the vast majority of the Navy Staff had very recently relocated to the new "wedge."

The offices occupied by my colleagues in the Plans, Policies and Operations department (about 250 guys) all had offices in this region, including the Navy Command Center in corridor 4, 1st floor, the rest of us (me included) in corridor 3, 4th floor. The area we had just recently moved OUT of was the corridor 5 area, to the left of the impact site, but which clearly has a lot of fire damage on the TV pics.

We were holding our routine morning Branch Head meeting at 0815 in the Navy Command Center when at about 0845 a watch officer stuck his head in and told us about the first WTC plane crash. We stepped out to see if he was pulling our leg and got to the TV about five minutes before seeing the second plane hit the second tower. At that point, everyone immediately realized that this was not merely an Air Traffic Control problem, but a deliberate series of attacks, and returned to our offices, to get out of the way of the folks on watch and to deal with our individual areas.

I got into my office space on the fourth corridor and had just started monitoring the WTC stuff on CNN when we heard a loud explosion and the entire building shuddered. Again, we were all very quick to recognize that this was no mere coincidence, and as we started evaculating, the corridors started getting smoky. Now I was one corridor away from the impact, and other than the noise and shuddering, saw no other effects (lights going out, falling ceilings, etc.).

The building was evacuated rather peacefully and we were all pushed out to about two blocks away. At which time our access to news became extremely limited. We heard all kinds of rumors (truck bomb, helo bomb(the Pentagon helo pad is right at that entrance), airplane) and only got snippets of info from folks' car radios. All we could see from our assembly location was a lot of smoke rising from around the corner from our exit.

We spent the next several hours simply trying to get head counts of all of our folks, and trying to get word to our families that those who were OK, were OK.

Ultimately, we (Navy Staff) set up an alternate command center, which was a long walk, but for the first time (about 1330) afforded us a view of the damaged side of the building. I was stupefied. I don't know whether any news reports have been this specific, but the plane hit directly in the Navy Command Center. The affected offices were mostly Navy and Marine Corps.

Our primary focus through the night and into this morning has been to get accounting for all of our people, and I am saddened to report that from MY department alone, we have 25 of my colleagues unaccounted for and four injured (three still in the hospital). We have been contacting their next of kin through the night about the unaccounted for status, hoping that perhaps some people got out and made their way home (in fact, we reduced the list from 36 to 25 this way).

As of my departure from the Navy Annex this morning, we had identified no casualties specifically by name, since they were still fighting the fire and people weren't allowed in to attempt ID-ing bodies yet. I suspect that is what will be done today. I fear the worst, since almost all of the unaccounted for persons' desks were in the Navy Command Center.

It was a long night on the phones with many of these spouses and children of those missing who have no knowledge of their loved ones condition or whereabouts, and we could offer precious little relief. I ask that those of you who are so inclined to direct your prayers specifically to their families.

In retrospect, I guess that I was pretty darn close, both chronologically (having left the Command Center about 5-10 minutes before the crash) and geographically (the demolished spaces are effectively beyond one wall from my office), to the impact. One cannot explain why some are chosen to go and others not, but I have spent a great deal of time thanking God for sparing me and, more importantly, for sparing my family the grief.

I am hopeful and confident that we, as a country, will do what needs to be done, and will go on being, not perfect, but, to date, the finest example of democracy and freedom in world history.

I wish to repeat, all of your prayers, e-mails and phone calls have been greatly appreciated and give us great strength. No words can express our gratitude. Now please let's focus our prayers on those who were less fortunate than I and for the souls of those who committed these heinous acts, for their eternal suffering in Hell will be far greater than any pain they have caused people here on earth. PWD

We were lucky

by Chip Smith, ASA(CW) staff member

We were fortunate that we were in staff meeting and all in one place.

When we heard the impact and felt the vibration, we all sat very still for a long moment. It was kind of like we expected more and that we might be in big trouble.

Dust or something started falling from the ceiling. So we looked out into the hall and saw smoke billowing our way. I felt something burn my eyes. And people were running our way yelling "bomb."

So we grabbed our administrative staff and in several groups of four started working our way away from the smoke. By luck, we were only a short distance to an emergency exit that someone had opened. We ran outside, two of us carrying Renea, who had collapsed in the hallway.

We milled around just outside for a few minutes in a daze. Then we started moving north along a road to Arlington National Cemetery.

Rumors were flying around of bombs, and ultimately, that there had been a crash by a commercial airplane. Then were heard that another plane might be on its way so we moved north about a quarter of a mile and found a place behind a hill to wait it out.

Sometime around noon, we sorted ourselves into groups and each group headed home by foot, metro, or cab.

Looking at the diagram in today's Washington Post, it seems the plane crashed 100 yards or less from us -- we were lucky. Luckier still, the plane made a direct hit on our NEW renovated office space, space that we were to move into on October 11th (we should have been there last spring but the contractor was running behind). PWD

Coming home on September 11

by Sue Hopkins, New York District PAO

For Amy Cardone, the prime recollection of September 11 will always be fear.

"We were hearing reports that the White House had been hit, that the Capitol had been hit, and we didn't know anything, because we were just walking north," said Cardone, chief of Human Resources for New York District. "It was scary."

For Mercedes Fernandez, the strongest memory is the first view, on a television in a store while she and her co-workers walked north on Third Avenue, of the Lower Manhattan skyline without the twin towers of the World Trade Center.

"That's when I said, 'this is big'," recalls the human resources specialist.

The HR staff was in the office at 26 Federal Plaza when the first plane hit the World Trade Center.They heard the explosion. Felt the vibrations. Heard the sirens.

But it wasn't until a co-worker in another office told them what had happened that they knew what had occurred, and went to an office with a television set to watch what was happening.

When the order came to evacuate 26 Federal Plaza, Cardone wasted no time.

The first decision: Everyone sticks together. Summer hire Niran Johnson and regular staffers Shamirra Shelton, Liliana Correa, Anita Tulsiram, and Diane Deptula joined Fernandez, Cardone and Renee George of Contracting Division for the start of what proved to be a long trip home as the city was shut down.

The second decision: Contact family members as soon as possible. Even that wasn't easy. Cell phone repeaters atop the Twin Towers no longer forwarded cell calls, and the regular phone system was jammed. People stood in long lines to use pay phones. The HR group shared cell phones and calling cards to eventually get through.

Correa and Tulsiram took the subway to get to their New York City homes, but it wasn't so easy for the rest of the group.

The PATH trains weren't running, and Johnson wasn't able to contact anyone at his home in Brooklyn. The group tried to get a hotel room, but all were already taken. They rested briefly in the lobby of the Hyatt, but were evacuated during a

Photo by F.T. Eyre

scare focusing on midtown landmarks.

Eventually they walked to 89th Street and stayed with Fernandez' cousin. There they watched the spectacle on television.

Johnson made it home to Brooklyn via subway. The remaining four took the PATH train to New Jersey. From a New Jersey Transit light rail station in Bayonne, Cardone and two men who had worked in the World Trade Center were shuttled over the Bayonne Bridge to Staten Island.

Strangers and family welcomed the weary travelers on the Staten Island side. Volunteers in church vans were available to shuttle people to their homes. People offered working cell phones to contact family members.

It was close to midnight, but the HR staff was finally home. PWD

Finding solace in each other...

by Wayne Stroup, ERDC PAO

"I was pulling into the PATH station (local subway) under the World Trade Center about 9 a.m. that morning," said Joe Seebode of the New York District. Seebode was the nearest Corps employee to the World Trade Center on September 11, the day of the terrorist attack.

"I had meetings at the Port Authority on the 62nd floor at 9:30 a.m.," said Seebode.

"As we pulled into the station, the public address system came on and asked us to exit the station immediately due to smoke conditions. We were under the World Trade Center Plaza and there was smoke in the building. I put my tie over my face and headed for the exit. There was no panic," said Seebode.

"As we got near the top of the escalator, which brings you to ground level from five floors below, we heard what sounded like a bomb going off. It was the second plane hitting World Trade Center. You certainly felt the explosion. I looked to my left, my normal exit, saw daylight, and began to run. I came out on the Vesey Street (north) side. Debris was falling all around me. I kept moving north, only later grasping how close in proximity large pieces of debris crashed around me.

"The scariest part for me was when I got away from the building about 50 yards; I ran into a wall of dazed people who were watching the terrible events unfold. I started yelling at people to get out of there – debris was still falling. I never had time to think if I was going to die. I just kept moving and trying to keep everyone else moving."

Seebode made it to the Federal Building, the New York District office location only a few blocks away, and found they were evacuating. He kept moving north in a wave of people. He was on the corner of Broadway and Worth Street when the first World Trade Center tower fell.

"I saw the first one fall. The smoke and dust cloud was behind us. It came within a block or two of us. I couldn't fathom the fact that if this all occurred ten minutes later, I would have been on the 62nd floor of the World Trade Center," said Seebode.

"People had pocket radios and, by that time, we knew it was a terrorist attack. People were shocked, and it was complete bedlam. I was lucky to meet four other colleagues from the district and we found solace in each other as we traveled together. We were 12 blocks or so farther when the second tower fell."

David Leach of the Army Corps of Engineers explains to Ted Monette, FEMA federal coordinating officer, the process for handling debris being removed from Ground Zero to the Staten Island landfill. Photo by Andrea Boober/FEMA News Photo.

Seebode walked north to Penn Station, but no trains were running. He headed to the waterfront for a ferry, but the lines were too long. He sat in a coffee shop, and like most of America, watched the day's events unfold on television.

"I tried to make it back to the district office, where he was, to begin to assist in rescue and recovery operations, but wasn't able to get there. I finally made it home around 5 p.m.," said Seebode.

That long day would lead to many more for Seebode. He went the next day to Caven Point, the New York District Marine Center, located just across the Hudson River in New Jersey. This became the temporary Emergency Operations Center for the New York District, since their center in the district office was closed.

"We were running our boats, ferrying people, equipment, and supplies. We moved thousands of people both during and after the tragedy, including many injured during the first few hours after the attack. We did whatever we could to help," said Seebode.

On the night of September 12, Seebode started working on the logistics and emergency permits needed to allow dredging in the Hudson River to accommodate barges taking debris from the World Trade Center site to the landfill. "In less than two days, we were ready to go. A lot of credit goes to our federal, state, and city partners in cutting red tape and working this through telephone calls and hand shakes.

"With the estimates of debris we were getting, I knew that to effectively and efficiently move the material out of the site would require even more barge unloading sites. Going via truck was not going to work because of the bridges, tunnels and traffic," said Seebode.

"As the New Jersey-New York Harbor Program Manager, I had been working on efforts to deepen the harbor and doing environmental restoration. I know the contractors and the issues. I knew the scrap and landfill sites were accessible by water."

On September 14, Seebode became the official Corps liaison to the City of New York. He was instrumental in several major areas that involved Corps expertise, including dredging, barging and permitting. His connections with city, state and federal officials and contractors helped ease many of the tensions surrounding the magnitude of the situation at hand.

Since that fateful day, Seebode, along with his fellow Corps team members from the New York District, other districts in the North Atlantic Division, and Corps' division, district, and laboratory offices across the nation, have been on the forefront of the Corps' response. PWD

Working at Ground Zero

by Stephen E. Browning, North Atlantic Division

I'm on-scene with my colleagues from across the Corps in support of FEMA in response to the World Trade Center tragedy. I've been on-scene since last Wednesday, September 12, 2001.

I was talking to a group of NYC firefighters at Ground Zero yesterday. They asked me how long the limited and slow "by-hand" debris removal would continue. I told them, in most cases, survivors can't live beyond 7-10 days with water; however, last year, in Turkey, survivors were found at Day 12. Three responded that they then needed to continue hand operations for 12 days. The fourth said, "Hell, these are New Yorkers! We've got to go 14 days!"

This is the best of public service. In my next life, I want to come back as a New York City firefighter!

The Chief of Engineers was interviewed by "60 Minutes II." As the world will see on "60 Minutes II," the Corps continues to perform a critical role assisting the City of New York's rescue efforts. The Chief noted in his response to the reporter's questions (60 Minutes II) the tireless efforts of the Corps structural engineers and search and rescue professionals. We are working shoulder to shoulder at the red zone with the NYPD and FDNY as part of the overall federal team. The Chief said that seldom has he seen such cohesion as he witnessed in the eyes of the rescue workers. He compared it to the kind of spirit he has seen only in the best of military units. You can see the fire of purpose in their eyes, he said. This is the same spirit you see in our team members responding to this crisis with Herculean effort.

I've never been more proud to be a public servant. Never more proud of public servants at all levels of government and the citizens we support. PWD

Friends in deed

The following is an e-mail from a young ensign aboard the USS Winston Churchill to his father.

Dear Dad,

October 16. We are still at sea. The remainder of our port visits have all been cancelled. We have spent every day since the attacks going back and forth within imaginary boxes drawn in the ocean, standing high-security watches, and trying to make the best of it.

We have seen the articles and the photographs, and they are sickening. Being isolated, I don't think we appreciate the full scope of what is happening back home, but we are definitely feeling the effects.

About two hours ago, we were hailed by a German Navy destroyer, Lutjens, requesting permission to pass close by our port side. Strange, since we're in the middle of an empty ocean, but the captain acquiesced and we prepared to render them honors from our bridgewing.

As they were making their approach, our conning officer used binoculars and announced that Lutjens was flying not the German, but the American flag. As she came alongside us, we saw the American flag flying half-mast and her entire crew topside standing at silent, rigid attention in their dress uniforms. They had made a sign that was displayed on her side that read "We Stand By You."

There was not a dry eye on the bridge as they stayed alongside us for a few minutes and saluted. It was the most powerful thing I have seen in my life.

The German Navy did an incredible thing for this crew, and it has truly been the highest point in the days since the attacks. It's amazing to think that only (a) half-century ago things were quite different. After Lutjens pulled away, the Officer of the Deck, who had been planning to get out later this year, turned to me and said, "I'm staying Navy."

I'll write you when I know more about when I'll be home, but this is it for now.

Photo by F.T. Eyre

Secretary of the Army Energy Awards reflect innovative partnerships

by Alexandra K. Stakhiv

This year's Secretary of the Army Energy Awards were presented at the Pentagon last August by the newly appointed Principal Deputy Assistant Secretary of the Army for Installations and Environment, the Honorable Geoffrey G. Prosch. A former garrison commander at Fort Polk, Prosch is no stranger to installations and the water and energy business. Citing President Bush's call to federal agencies to set a good example by conserving and reducing their energy consumption, Prosch told the winners that they are helping the Army to be that good example. "Moreover," he said, "you have become examples for the rest of the Army."

The Army has made great strides over the last 15 years. Despite the fact that national consumption has grown, Army installations have consistently lowered their annual energy usage. To date, the Army has reduced its energy use by a remarkable 25 percent since 1985 for a total cost avoidance of over $2.3 billion dollars.

"This tremendous effort is a reflection of your stewardship, your innovation and your vision," praised Prosch. "When I was at Fort Polk, the idea for installing geothermal heat pumps came from people like you in the trenches. They got a private company to pay for them by forming a long-term partnership beneficial to both parties."

"Great work often comes from great leaders," he continued, "who look for ways to demonstrate new technology as energy solutions for commercial, industrial and federal customers."

Prosch recognized three such individuals as long-term champions of the Army's energy program: ***Don Fournier***, who retired this year from the Corps of Engineers Research Laboratory after providing the Army with energy expertise for over 26 years; ***Grant Keath***, an energy leader in DCLOG who shaped the Army Energy Program to one of the best in the federal government; and ***Barnard Kemter*** , who did outstanding work this year as the energy manager for the U.S. Army 88th Reserve Support Command.

"Great work also comes from great teams," said Prosch. The awards being presented to the Army National Guard; the 293rd Base Support Battalion in Germany; White Sands Missile Range; Fort McCoy; Fort Benning and the 88th Regional Support Command demonstrate what can be achieved when we work together, he added. These organizations were instrumental in educating their managers, increasing energy awareness and implementing energy saving projects.

"Great work also comes from partnerships with the private sector because we're not going to get that money appropriated," Prosch continued. Speaking from his own experience, he praised Energy Saving Performance Contracts (ESPC) as one of the greatest tools in our arsenal to reduce energy use-- partnerships that find the best practices of the private sector and put them to work for the Army.

For example, when Prosch needed $17 million to replace all the air conditioners at Fort Polk, he couldn't get that money until he got the Huntsville Center to help him put an ESPC together. This worked so well that in the end, the Fort Polk's ESPC for geo-thermal heat pumps won the Vice-President's Hammer Award for 1997.

"With ESPC, our partners finance projects with private-sector capital that is paid back from the resulting energy savings," Prosch said. He recognized three Army installations (Fort Belvoir, Virginia; Fort

Bragg, North Carolina; and Picatinny Arsenal, New Jersey) for their success in utilizing Energy Savings Performance Contracts to replace chillers, boilers, central heating plants, lighting and other old, outdated equipment on their posts.

The Army must work at making the excellence being recognized today the norm for tomorrow, emphasized Prosch. "I am convinced that the Army should, can, and will be the service that sets the example in DoD through its leadership and good stewardship," he said.

Encouraging those present to attend the upcoming DPW Worldwide Training Workshop, he said to be sure to bring your playbook with you.

In conclusion, he asked all present to continue their great work, build upon their successes and also share them with others. "Think about the Army after next, and about the next generation of Americans. We are so very proud of you all," he added.

23rd Secretary of the Army Energy and Water Management Awards

- **Active Army – Overall Energy Program Management:**

1st Place U.S. Army Infantry Center and Fort Benning, GA
2nd Place U.S. Army White Sands Missile Range, NM
3rd Place 293rd Base Support Battalion, Mannheim, GE

- **Active Army – Energy Savings Performance Management**

1st Place TACOM-ARDEC Picatinny Arsenal, NJ
2nd Place XVIII Airborne Corps and Fort Bragg, NC
3rd Place U.S. Army Garrison, Fort Belvoir, VA

- **Army National Guard – Army National Guard Energy Working Group Team Award**

LTC Carmen Anderson
Mr. Jeff Seaton
CW3 Rickey Johns
Mr. Donald Frankland
LTC Scott Ayres
Mr. Sam Truax
LTC Don Juhasz
Mr. John Havens

- **U.S. Army Reserve**

1st Place 88th Regional Support Command
2nd Place Headquarters, Fort McCoy, WI
Individual Mr. Barnard S. Kemter

- **Lifetime Achievement Awards**

Mr. Donald F. Fournier
Mr. Grant R. Keath

In addition to receiving a lifetime achievement award at the annual Secretary of the Army Energy Awards ceremony, Dr. Don Fournier also was named a "Pathfinder" in the Federal Energy Management Program's (FEMP) You Have the Power campaign. This award recognizes energy champions who have developed and advocated innovative practices that save energy and money and improve government efficiency.

Grant Keith, DCLOG, accepted a lifetime achievement award in recognition of outstanding contributions to the Army's energy program from (left) MG Robert Van Antwerp, ACSIM, and the Honorable Geoffrey Prosch, Principal Deputy Assistant Secretary of the Army for Installations and Environment.

Winner of the Individual Award for the US Army Reserve, Barnard Kemter is a firm believer in turning off lights in empty rooms and using timing switches. He devised fixtures for a 100,000-square-foot warehouse that shut off every 12 minutes if there is no activity, saving $54,000 per year.

2001 Federal Energy and Water Management Award recipients announced

Each year, the Federal Interagency Policy Committee and the Department of Energy present this award to recognize outstanding contributions toward increased energy efficiency, renewable energy, and water conservation within the federal sector.

This is the premier energy award presented to federal employees. It is designed to draw attention to our increased federal energy and water conservation efforts, as mandated by the Energy Policy Act of 1992 and Executive Orders.

The following six U.S. Army nominations were selected to receive a 2001 Federal Energy and Management Award at a ceremony held October 17, 2001, at the Hotel Washington in Washington, DC:

- **Energy Efficiency/Energy Management**

Radford Army Ammunition Plant
Mr. Donald R. Clark,
Powerhouse Division Engineer

U.S. Army Europe 6th Area Support Group
Dr. Mehdi Ghaderi, 6th ASG, DPW

Holston Army Ammunition Plant
LTC Gary Wallace, Commander

- **Water Conservation**

Fort Carson Water Conservation Program
Mr. Richard Pilatzke,
Installation Water Program Manager

- **Alternative Financing**

Public Works Business Center, Fort Bragg
Mr. Georges Dib, Energy Manager

- **Program Implementation and Management**

U.S. Army National Guard
LTC Carmen Anderson
LTC Don Juhasz
LTC Scott Ayers
Mr. Sam Truax
CW3 Rickey Johns PWD

Georges Dib, Fort Bragg's energy manager, won the Alternative Financing Award in the 2001 Department of Energy awards lineup. Dib switched to real-time pricing (RTP) versus historic use pricing by negotiating with electrical utility supplier. With money saved, he built a new co-generation plant and invested in other infrastructure improvement projects.

LTC Carmen Anderson, 88th Regional Support Command, and her team won the Secretary of the Army Army National Guard Working Group Team Award and the Department of Energy Award for Program Implementation and Management.

(continued from page 13)

Picatinny Arsenal's winning team accepts plaque for first place in Energy Savings Performance Management.

Fort Benning's energy manager Mark Fincher was instrumental in the post winning first place for Overall Energy Program Management.

White Sands Missile Range earns recognition for energy program

by Miriam Rodriguez

When it comes to saving energy, White Sands Missile Range is among the Army's most conservative facilities.

White Sands Missile Range was awarded second place in Overall Energy Program Management at the 23rd annual Secretary of the Army Energy and Water Management Awards August 1 at the Pentagon.

The award recognized White Sands for superior achievement in energy conservation for the period of October 1, 1999 to September 30, 2000.

The energy conservation achievement recognized by the award is the culmination of an innovative and dynamic management program, which was successfully implemented while maintaining a high state of operational readiness.

"The recognition bestowed on the WSMR Installation Support Energy Team by the Chief of Staff of the Army is the culmination of several years of dedication to the Army's Energy Goals," IS Director Gloria Rider said.

"WSMR has been a leader in DTC (formerly TECOM) for a number of years in the execution of energy savings projects. We will continue to strive for reduced energy consumption through project development and awareness. My personal thanks to Julian Delgado and the energy team for their dedication and perseverance for the Army and the American taxpayer. Well done!" Rider said.

"It's an honor to be recognized throughout the Army for the efforts we have put into the Energy Management program," said Julian Delgado, Energy Management Coordinator and Utility Services Officer.

Delgado also credited the following employees for their work: Phil Heick, Mike Crutchfield, Mike Clelland and Sharon Shaddock.

Other individuals who contributed to the reductions include: Damanis "Dee Dee" Diaz, Contract Specialist, U.S. Army Robert Morris Acquisition Center, Jeffrey Munekata, Engineer, U.S. Army Test and Evaluation Command, Larry Brooks, Facilities Engineer, U.S. Army Strategic Missile Defense Command, Mary Colvin, Federal Energy Management Program Group Manager, Gary Murray, Program Manager, Custom Energy formerly of Public Service Company of New Mexico and Greg Lane, Project Manager, El Paso Boundary Commission formerly of Public Service Company of New Mexico.

White Sands Missile Range received second place in Overall Energy Program Management at the 23rd Annual Secretary of the Army Energy and Water Management Awards Aug. 1. With the trophy from left are: Phil Heick, Mike Crutchfield, Julian Delgado, Gloria Rider, Mike Clelland and Sharon Shaddock.

The award came as a result of a collaborative effort in energy and utility cost reduction by White Sands Missile Range's Energy Management Program and Utilities Services during the past five years that resulted in significant savings. WSMR attained a 29.3 percent reduction at the close of fiscal year 2000, meeting a federally imposed facilities energy reduction goal of 30 percent by fiscal year 2005. This goal was based on fiscal year 1985 consumption.

The effort contributed to reducing overall utility bills by $2.2 million over the past three years.

Some of the major factors contributing to WSMR's utility cost and energy reductions are:

1) Renegotiation of a 10-year electric contract with WSMR's largest electric supplier that saved $780 thousand annually.
2) Implementation of energy saving projects through WSMR's Utility Energy Services Contract that have saved approximately $1.2 million annually.
3) Demolition of 215 Family Housing Units which has reduced electric, natural gas and water consumption.
4) Discontinuation of Post Area irrigation.
5) Mild winter/summer temperatures.

Through WSMR's continuing management of it's UESC with Public Service Company of New Mexico, Energy Conservation Measures and Energy Conservation Projects received $836.7 thousand in institutional funding during fiscal year 2000 for projects that included: boiler tune-ups, to repair leaks in the technical area steam distribution system and repair steam lines in several buildings.

Implementation of these projects resulted in estimated annual savings of $43.9 thousand.

The Secretary of the Army Energy and Water Management Awards Program allows installations to obtain Army level recognition for outstanding achievements in energy reduction and dollars saved.

First place for Overall Energy Program Management went to U.S. Army Infantry Center and Fort Benning, Georgia. Third place went to 293rd Base Support Battalion, Mannheim, Germany.

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Miriam Rodriguez is a staff writer for the Missile Ranger at White Sands Missile Range, NM. PWD

Fort Bragg's award winning ESPC

by Alexandra K. Stakhiv

XVIII Airborne Corps and Fort Bragg, North Carolina, were recently awarded third place in the 23rd Secretary of the Army Energy and Water Management Awards for Energy Savings Performance Management. This year, Fort Bragg's Public Works Business Center also garnered a prestigious Federal Energy and Water Management Award for Alternative Financing.

According to Georges Dib, Fort Bragg's energy manager, their demand side Energy Savings Performance Contracts (ESPC) efforts in FY00 closely mirror what the installation implemented in FY98 and FY 99. They continue to focus on converting old, inefficient oil-fired systems with environmentally friendly distributed natural gas systems. This is involved with their ongoing program to expand the underground natural gas system throughout the post.

Fort Bragg has also put in additional gas fired radiant heating systems in warehouse areas and the balance of the vehicle maintenance facilities.

Radiant heating has had an especially positive impact on Fort Bragg. Heat is no longer lost when the hangar, VMF and warehouse doors are opened. Radiant heating also allows the technicians, mechanics and warehouse staff to perform their duties without wearing heavy jackets and gloves.

"The incorporation of natural gas systems is not only much more energy efficient, but it is also enabling us to continue our significant reduction in emissions," said Dib proudly. Using natural gas systems also has a positive impact in the maintenance and operations of the equipment, since natural gas systems require much less maintenance than oil fired systems.

Dib said they're continuing to:

- Incorporate DDC controls in all of the buildings being connected to a state-of-the-art Enterprise Information System (EIS), which will ultimately enable them to control all facilities from a central energy command center.
- Implement a lighting retrofit program that is bringing the lighting systems up to IES standards, which is having a very positive effect on vehicle maintenance facilities, warehouses, barracks, administrative and recreation facilities.
- Upgrade/replace motors and chillers with the most energy efficient models available.

However, the highlight of Fort Bragg's ESPC program in FY00 has been the incorporation of a concept called Total Energy Account Management (T.E.A.M.™) Services.

"We discovered early on in our ESPC program that the fuel that funds ESPC, energy and O&M related savings would be inadequate to implement the infrastructure improvements that Fort Bragg desperately needs," Dib explained. "Our energy rate was relatively low and our O&M budget was totally inadequate. We realized that our ESPC program would not be able to generate more than $25,000,000 in facility improvements, when in reality, we need more than four times that just to take care of our basic infrastructure needs."

A relatively simple concept, T.E.A.M.™ Services requires the coordination of all energy-related activities to realize the full benefit of the program. T.E.A.M.™ Services works closely with the customer to develop a strategic energy management program that:

- ➤ Reduces cost and manages risk in purchasing energy.
- ➤ Optimizes the delivery efficiency of the energy through central, and distributed heating and cooling plants.
- ➤ Selects energy sources and switch fuels in real-time to reduce costs and minimize emissions.
- ➤ Utilizes a state-of-the-art, web-based information system to monitor and manage all facets of energy operations.
- ➤ Coordinates all privatization and outsourcing activities to maintain the efficiencies of an integrated operation.
- ➤ Identifies and captures savings in energy costs before they go through the meter as well as the typical after-the-meter demand-side savings. These savings are generated in a variety of ways ➤

Energy Reductions Related to ESPC Projects Completed at Fort Bragg Through FY00

Task Orders	Projects	Demand Reductions (kW)	Electric Reductions in FY00 (kWh)	Fuel Reductions in FY00 (MBTU)	Total Energy Reductions in FY00 (MBTU)	Reductions as Percents of Total Fort Bragg FY00 Utilities	Energy Reductions Over Contract Term (MBTU)
TO1	SAAF Lights	128	415,151	0	1,416	0.02%	26,630
TO2	SAAF Mechanical	1,105	3,526,006	49,115	81,146	1.03%	1,406,352
TO3	O'Club	63	510,651	2,387	4,129	0.07%	88,781
TO4	JSOC	3,736	1,433,238	3,048	7,938	0.13%	132,965
TO5	82nd Lighting	1,587	6,260,389	0	21,360	0.38%	402,288
TO6	Demo Lighting	245	1,828,861	0	6,240	0.11%	43,681
TO7	Knox Street	83	292,752	10,116	11,115	0.19%	247,306
TO8	A-Area VMF	8	46,488	17,328	17,487	0.30%	367,219
TO9	NCO Club	30	474,912	780	2,400	0.04%	52,409
TO10	C-Area VMF	0	51,672	15,180	15,356	0.26%	307,126
TO12.1	Natural Gas	0	0	0	0	0.00%	0
TO12.2	Load Mgt & RTP	5,500	0	0	0	0.00%	0
	Totals	12,485	14,840,120	97,954	148,588	2.51%	3,074,756

Fort Belvoir replaces/upgrades aging infrastructure

Since 1998, Fort Belvoir has been actively engaged in one of the most aggressive and comprehensive energy conservation programs, Directorate of Installation Support officials said.

In June 1999, Fort Belvoir and the Military District of Washington finished an 18-month procurement for the largest Energy Savings Performance Contract awarded to date. The MDW-wide contract, valued at $220 million, will allow Belvoir to upgrade a dozen different Energy Conservation measures. Directorate of Installation Support officials estimated that these ECM will save Belvoir more than $2.5 million annually in energy costs.

- Lighting efficiency retrofit which could save up to $804,000 annually.
- Water conservation rehabilitation of Fort Belvoir's central steam plant with annual savings of nearly $120,000.
- Central boiler plant modernization involving the moderation of the 1960 vintage fuel-oil boilers, chiller replacement and its 50 cooling units, which is estimated to save more than $237,000 a year.

The plan also calls for the replacement and upgrading of aging infrastructure.

"The benefits of this contract will greatly increase the reliability of energy systems throughout the post," said Brendon Owens, an energy engineer contractor with SpecPro Inc., which supports Fort Belvoir's environmental and natural resources division.

(l to r) Brendan Owens, Wayne Spencer, Doug Martin and Patrick McLaughlin form the winning team that garnered third place in this year's Secretary of the Army Energy Awards for Energy Savings Performance Management.

"Some of these systems have been operating since 1965, the technology we're replacing these systems with are improving Belvoir's energy cost and efficiency tremendously," he said.

Directorate of Installation Support officials stated that the environmental benefits of the ESPC will have a positive effect by reducing green-house gas emissions by more than 3,000 metric tons.

Fort Belvoir was presented its award last June after the on-site evaluation. The site evaluation team ranks installations based on criteria outlined in Army Regulation 11-27, Chapter 8, Appendix C, and information provided in the original nomination package, said Jeffrey Hager, energy program manager at the U.S. Army Logistics Integration Agency.

"Basically, what it comes down to is we're saving a great deal of money by upgrading or replacing out-of-date equipment," Owens said.

(Extracted from an article in the Belvoir Eagle.)

PWD

(continued from page 16)

including rate re-negotiation, procuring energy on the open market, Real Time Pricing, selecting different rate structures, load shedding and peak shaving. All savings are then captured to fund customer infrastructure improvements.

Fort Bragg has also implemented a load management program that incorporates the 249th Battalion's emergency generators. Dib said they are competing their natural gas procurement from several different vendors and the open market, having negotiated substantially lower commercial rates from the local utility.

"With this money, we can build something more efficient and divert the money formerly paid to the utility company," he continued. "I can now invest in infrastructure improvements with no extra cost."

To ensure the maximum possible benefit, Fort Bragg formed a leadership team to manage and direct the ESPC Program. The Strategic Integrated Solutions Team (IST) provides direction, sets priorities, resolves conflicts and essentially acts as a board of directors for the ESPC program and its related activities. It is co-chaired by the Garrison Commander, COL Addison Davis and the Director of the Public Works Business Center (PWBC), COL Robert Shirron. Other members include the Deputy Director of PWBC, Chiefs from the Business Office, Facility Maintenance and Construction Office, Energy Manager, Legal and Contracts as well as representatives form the Army Corps of Engineers and Honeywell.

T.E.A.M.™ Services is revolutionizing Fort Bragg's ability to maximize the effectiveness of the ESPC program. They are developing this approach with their ESCO and energy partner, Honeywell, enabling the post to capture supply-side savings and apply them towards traditional demand side projects.

POC is Georges Dib, Energy Manager, Fort Bragg, e-mail: dibg@bragg.army.mil

President orders agencies to purchase energy-efficient devices

President Bush signed Executive Order 13221 last month, directing agencies to purchase products that consume no more than one watt when they are in "standby power" mode.

The order applies to commercially available, off-the-shelf devices that use either external standby power, or contain an internal standby power function, such as cell phones and computer equipment.

Before signing the order, Bush stated, "One of the ways that our nation wastes energy is through what they call vampire devices. These will be a battery charger, cell phone chargers, computer systems that we really think we're not using energy when plugged in but, in fact, are. And so we've set what we call a one-watt standard throughout the federal government, that we expect our agencies to be ridding themselves of the vampires and using energy conservation devices."

E.O. 13221, President Bush said, is part of the Administration's effort to have federal agencies lead the way in energy conservation.

Under the new order, if a product is not available with a standby mode of one watt, agencies are instructed to purchase products with the lowest standby power wattage. Additionally, agencies are not required to adhere to the one-watt standard if it would compromise the usefulness or performance of the device.

By the end of this year, and annually thereafter, the Department of Energy (DOE) will consult with the Department of Defense and the General Services Administration to compile a preliminary list of products to be subject to the new requirements. The list will be finalized by DOE.

The Executive Order can be found in the August 2nd Federal Register, Vol. 66, No. 149, pp. 40569-40571. PWD

Energy use cut back at Fort Irwin

by Chuck Mueller

Energy consciousness is skyrocketing like the temperatures at this sun-baked desert Army base.

Soldiers turn the lights off early in their barracks. Families limit the use of electrical appliances. And many street lights on the post are solar powered.

"We shut off the lights at our soccer and softball fields when games are over, turn off illuminated billboards and ask residents not to leave their porch lights on," said MAJ Rob Ali, spokesman for the Army's National Training Center at Fort Irwin.

The power-saving measures seem to be paying off: Fort Irwin's electrical demand dropped 4 percent in July compared to the same time last year. In June, the base used 2 percent less electricity than in June 2000.

"Our postwide campaign to encourage ... (saving) electricity has been very successful," Ali said. "Our progress in saving energy is being watched by the Department of Defense and is being used as a model for other military installations."

Army officials came up with ways to save energy.

"We've asked residents in family housing to turn off porch lights by 9 p.m.," Ali said. "And we've encouraged them to use appliances, such as dishwashers and clothes dryers, during off-peak hours. Everyone is very cooperative."

In many buildings at the fort, thermostats are set at 78 degrees to shave electric costs.

Fort Irwin uses energy-efficient heating and cooling units in newer family housing on the military post.

"The demolition of older buildings also resulted in a big savings in energy," said Rene Quinones, the fort's energy manager. "They are less efficient to heat and cool than newer structures."

Some of the demolished buildings were more than 60 years old, dating to when Fort Irwin opened at the start of World War II.

The fort is not jeopardizing safety by conserving energy, said Ali.

"We're keeping the lights on in parking lots and on streets," he said.

The 640,000-acre fort is the Army's premier training center and one of the largest employers in San Bernardino County. Home to 4,800 soldiers and 5,000 family members, it has more than 3,300 civilian employees and contractors.

When troops from across the nation arrive for month-long maneuvers, the fort's population increases to 16,000. Ten brigade-level training exercises are conducted annually.

(This article originally appeared in The Sun, a San Berbardino, CA, newspaper.) PWD

For an electronic copy of the latest Digest, go to http://www.hq.usace.army.mil/isd/ For back issues, click on publications.

Fort Irwin DPW fights energy bills and terrorism

by Rene Quinones

As a result of electric deregulation, summer electric bills at Fort Irwin, California, have risen from $1,000,000 a month to $1,700,000 a month. Fort Irwin's Directorate of Public Works (DPW) personnel have found a way to fight both the high-energy bills and terrorism at the same time. They plan to install security solar reflective window film across their post.

The solar film will reduce both heat gain and protect fabrics from ultra-violet light.

Installation of this film will also help support the installation's Force Protection Program by protecting occupants from glass shards by making the windows fragment resistant in the event of breakage.

The program will encompass all barracks on the west side, the chapel complex, Burger King, PX, Commissary, medical/dental facilities, military police station and the clubs.

Building managers will be contacted as soon as a schedule is established for installation. Occupants will be required to move furniture away from their windows, and the contractor will remove and replace the window drapes and blinds. The DPW expects to begin installing the solar reflective window film in the cantonment area.

Funding for this project was included in the FY 01 Supplemental Appropriation for DOD. As part of that action, Fort Irwin has received $280,000 for the energy efficient solar window film.

The project has an estimated payback of three years.

For additional information, please contact Mr. Rene Quinones, (760) 380-5048, e-mail: rene.quinones@irwin.army.mil

Rene Quinones is the energy manager at Fort Irwin. PWD

Alternative energy utilization at South Pacific Division customer installations

by Ron Niemi

The South Pacific Division (SPD) Installation Support Office is working with the Department of Energy, Corps Labs, Sandia Labs, Lawrence Berkley National Labs, and the Navy Geothermal Program Office to identify alternative energy resources at our customer sites throughout the SPD area.

We are investigating solar, wind and geothermal alternatives for producing power, with the goal of producing and selling energy to the public electricity grids, and generating funds for our Federal Government customers.

Our initial efforts are focused on Sierra Army Depot in Herlong, California, and Hawthorne Army Depot in Hawthorne, Nevada, but later will be extended to other SPD customer installations.

The Navy's Geothermal Program Office (GPO), located at China Lake, California, is tasked with supporting DOD entities in researching and developing geothermal resources. GPO developed and manages the Coso geothermal facility located at China Lake. This facility was initially tested by GPO, who then established contracts with private industry to develop the resource, and now oversees the contractor run operation.

The energy contractor (California Energy Company) has funded over $1 Billion of construction, and, to date, has produced $1.5 Billion worth of electricity. Since its inception in 1987, the Coso facility has produced over $130 Million in revenue to the Navy, and an additional $36 Million in savings/revenue to the China Lake Commander, with the contractor receiving the remaining funds.

GPO is providing a team of investigators to test both Sierra and Hawthorne, with initial studies to take place in September 2001. If testing proves positive, GPO will then work with ISO, the Army Material Command, and the two installations to establish contracts with industry to develop the resources.

Corps Labs and National Labs are working with us to evaluate both Sierra and Hawthorne for solar and wind resources. They are scheduled to conduct initial studies at the two facilities in September 2001.

Our efforts are directly in line with the HAC August 2001 guidance that states *"The Secretary shall make maximum practicable use of energy efficiency products and services and unconventional and renewable energy resources, consistent with the plan required by subsection (c)."*

POC is Ron Niemi, (916) 557-7890, e-mail: ron.niemi@usace.army.mil

Ron Niemi is the Chief of Installation Support at SPD. PWD

With worldwide trends affecting the U.S. energy supply, the Army has been exploring renewable energy options that will give its installations more sustainable and diverse ways to meet power requirements. The Office of the Assistant Chief of Staff for Installation Management (ACSIM) asked the Construction Engineering Research Laboratory (CERL) to develop guidance that surveys alternatives to fossil fuels. The following article is excerpted from the draft guide, which will be distributed in FY02.

Renewable Energy Guide to be published

by Roch Ducey

Executive Order 13123 and the most recent National Energy Policy have directed government agencies to increase the use of renewable energy technologies. The Report of the National Energy Policy Development Group, May 2001, fully outlines these directives. It notes that although harnessing these resources requires careful planning and advanced technology, renewable energy supplies are critical to ensuring that America's future generations will have access to the energy they need.

Solar, wind, geothermal heat, and biomass alternatives to conventional systems have not only advanced to become life-cycle cost-effective for Army installations, but are more likely to meet compliance with environmental regulations and reduce dependence on finite fossil fuel resources from foreign suppliers.

Building integrated solar technologies, such as photovoltaic (PV) power systems, solar water heating systems, and transpired solar collectors (solar walls) are specifically promoted for use by federal agencies through the Department of Energy's (DOE) Million Solar Roofs Initiative, part of the Buildings for the 21st Century Program. The Army also uses many off-grid, stand-alone applications of PV power systems on training and test ranges, for lighting, communications, and a wide variety of field equipment.

For large-scale production of electricity, recent advances in turbine and blade design have made windfarms a cost competitive option in many more U.S. electric utility markets. In addition, the new wind turbines begin producing power at lower wind speeds than the first generation turbines, opening up vast regions in the U.S. with enough wind to generate electricity. For smaller scale, off-grid applications, there is a class of small wind turbines that can be used as stand-alone power supplies or combined in a hybrid power system with a PV array and/or conventional engine-driven generators. Efforts to expand the use of wind-generated electricity at federal facilities are encouraged by a DOE program, Wind Powering America.

Several Army facilities have used geothermal heat pumps for many years. There are, however, high-temperature geothermal resources at a number of Army installations in the Western and Southwestern U.S. that have not been fully assessed for possible development. Potentially, these high-temperature resources could be developed as large-scale electric power plants, similar to one that has been operating successfully for over 15 years at the Naval Air Weapons Station, China Lake, California.

The term "biomass" means any plant-derived organic matter available on a renewable basis, including dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials. Handling ➤

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Would you like to explore the financing options for energy efficiency projects? Receive technical assistance on how to improve the energy performance of your buildings? Find out how to bulk purchase ENERGY STAR labeled products? Learn about the process and benefits of benchmarking your portfolio of buildings? And more?

The U.S. Environmental Protection Agency's ENERGY STAR invites you to participate in one or more presentations delivered via conference call and the Internet each month. You can view the slide presentation and participate individually using your own computer and office phone, or gather interested colleagues together around one phone and computer. During the presentation, you can discuss your questions with energy and financing expert consultants.

There is no cost for your participation. Contact Dr. Marc H. Siegel today at (858) 484-9855, e-mail: siegel@ittn.org PWD

Energy reporting with WEB HQRADDS

In January 2000, the U.S. Army Corps of Engineers, Installation Support Division fielded the web Headquarters Revised DUERS Data System (HQRADDS) to energy reporting installations. Currently, utility and/or petroleum data are reported by all active Army, Reserve and National Guard sites using the HQRADDS web-based system.

HQRADDS provides energy consumption and fuel inventory data to a HQRADDS Armywide database accessible to MACOM headquarters and the Department of the Army users.

The most important step in reporting energy data is the preparation.

The energy data is prepared by summing the cost and quantities and converting consumption values to the required units of measure. Separate totals are required for each product for mobility, family housing, process, mobility substitution energy (MSE) and other buildings. Few installations report process or MSE consumption. PC-based spreadsheets should be used for these recurring calculations.

The data must be reported in the specified units-- electricity in megaWatt hours (MWH), natural gas in thousands of standard cubic feet (KSCF), and petroleum in barrels.

To review data inputs, run a Petroleum Details Report for DUERS 1 or Utilities Details Report for DUERS 2.

HQRADDS/LIA Energy Bulletin Board

Attention energy reporters! Got a question and need an answer quick? There's no need to wait. The HQRADDS/LIA Bulletin Board is an on-line 24 hours a day, 7 days a week information center.

If you run into a HQRADDS related problem and can't contact the HQRADDS team, use the search function, follow instructions and you could find a solution. If you can't find a solution to your problem, post a question and we'll respond during normal business hours. However, it's always a good practice to review the bulletin board prior to any entries. The HQRADDS team will periodically post important messages for all reporters to read and heed. Also, click on Energy FAQ's, for those items that are common errors.

Andrew Jackson

For functional support, please contact Andrew Jackson at (202) 761-5849 DSN 763 or e-mail: andrew.m.jackson@hq02.usace.army.mil PWD

(continued from page 20)

technologies, collection logistics and infrastructure are important aspects of the biomass resource supply chain. Biomass technologies use these renewable resources to produce an array of energy-related products including electricity, liquid, solid, and gaseous fuels, heat, chemicals, and other materials.

Biomass technologies rank second (to hydropower) in renewable U.S. primary energy production and account for 3 percent of the primary energy production in the United States. Though biomass energy products are used extensively at Army installations (ethanol fuels, for example), large-scale biomass energy facilities are not typically developed "inside the fence" - with at least one exception being the wood-fired central heat plant at Fort Stewart, GA, which uses wood waste from the local lumbering industry.

For more information on renewable energy sources, please contact Roch Ducey at ERDC-CERL, 800-USA-CERL, ext. 7444, e-mail: roch.ducey@us.army.mil.

Roch Ducey is a researcher at CERL. PWD

HeatMap, HEATER show best options for energy supply systems

Two software tools can take the guesswork out of choosing the best option to deal with DoD's aging steam and hot water distribution systems. They are HeatMap, a commercial product licensed for DoD use, and HEATER, being developed at the Engineer Research and Development Center's Construction Engineering Research Laboratory (ERDC-CERL).

Several options exist for improving energy supply systems. Some installations are choosing to completely abandon their large central heating plants (CHPs) and distribution systems in favor of a "decentralized" system with small gas-fired boilers installed in each building. Others are choosing to keep and modernize all or part of their existing central systems. Many are seeking the assistance of third-party providers through Energy Savings Performance Contracts (ESPCs), operation and maintenance contracts, or privatization.

Aging central heat plants have poor efficiency and reliability. HeatMap and HEATER can show the best way to upgrade them.

Making a wrong decision can have consequences for many years. For this reason, it is important to consider all relevant factors and use consistent, engineering-based procedures to ensure that the best alternative is chosen. That's where HeatMap and HEATER come in.

HeatMap models the different upgrade options using several inputs. It uses existing computer-aided design (CAD) maps, digitized drawings, energy cost and usage data, and other information to ensure that the system is properly sized to meet demands and to show the life-cycle cost of each potential replacement or renovation.

HEATER will complement HeatMap by providing standard condition assessment tools, condition prediction models, and maintenance/repair comparisons. HEATER and HeatMap are interfaced so that data about the plant and distribution system only needs to be entered once.

At Fort Lee, Virginia, HeatMap simulations helped decision-makers choose a stand-alone heat plant strategy to replace four deteriorated CHPs. "CERL ran the program based on all the information we gave them, and it showed that installation of independent hot water boilers in each building is the way to go," said Chaouki "Joe" Baassiri, senior mechanical engineer in Fort Lee's Directorate of Engineering and Logistics.

The analysis showed that this alternative would provide lower total life-cycle cost, and would be more economical and efficient than the central plant. "This project will eliminate and replace old, oversized, and inefficient central energy plants and abandon in-place the existing underground steam and condensate piping," he said.

Further, the HeatMap study, completed during 2000, did not take into account the skyrocketing energy costs of the past year. Replacing the CHPs with high-efficiency boilers and avoiding heat losses through a distribution system will now mean energy costs are minimized at a time when rates have tripled.

"Just from a life-cycle cost alone, the decentralized system was the way to go," Baassiri said. He also noted that their replacement plan will allow a phased approach, by which buildings can remain occupied as the modular components are installed.

"The stand-alone systems will mean minimal impact on our customers. We won't have to move them to other buildings or provide temporary heat, which drives the project cost up," he said. "The systems will also give us redundancy – if one boiler goes down, one of the others will come online so there will be no disruption in service."

HEATER will be implemented during FY02 at Fort Carson, Colorado, and Adelphi Army Research Laboratory, Maryland. HEATER is scheduled for release in mid-FY02.

For more information about HeatMap or assistance with modeling alternatives, contact John Vavrin at CERL, 800-USA-CERL, ext. 7570, e-mail: john.vavrin@erdc.usace.army.mil.

POC is Vicki Van Blaricum, (800) USA-CERL, ext. 6771, e-mail: vicki.l.vanblaricum@erdc.usace.army.mil PWD

Latest version of Project Assistant helps energy managers

by Elisabeth Jenicek

The Energy Manager Project Assistant (PA) is a windows-based software tool that allows users to perform quick analyses of energy saving technologies.

PA is an offshoot of the Renewables and Energy Efficiency Program (REEP) tool. The energy and water conservation opportunities in REEP that generate the most savings were modified and included in PA.

ERDC-CERL recently upgraded the PA software program to include 13 additional energy conservation opportunities (ECOs) and water conservation opportunities (WCOs). The latest version of PA also allows the user to prepare a life-cycle cost analysis for doing a project through an Energy Savings Performance Contract (ESPC).

The shortage of special energy funding over the past decade increased the importance of funding those technologies that pay for themselves the quickest. At the same time, staffing is at an all-time low and manpower is not available to collect data and prepare laborious calculations. PA was created to fill this gap by providing a standard template for DD1391 energy project calculations and narratives. This program allows energy managers to quickly and accurately develop information for DD1391 project documentation and supporting economic analyses using a standard method.

LED exit lighting is one energy conservation opportunity that the new PA software can evaluate.

While there is a format for DD1391 reports and calculations, the DD1391 includes no template for energy calculations and project narratives. Typically, each energy manager develops an individual method of analysis and narratives and includes them along with the DD1391 submission. Sometimes the analyses are oversimplified or contain factors of unknown origin. Some submissions contain mathematical errors or fundamental flaws in analytic methodologies.

The PA tool saves time and ensures consistency in calculating energy and dollar savings by incorporating common assumptions and standard algorithms. Other benefits to the PA program, in addition to quick, accurate, and consistent project preparation, include accurate "what-if" analyses of individual conservation opportunities within a building or set of buildings, and ability to evaluate ESPC proposals for estimated energy/cost savings.

Users provide specific site information to the analysis and add narrative to describe the project at their installation. PA calculates resource and cost savings and generates DD1391 and supporting life-cycle cost analysis (LCCA) forms, a list of input data and assumptions that can be included as part of the supporting documentation. PA also contains design and application information about each ECO/WCO to help the user make informed choices about the technologies.

Generation of a traditional LCCA form allows economic analysis to request/justify government funding. A second LCCA form allows the user to evaluate ESPC proposals for energy savings and economic viability.

The prototype PA software was created in 1999 and contained three lighting ECOs. The complete list of ECOs/WCOs is: resource-efficient washing machines, faucet aerators, shower heads, flush valves, LED traffic signals, 4-foot fluorescent lighting, compact fluorescent lighting, T-5 fluorescent lighting, energy-efficient motors, refrigeration liquid pressure amplifiers, high-efficiency chillers, high-efficiency gas boilers, direct digital controls and adjustable speed drives.

PA is an offshoot of the Renewables and Energy Efficiency Program (REEP). The energy and water conservation opportunities in REEP that generate the most savings were modified and included in PA. PA software is available on the Strategic Energy Planning web site at http://owww.cecer.army.mil/SEP/pa.htm.

For more information, please contact Elisabeth Jenicek at CERL, 800-USA-CERL, ext. 7238, e-mail: elisabeth.m.jenicek@erdc.usace.army.mil

Elisabeth Jenicek is a researcher in ERDC-CERL's Energy Branch. PWD

Fort Hood links digital controls to one interface

by Dana Finney

When Darrell Cimbanin takes a heating or cooling related trouble call, he has to pack up his laptop, drive to the customer's building, and plug into the control system to diagnose the problem. Then he either makes adjustments or goes back to supply for parts to repair whatever has gone wrong with the heating, ventilating, and air-conditioning (HVAC) system.

That's beginning to change as new tools to integrate Fort Hood's direct digital control (DDC) systems go online. The Engineer Research and Development Center's Construction Engineering Research Laboratory (CERL) is helping the DPW exploit sophisticated "open systems" computer technology that will allow different types of DDC units to "talk" to each other.

"The direction we've been trying to go for the past couple of years is toward a base-wide system that can talk to all your controls," said Cimbanin, {Controls Technician} in Fort Hood's DPW. "Having a single system will cut downtime, allow us to respond faster to our customers, and give us a way to perform troubleshooting remotely."

Fort Hood has over 5,000 buildings and many of them use DDC systems to control the HVAC equipment. Because of the government's competitive procurement process, over the years these systems have been purchased from many different manufacturers. "With very few exceptions, each DDC system uses the vendor's proprietary means of communicating its operating data," said David Schwenk, CERL researcher for the project. "That makes it very difficult to put energy management strategies in place and control HVAC equipment operations."

The controls at Fort Hood will be linked together using a product called Niagra FrameworkTM TridiumTM. According to Richard Strohl, {Supervisor of the Controls Section} in the DPW, "This is basically a type of operating system that includes some special hardware and software. It allows DDC manufacturers to develop drivers that will translate their communication protocol into an 'open' or standard protocol."

The open language required for Fort Hood's building-level systems is LonTalk-TM. CERL is developing master plans that call for any future DDC purchases to be "LonMark Certified," said Schwenk. "As a transitional feature, the Tridium system supports other protocols including BACnet and about 75 different proprietary protocols. This helps Fort Hood to migrate from their legacy systems." This open communication feature has virtually limitless possibilities for tying together management systems on an installation. Anything from electric meters to wastewater discharge to detecting chlorine levels in swimming pools could be integrated into this open network.

The Corps of Engineers Fort Worth District has been instrumental in helping procure and put this system in place. The work at Fort Hood is part of a Military Construction, Army (MCA) project for a General Instruction Building (GIB). In effect a small college, initially all the GIB's controls systems will be integrated. After the MCA project is complete, Fort Hood plans to link existing controls on the post to the Tridium workstation. A recent meeting at the Fort Hood DPW with the Huntsville Engineering Support Center (Mandatory Center of Expertise for UMCS), CERL, Fort Worth District, the Fort Hood DOIM Office, served as a kick-off meeting for this multi-year open-systems integration effort.

In addition to having a central operator workstation, the system is web-based, with varying levels of access given users as needed. In some cases, building occupants will be able to control their temperature by logging on to the web. Passwords and permissions will be assigned to maintain system security. According to Cimbanin, ➤

Shawn Bodkins (left) and Darrell Cimbanin in Fort Hood's DPW work on multiple workstations for HVAC controls that will all be tied to a single workstation.

All must register in Army Knowledge Online

by LTG Peter M. Cuviello

On 8 August 2001, the Secretary of the Army and the Chief of Staff issued guidance relative to achieving our Army Knowledge Management vision. One specific directive is that all active duty military, civilians, National Guard, and Reserve individuals register for an account on our enterprise integrated portal, Army Knowledge Online (AKO).

AKO, in its current evolving form provides a capability to move the Army toward a network-centric, knowledge-based force. As such, your AKO account will initially provide these types of capabilities:

- Universal e-mail addressing scheme (first.lastname@US.ARMY.MIL).
- Army-wide directory service through the ability to automatically forward AKO mail to your primary unit email address. (This allows you to retain a single e-mail address throughout your career and provides the Army with a global directory from which information can be disseminated. For this directory to be effective, you MUST forward your AKO e-mail to your primary account, if AKO is not your primary account).
- Several powerful search engines.
- Access to over 2700 web page links.
- Access to various Army Knowledge Centers and functional pages (depending on your privileges).

Coming in the near future, the following capabilities will be available:

- Secure instant messaging and chat.
- News feeds.
- New, improved White Pages.
- Content Management of functional pages by the functional proponent.
- A directory of and access to all Army personnel.
- PKI/CAC compatibility.
- Portal of portals.
- Rich web e-mail.
- Personalized (individual and unit) information access.
- Enterprise and functional information collaboration and access.
- Group calendaring.

In short, you will soon become PORTAL CENTRIC to conduct your business, whether it be collaboration, e-mail, calendaring, or data/information access. This is an evolving capability, so stay tuned as it matures.

Full accounts are authorized for all Army (Active, Guard, Reserve, Individual Ready Reserve, Retired and Medically Retired) and DA Civilians. Contractors, Local, National, and Non-Appropriated Fund (NAF) employees supporting Army missions can be sponsored by an authorized account holder to receive a guest account. PWD

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the integrated platform provides a powerful tool for both maintenance and management.

"Now when we get trouble calls, we send people all over the post to make repairs," he said. "The Tridium workstation will let us immediately call up the DDC system at any building, find out what's going on -- for example, with the water temperature, chiller or boiler status, or so on -- and then potentially make changes to correct it. Or I can call the mechanics and tell them what part to take out to the building for repairs."

As a management tool, Strohl said the system integration will make alarming, logging, trending, and reporting easier and more accurate. It will also enable better post-wide control over energy use. For example, when units deploy and only two or three living quarters are left occupied in a housing block, the DPW can turn off heat or cooling to all but those rooms being used.

With worldwide web access, users with proper passwords can access information about a building's HVAC system anywhere, 24 hours a day. That means Cimbanin can potentially fix a problem from his home without driving back to the post in the middle of the night. "I could be in Illinois and check the web to be certain that the CG's office is comfortable," he said.

HQ USACE will use lessons learned from Fort Hood's research project to update two Corps of Engineers Guide Specifications (CEGS) and a Technical Instruction (TI): CEGS-15951, Direct Digital Control for HVAC, CEGS-13801, Utility Control Systems, and TI 810-11, HVAC Control Systems.

For more information about integrated DDC systems or any HVAC-related question, contact David Schwenk at CERL, 800-USA-CERL, ext.7241, david.m.schwenk@erdc.usace.army.mil.

Dana Finney is the public affairs officer at ERDC-CERL, Champaign, Ill.

(Disclaimer: Mention of any vendor or product name does not imply endorsement by the U.S. Army Corps of Engineers.) PWD

Energy Savings Performance Contracting Program provides environmental benefits

by Jean Pavlov

The original intent of the Energy Savings Performance Contracting (ESPC) program was to reduce energy demand, and thus save federal dollars at government facilities; but the program's goals have resulted in an additional benefit. Reducing energy demand also reduces environmental contaminants.

The ESPC program is a process in which a contractor funds and provides infrastructure improvements and energy-saving equipment and maintains them in exchange for a portion of the energy savings generated.

The ESPC program helps the federal customer meet congressionally imposed energy regulations, again without significant investment in dollars. Probably, the single most important factor is that the ESPC contractor is paid from actual savings his actions generate.

Environmental Benefits

Environmental savings are the direct result of reductions on the demand side of the energy usage being abated. If the demand for the energy is reduced, the requirement to produce that same amount of energy is also reduced. Therefore, there are significant reductions in the environmental pollution associated with the production of energy that is now no longer needed. The greater the demand reduction, the greater the associated environmental pollution reduction.

The ESPC program utilizes the Renewables and Energy Efficiency Planning (REEP) model to analyze the economic potential for investment in energy efficiency and renewable energy technologies.

REEP determines the amount of air pollution offset by implementing each conservation project. The amount of pollution not created by saving energy is a function of several factors: the annual energy savings, how the energy is consumed (e.g., the combustion efficiency of a piece of equipment), and if electricity is involved, how the electricity is generated.

The REEP program is a stand-alone energy-management software developed by the U.S. Army Construction Engineering Research Laboratories (CERL). The REEP software and documentation is obtained directly from CERL. The need for a tool such as REEP continues as Department of Defense (DoD) energy, water, and pollution reduction targets continue and increase.

REEP was developed in 1992 to provide national DoD energy reduction targets and cost estimates to congress. Motivation for the DoD to address energy conservation originated from the recognition that significant dollar savings could be achieved though the improved operations, maintenance, and energy savings retrofits to existing facilities. A method of identifying potential energy saving candidates had to be developed before a strategy for investment in energy conservation retrofits could be implemented.

Roch Ducey, Principal Investigator, Energy Branch at CERL states, "The figures Huntsville currently has concerning their total environmental savings are calculated by the REEP program by using a series of algorithms in conjunction with installation specific data on energy conservation potential." Of significant interest is the carbon dioxide savings. This is a major greenhouse gas and atmospheric carbon is of key interest when determining overall environmental savings.

"The savings associated with Energy Savings and Performance Contracting are usually measured in MMBTUs and dollars," said Sally Parsons, Huntsville Center's ESPC Progam Manager. "Measurement and verification guidelines published by the Department of Energy are used to determine the actual energy saved as a result of ESPC projects." The particular method used for specific projects depends on the type of technology used in the ESPC project.

The ESPC program is a tremendous success both in the area of energy dollars saved and reduction of environmental pollutants avoided due to the installation of more energy efficient equipment. The customer shares in these savings with the contractor, and both can operate on a win-win basis.

Total Environmental Savings for the ESPC effort at the Huntsville Center

Sulfur Oxides	**1,105 Tons**
Nitrogen Oxides	**399 Tons**
Carbon Dioxide	**111,612 Tons**
Particulates	**57 Tons**
Hydrocarbons	**2 Tons**

Chart shows environmental savings at Huntsville from initiation of REEP program in 1992 to February 2001.

POC is Sally Parsons, Program Manager for ESPC, (256) 895-8233, e-mail: sally.b.parsons@usace.army.mil

Jean Pavlov is a public affairs specialist in the Public Affairs Office at Huntsville. PWD

Fort Bragg sets goals for water conservation, reuse

by KrisTina Wilson

Water consumption on Fort Bragg increased about 72 percent between 1992 and 2000 – without an increase in population. Currently, eight million gallons of water per day is taken from the Little River, Fort Bragg's main source of drinking water, to meet the needs of the installation.

Upstream from Fort Bragg, in the rapidly growing community of Raleigh-Durham-Chapel Hill, the population has more than doubled since 1970. It now also must take water from the same basin as Fort Bragg to support urban growth.

Water conservation isn't just vital to Fort Bragg-- it's crucial to the long-term welfare of the region. For sustainability planners, when limited resources threaten the vitality of the surrounding communities, readiness can be affected.

"We realized our water source could be jeopardized upstream," said Christine Hull, the Long-Term Sustainability Planner for Fort Bragg. "And of course, we are upstream of someone else."

The installation gathered representatives from across the region to find ways to meet the goals for water conservation established at the Environmental Sustainability Executive Conference in April. The water supply goal, revised since April, is to reduce the amount of water taken from the Little River by 70 percent by 2025.

Planners realized that achieving such an aggressive goal would require new thinking – and ideas from atypical sources. On the team with environmental managers, master planners and engineers some new faces appear: a Special Forces soldier, an aviation warrant officer, MWR officials, Air Force representatives, State regulators and community leaders.

"We knew that the community needed to be an integral part of our planning process so they would have a vested interest in the goals," said Paul Wirt, Chief of Fort Bragg's Environmental Compliance Branch. "I am impressed with the knowledge and level of interest our stakeholders have shown. These guys jumped right in on this goal and have a true concern in reducing our water consumption. The diversity of this group only makes it stronger."

Meeting at least monthly since the group was formed, the "Water Supply" team already has established objectives to be met within the next five years.

Meeting the early benchmarks will make the 25-year goal more attainable, Hull said. "What we've done is lay the groundwork for our ability to conserve water in the out years," she said.

The team identified modification of the Installation Design Guide as the first step toward achieving conservation goals. "We need to keep conservation in mind when we build new structures – both in the interior and exterior designs of the building," Hull said.

Interior design features identified by the team include low-flow toilets, aerated showerheads and faucets, and automatic shut-off sensors. Exterior changes include use of drought-resistant plantings and better systems for collection of rainwater.

"There are a lot of options. Maybe we need to change the way we evaluate what we consider 'nice landscaping' for a building. Instead of how bright the pansies are, we can evaluate it based on how often it needs watering or maintenance," she said.

"When you mention 'xeriscaping' many people automatically think "zero-scaping", but that is not really the case. You can have drought-tolerant and low maintenance landscaping without compromising the aesthetics."

Many of the sustainability teams are finding the true essence of the planning initiative while defining goals: achieving their goal is dependent on others meeting their goals and vice versa. While many of the water supply goals are dependent on the water quality team, they have found that their initiatives can benefit other teams as well.

"Our landscaping plans will mean not running a lawnmower as much – so we help out the air goal as well," Hull said. "Also, decreased water usage equates to decreased energy spent treating and pumping water."

Going for the large targets first, the water supply team plans to study water usage at two sets of barracks. Conservation experts estimate that 40 percent of water consumption occurs in the barracks areas.

The study will attempt to delineate consumption according to use (showers, sinks, irrigation). The first set of barracks was designed without conservation efforts. The second set of barracks in the study will have low-flow fixtures and other technologies designed to reduce water consumption.

Monitoring is another step toward the conservation goal. Team members hope to someday hold people accountable for their usage – not necessarily with a water bill but at least with a water report showing consumption and the real costs associated with water usage and management.

"In any organization or facility where the end user doesn't have visibility of costs, they are not concerned about it. Accountability triggers that concern," Hull said.

Another long-term goal of the team is to reclaim water from the wastewater treatment plant for irrigation use. A feasibility study already is underway to determine if golf courses and parade fields could use reclaimed water.

The engineering study will determine how much water Bragg has available for reuse, what the irrigation needs are, what cost savings may exist and how the program can be implemented, said Lynn Vaughan, Fort Bragg's Clean Water Act program manager.

Because Fort Bragg's water and wastewater treatment plants also serve Pope Air Force Base, irrigation needs at the base also will be examined. Pope AFB is the first likely candidate for implementation of reuse measures because it currently uses drinking water for irrigation. Fort Bragg golf courses draw from wells.

"We expect it to be expensive to initiate, but it should save money in the

Fort Huachuca proposes water conservation easements

by Tanja M. Linton

Easements to reduce groundwater pumping near the San Pedro Riparian National Conservation Area in southern Arizona will be purchased under a proposed project announced by Fort Huachuca officials August 24, 2001.

The purchase of conservation easements is a new initiative for Fort Huachuca to support the installation's Water Resource Management Plan and to help meet the Army's obligations under the Endangered Species Act, as outlined in a biological opinion signed in 1999.
The announcement came during an update on the fort's progress on its 10-year water management plan. Other federal agencies in the region, such as the Bureau of Land Management, have purchased conservation easements in the area.

"Fort Huachuca has developed proactive management practices that have gone well beyond our minimum compliance responsibilities. We're the first in the Army to purchase actual conservation easements," said MG John D. Thomas, Jr., commanding general of the U.S. Army Intelligence Center and Fort Huachuca. "This new project is a critical step in our continuing efforts to be good stewards of the environment and good neighbors in the Upper San Pedro Valley."
"Preserving this unique riparian resource is not only vital to our ability to perform our mission now and in the future, but also ensures that the San Pedro continues to provide critical habitat to a variety of endangered species," said Thomas.

Under the proposed action, The Nature Conservancy will purchase selected parcels of land for conservation easements within five miles of the San Pedro River from willing sellers using federal funds. The Army will be one of the federal agencies funding these easements.

A conservation easement is a legal, perpetual agreement that contains permanent restrictions on the use or development of land in order to protect its conservation value. Each agreement is somewhat different.

"Depending on the willingness of private property owners to sell applicable land rights, this project could reduce the impact on the region's groundwater aquifer up to 4,000 acre-feet per year," said Tom Cochran, Fort Huachuca's Environmental Division Chief, in today's presentation.

"Conservation easements are a positive step to reduce the water pumping [rate] near the river in a meaningful way," said Cochran, "while still preserving property rights and the traditional ranching lifestyle that is so important within the region."

To determine the impacts of the proposal, Fort Huachuca in cooperation with The Nature Conservancy and the Bureau of Land Management, developed an environmental assessment to analyze the purchase, transfer and management of conservation easements in the southern Upper San Pedro Basin.

The process begins with The Nature Conservancy purchasing property from a willing seller with the intent to resell the property after the deed restrictions are in place; or, a willing seller could negotiate for the conservation easement without the property transfer. Typically, the property will include irrigated agriculture.

After The Nature Conservancy has filed the deed restrictions, the Bureau of Land Management will manage those restrictions for compliance.

The easements will allow for cattle and other livestock grazing, some division of property, homesteads, and commercial activity if it is low water use. Agricultural irrigation and subdivision into small lots are among desired rights targeted for conservation easement purchases.

Fort Huachuca, the U.S. Fish and Wildlife Service, and The Nature Conservancy will determine the water credit in acre-feet of pumping that is reduced. The Army will receive those credits to go towards their total goal for reducing water pumping. An acre-foot is the quantity of water that would cover one acre to a depth of one foot. One acre-foot equals about 326,000 gallons of water.

As the role model for conservation and environmental stewardship in the southwest, Fort Huachuca continues to save water on the installation through aggressive conservation, reuse and recharge (or replacement) projects.

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long run," Vaughan said. "And it's worth it. We don't have any more water. Let's reuse this water if we can."

Projects that help Fort Bragg understand what their water supply looks like, what their water needs are and how much their watershed can offer will be vital to the success of the team. While such studies are underway, the team hopes to make progress with education efforts and design changes.

"Water has always been seen as a renewable resource – which for a lot of people meant unlimited," Hull said. "After a 72 percent increase in consumption without a population increase, we should all raise our eyebrows and look closer at how we use water."

For more information, contact the Long-Term Sustainability Planner at 396-3341, ext. 351.

KrisTina Wilson is the Pollution Prevention Planner for Fort Bragg, NC, (910) 396-3341, ext. 266. PWD

Fort Drum holds Pollution Prevention Opportunity Assessment Workshop

by Karen J. Freeman

The Pollution Prevention Act of 1990 established pollution prevention (P2) as the nation's preferred approach to environmental protection and waste management. Prior to 1990, waste management practices often only involved waste after generation as opposed to new pollution prevention initiatives that eliminate waste generation and prevent environmental releases. Emphasis is now placed on waste reduction at the source, reuse and recycling, and minimization of waste storage and disposal.

The Army and Fort Drum are also committed to environmental stewardship as an integral part of the Army mission. According to Army Regulation (AR) 200-1, the strategy "is to focus efforts on pollution prevention where and when possible to reduce or eliminate pollution at the source. Conserve and preserve natural and cultural resources so they will be available for present and future generations to use. Give priority to sustained compliance with all applicable environmental laws. Continue to restore previously contaminated sites deemed as a threat to human health and the environment."

In short, all Army personnel, both military and civilian, have an obligation to reduce adverse environmental impacts.

To help equip personnel on Fort Drum with the knowledge needed to develop P2 processes on post, Fort Drum's Environmental Division hosted a hands-on workshop on performing pollution prevention opportunity assessments (PPOA). During the workshop, Army personnel were taught how to identify ways to reduce or eliminate waste and adverse environmental impacts, and then assess, develop and implement a strategic pollution prevention plan for their facility that does not compromise the Army mission.

GBK Partnership, an environmental, health and safety (EHS) consulting firm based in Oklahoma City, conducted the workshop. The curriculum was designed specifically for those individuals responsible for implementation of pollution prevention strategies at their facilities, such as line and shop level personnel.

Army personnel at a hands-on workshop performing PPOA.

"This course outlined how to brainstorm a potential problem and the best solution," said Mark Lane, Hazardous Waste Program Manager at Fort Drum. "Workers at the shop level can identify and provide the best solution within their shop and this course emphasized confidence in knowledge."

Hands-on exercises, such as the use of different colored Play-doh, and fake money, allowed class members see firsthand the chain of events and understand the costs incurred form handling certain materials.

"During the Play-doh, exercise, we established fake companies with a supervisor, quality control, laborers and a hazardous waste coordinator," said Tony Rambone, P2 Environmental Technician at Fort Drum. " We were then able to evaluate cost, handling regulations and the potential for fines. It demonstrated how all aspects are affected."

After a few hands-on exercises, the class actively underwent the systematic, eight-step PPOA process, outlined below, at prearranged industrial activities on post.

1. ***Select a process*** by targeting a specific area for reduction in waste and adverse environmental impact.
2. ***Build an assessment team*** comprised of people who work directly with the process or materials of concern.
3. ***Examine the process*** by visiting the facility to see firsthand the day-to-day operations. Photographs can provide an accurate depiction of the process. Interviewing shop workers is important since they can offer information about the processes based on personal experience and they will have to implement any changes recommended. Reviewing operation logs will provide insight on work patterns within the facility.
4. ***Establish a baseline*** by compiling and organizing all information gathered.
5. After a baseline is established, hold brainstorming sessions to help ***identify potential solutions***. Any workable opportunities should be compared to the existing process for possible implementation.
6. ***Evaluate and rank opportunities*** in terms of how they reduce, re-circulate, segregate, dispose of or eliminate pollution.
7. Once it is fully developed and deemed feasible, ***implement the solution*** quickly and accurately so that production can continue without interruption.
8. Lastly, after the new process has been in place for a measurable amount of time, it is important to ***review the results*** periodically to ensure that it is working properly.

Additionally, there are four key points to keep in mind when assessing a process, said Greene. First, it is easier to reduce or eliminate waste at the beginning of the process as opposed to treating or cleaning contaminated material. Second, cross-contamination of waste streams will make treatment more difficult. Third, dilution is not the solution to pollution. Dilution can make some treatment methods less efficient. And fourth, do not simply switch the pollution from one media to another. The ultimate goal is the overall reduction of pollution in the environment. ➤

USAEC: Keeping ranges open for optempo business

by Deborah Elliott

The Army world changed forever in 1992, but it wasn't a new enemy, doctrine or weapon that marked the difference – it was a law.

Before 1992, laws that protect the environment – air, land, water, endangered plants and animals – were primarily enforced on industry. The Federal Facilities Compliance Act, however, focused the environmental laws on the military and laid the public's rising concern about natural resources at the Army's doorstep.

Since then, the application of environmental laws has seriously threatened – and in some cases terminated – the Army's ability to train realistically on its installations. With increased realistic training at the heart of its transformation plans, finding a way to ensure readiness AND meet its environmental stewardship obligations is one of the Army's highest priorities.

Keeping our ranges open for optempo business is just as critical to the soldier's success and survival as the latest equipment and technology.

RAM: On Point for the Mission

The U.S. Army Environmental Center (USAEC), based at Edgewood Area of Aberdeen Proving Ground, has the mission of integrating the Army's readiness goals and environmental stewardship obligations. Finding common ground for the Army and various military, regulatory and private organizations is a critical part of this mission. The center's Range and Munitions (RAM) Division is the point organization for this task as it applies to Army training ranges.

"When it comes to finding the right approaches for resolving environmental issues, there are many members of the team," said Dr. Robert York, Acting Chief of the RAM Division. "DOD, EPA, state and local authorities as well as environmental groups and the public all have a stake in the care of natural resources on Army installations. Each stakeholder has a somewhat differing view about what constitutes good stewardship of our natural resources. If we can't sit down and come to decisions together, our ranges are in trouble."

RAM Mission Elements

The key to finding common ground for all of the Army's stakeholders is first to determine the boundaries. In terms of training ranges, the questions that have to be answered are: how many ranges do we have, and how has our training impacted the environment on these ranges, if at all?

"The Army range inventory will give us a firm handle on the Army's training land assets," said Joe Murphy, Acting Chief of RAM's Range Response Branch. "The inventory results will give the Army the ability to make an accurate prediction of the potential cost of UXO clean-up. We're being proactive in taking the right steps to build a logical program and establish priorities."

The range inventory is part of a larger program to maximize the capability, availability and accessibility of ranges and training land to support training and testing. This "sustainable range management" program includes range design, management and use as well as inventory.

Sustainable range management is one of three RAM objectives. The division also has a munitions management program that addresses regulatory, operational and ➤

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"This class really opened my eyes to being more observant and the process of management, cost saving techniques, and the importance of awareness and education at all levels," SFC Eric Hawks, C 3/314 Artillery Regiment. "We do annual training with regional National Guard units and this gives us a perfect opportunity to pass the word on pollution prevention management techniques."

Lane hopes the message is passed along to all facilities on Fort Drum. "Finding out how materials and resources are used and then assessing how to prevent pollution and minimize waste production on your post not only makes sense, it is an obligation to do the right thing."

(Note: Special thanks to The GBK Partnership, LLC, for contributing to this article.)

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Proposed WCPOC expansion will not affect environment

by Tanja M. Linton

Last September, BG James A. Marks, commanding general of the U.S. Army Intelligence Center and Fort Huachuca, after fully considering comments received during the 30-day comment period for a Finding of No Significant Impact, determined that expanding the West Civilian Personnel Operations Center (WCPOC) would not significantly affect the quality of the environment.

Fort Huachuca has accepted the mission to support the expansion of WCPOC. The WCPOC will now proceed with plans to hire the required additional personnel and to accept the additional work on a phased plan through March 2002.

The post released an environmental assessment for the proposed action in mid-August.

Fort Huachuca published a Finding of No Significant Impact in the local newspaper to announce that the Environmental Assessment concluded that expanding the WCPOC would not significantly affect the environment and invited public comments on the proposed expansion.

To mitigate WCPOC's direct, indirect, interrelated, interdependent and cumulative water usage impacts, the Civilian Personnel Operations Center Management Agency has provided $75,000 to Fort Huachuca to install conservation technology, fund work on various water mitigation projects on Fort Huachuca, and to purchase conservation easements off-post, near the San Pedro River. This mitigation fee should mitigate approximately 50 acre-feet.

What this means is that the WCPOC will more than offset their water usage associated with their employees and family members. This will help Fort Huachuca in its goal to fulfill its vital national defense mission and continue to reduce its water usage in the region.

The WCPOC currently manages personnel records for almost 18,000 Department of the Army employees throughout the western United States. The WCPOC expansion would increase support to more than 34,000 personnel files. To manage this increase, the WCPOC will increase the number of civilian employees by 102. The local Civilian Personnel Advisory Center would increase by four employees. Approximately 56 of the new employees would come from Fort Huachuca and the nearby communities, with the remaining 50 employees coming from outside the region.

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Save money without sacrificing comfort

You can save as much as 10% a year on your heating and cooling bills by simply turning your thermostat back 10 to 15% for 8 hours. You can do this automatically without sacrificing comfort by installing an automatic setback or programmable thermostat. Using a programmable thermostat, you can adjust the times you turn on the heating or air-conditioning according to a pre-set schedule, saving erergy and money while you're asleep or at work. Programmable thermostats can store and repeat multiple daily settings that you can manually override without affecting the rest of the daily or weekly program. PWD

Reduce energy bills with landscaping

Did you know that carefully placed trees can save up to 25% of a typical household's energy used for heating and cooling? Deciduous trees—trees that lose their leaves in the fall—can be especially effective, providing protection from the summer sun but permitting winter sunlight to reach and warm the house. The height, growth rate, branch spread, and shape are all factors to consider when choosing trees. Evergreen trees and shrubs can be placed to deflect north and west winds during the winter, and south and west winds during the summer. PWD

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technology requirements for munitions lifecycles; and a munitions response program for response at closed ranges to make them available for other uses.

RAM Mission Goal

"From the soldier's perspective the RAM Division's mission may not sound very glamorous, but keeping our ranges open for optempo business is just as critical to the soldier's success and survival as the latest equipment and technology," said LTC Thomas M. Frendak, RAM Division Range Operations Support Branch.

USAEC has been involved in range and munitions programs for the Army for many years. However, the efforts have been scattered among separate divisions. As range issues have increasingly gained in importance to the Army's future goals, the Range and Munitions Division at USAEC was created by consolidating these programs during the recent reorganization in June to coordinate and give the appropriate emphasis to the Army's range initiatives.

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Lab reflects on cold-climate ground-coupled heat pump technology

by Marie Darling

For many years researchers at the Cold Regions Research and Engineering Laboratory (CRREL), one of seven laboratories of the U.S. Army Engineer Research and Development Center, have been working on solutions to heating and cooling of Army facilities. The problems associated with efficient heating and cooling not only include energy implications, but also includes maintenance and occupant comfort, areas that the Army continually strives to improve. CRREL works with the Army to provide answers to all Army problems with special emphasis on cold-related problems.

Cold Regions researcher Dr. Gary Phetteplace and his team early on identified water-source heat pumps as the only viable alternative for cold climates. They recognized the ground-coupled heat pump (GCHP) system as a sound concept and demonstrated the systems applicability at the CRREL laboratory in Hanover, New Hampshire.

After full-scale testing at CRREL, this ground-coupling concept was submitted for inclusion in the Army's Facilities Engineering Applications Program (FEAP) and was accepted. A call for demonstration sites was established and Army officials at Fort Polk enthusiastically responded.

The basic concept of GCHPs (also known as geothermal or ground source heat pumps) is that these heat pumps exchange heat with the earth using buried plastic piping. This allows the earth to act as a heat source for meeting building heating requirements and dually, a heat sink for building cooling.

In an attempt to gain an in-depth understanding of GCHPs performance under actual military family housing conditions, CRREL researchers conducted two demonstration projects at Fort Polk located in Louisiana. A total of 15 GCHPs, as well as 11 air source heat pumps for comparison purposes, were installed and their performance was closely monitored for four years.

The results, in terms of documented energy saving (approximately 30%) and practical lessons learned laid the ground work for a shared savings contract that retrofitted all 4,003 of Fort Polk's family housing units with these heating and cooling systems (this is the largest GCHP residential project in existence). This project was accomplished with no out-of-the pocket expense to the Federal Government. The contractor paid all of the approximately $18million installation/retrofit costs in exchange for approximately 80% of the revenue generated by the energy savings.

A shared savings contract retrofitted all 4,003 of Fort Polk's family housing units with new heating and cooling systems.

In the future, Fort Polk will save nearly $1M per year in energy and maintenance costs over the 20-year-life of the contract and more than double that after the contract period expires. And a benefit to the Army is occupant comfort which is greatly increased, a "Quality of Life" plus for the Army and it's family housing program. Additionally, the maintenance requirements of the GCHPs are much lower and during the life of the contract the maintenance is the responsibility of the contractor.

Annual environmental savings from the Fort Polk project have been estimated as follows:

- ➤ 57,973 barrels of oil.
- ➤ 19,800 million BTUs of natural gas energy.
- ➤ 38 thousand tons of CO_2 emissions.
- ➤ 100 tons of SO_2 emissions.
- ➤ 90 tons of $N0_x$ emissions.

And there are yet more benefits to include:

- Reduced electrical demand by 40%.
- Contractor performs all maintenance.
- Lessons learned for other similar projects.
- Template for other similar contracts.

This program was a real teaming up of expertise and organizations. The team effort involved individuals from the Fort Polk DEH; the Cold Regions Laboratory; USA Huntsville ESC; Louisiana State University; and the contractor, Co Energy Group.

The principal investigator of the demonstration projects at Fort Polk, Louisiana, was Dr. Gary Phetteplace and in 1997, he accepted the Hammer Award for the "CRREL Team." The Hammer Award is former Vice President Al Gore's highest award given out in recognition of a team who has contributed three elements in their research – innovation; cost savings; and customer service.

Phetteplace emphasizes that family housing is not the only area where GSHP systems are cost effective. In fact, Phetteplace states that, "the economics are even better for larger buildings where the simple, highly reliable, ground source heat pump systems offer lower installed cost, as well as reduced maintenance and energy costs."

Phetteplace continues efforts in ground-source heat pumps education/awareness presenting at workshops, developing and providing descriptive GCHP information and working with Huntsville Engineering and Support Center to foster the development of guide specifications.

For more information regarding CRREL's continuing role in Ground-Coupled Heat Pump technology, please contact Dr. Gary Phetteplace, (603) 646-4248 or e-mail: gephet@crrel.usace.army.mil

Marie Darling is a public affairs specialist at CRREL in New Hampshire. PWD

Minimizing adverse effects of snow and ice on roofs

by James Bushka

Designers can provide more functional designs and avoid problems when they consider snow and ice issues as the design of a building evolves. With a little thought during the design phase, the adverse effects of snow drifting on roofs can be minimized.

Drainage is a critical factor in roof design, especially in snow country. Most steep roofs drain over their eaves. Some low-slope roofs also drain to cold eaves. Low-slope roofs that drain to cold eaves are particularly problematic in cold climates.

With a snow cover, heat from the building can melt the bottom of the snow pack. The runoff then re-freezes and forms an "ice dam" when it reaches the cold eaves. A large ice dam prevents drainage and allows water to back up and leak through roofing into the building. Low-slope roofs that drain internally are less likely to experience this kind of icing.

Some rules of thumb to avoid icings on roofs in cold climates include:

- ***Pitched roofs:*** Use a "cold" roof design with enough ventilation to keep the roof surface colder than 32º F when the outside temperature is about 22º F. When it is warmer outside, icings usually do not grow, and when it is colder outside, less ventilation is needed. Icings at eaves are minimized when roofs are well insulated and ventilated. Use adhered membranes under shingles at the eaves and roof transitions. Creeping, sliding, and falling snow and ice are likely on roofs that drain to cold eaves. To avoid sliding snow from slippery (e.g. metal) roofs, place walkways, parking areas, plantings, etc. 30 ft. from building perimeter; place entries at gables or under covered entrances.
- ***Low-sloped roofs:*** Use membrane-roofing systems with a minimum slope of ¼ inch/foot to warm internal drains.

Snow drifting is an important factor to consider once ground and roof snow loads are known. Snow can drift into areas behind vertical building shapes. Figure 2 illustrates how loads from drifts on a lower roof can be much more significant than the load on the low-sloped roof above. Big drifts often form on lower roofs.

A rule of thumb to avoid excessive snow loads on roofs in cold climates is to use an uncluttered, unobstructed roof with minimal changes in levels. For more information on snow loads, refer to ASCE Standard 7, "Minimum Design Loads for Buildings and Other Structures."

The design team can develop a better building design and avoid problems when it considers snow and ice issues early in the design process, as the shape of the building evolves. For smaller buildings, use a well-insulated "cold" roof design. Simple pitched roofs with asphalt shingles work fine in cold regions. For larger buildings, a low-sloped membrane roof with internal drains and an uncomplicated profile is a good choice.

Designers should carefully consider these issues early in design process. For more details on the topics mentioned here and other considerations for roofs in cold regions, download the full version of this report at: http://www.crrel.usace.army.mil/techpub/CRREL_Reports/reports/MP112.pdf.

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This large ice dam caused this metal roof to leak at its eaves.

The peak snow load of this drift was 130 psf. The ground snow load at the time was 20 psf, and the snow load on the upper roof was 15 psf.

Easy fixes for HVAC mold and mildew

by James Miller

Taking some fairly simple steps in operation and maintenance can greatly improve indoor air quality by preventing mold and mildew growth in heating, ventilating, and air-conditioning (HVAC) systems. The Engineer Research and Development Center's Construction Engineering Research Laboratory (CERL) has developed some guidance for installation energy managers to help identify what conditions may lead to an uncomfortable work environment.

Checking the chilled water setpoint is a simple maintenance procedure.

Mold and Moisture

Molds and mildews perform a vital service in the ecosystem by feeding on and consuming dead plant and animal matter. However, molds and mildews are bad news inside buildings where instead they feed on and infest a wide variety of building materials (ceiling tiles, insulation, carpeting, concrete, and so on) and contribute to unhealthy indoor environments.
Because molds and mildews require a source of moisture to thrive and propagate, avoiding infestations is often as simple as maintaining indoor relative humidity levels at or below 60% and preventing accumulated moisture and water.

During cooling seasons, climates in most locations have high outdoor relative humidity (RH). HVAC systems are supposed to dehumidify the mixed air stream to maintain conditioned spaces at 60% RH or below and remove accumulated condensate by collecting and eliminating it via the condensate drain. If either of these processes fails, an HVAC system can collect moisture and let mold propagate.

Moldy ceiling tile, thanks to a poorly insulated pipe.

Common Causes of Moldy Systems

In assessing installation HVAC systems, CERL often finds that they fail to adequately dehumidify the mixed air stream. The most common reasons are:

- Chilled water supply temperature is not cold enough to dehumidify supply air to saturation at 55 oF dry bulb temperature. Typically, the chilled water supply temperature should be about 45 oF to achieve these conditions.
- Excess cooling coil capacity results in cycling of the chilled water valve or expansion valve (direct expansion systems) when the sensible cooling load is low. With the cooling valve closed, unconditioned (i.e., humid) outdoor air is mixed with the return air, delivering excessively humid supply air to the building. Humidity levels in the building can reach levels that will result in condensation at cold surfaces in the occupied spaces such as supply air diffusers or surrounding ceiling tiles. Constant volume systems (such as single-zone or multi-zone systems) are most susceptible to this problem since they modulate supply air temperature in response to changes in the sensible load.
- Air handler operates during unoccupied periods. This situation is basically the same as the previous condition - excess cooling capacity for the reduced sensible cooling load. As a result, the cooling coil fails to remove moisture from the mixed air stream, causing moisture buildup within the building.

Another contributing factor is low occupied space thermostat settings. ➤

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CERL's researchers have noted cooling season space temperatures being maintained as low as 67 oF. Even at this level, the occupants were complaining that they felt "sticky." No wonder --at this temperature, the space relative humidity was nearly 80% and the space dewpoint temperature was dangerously close to the supply air temperature. As a result, it's likely that moisture was condensating on supply air diffusers and surrounding ceiling tiles. The occupants actually might have been more comfortable at a setpoint of about 74 oF because the space relative humidity would have been closer to 60%. This would have also saved energy and avoided risk of condensation on cold surfaces.

Uncontrolled infiltration of outdoor air into the building also compromises air quality. A common source of infiltration is caused when the air handler operates with the outdoor air dampers closed and exhaust fans operating. Under these conditions, the building becomes negatively pressurized so that unconditioned outdoor air leaks into the building wherever it finds a crack or crevice. Outdoor air dampers should be (at least) at their proper minimum position settings when air handlers are operating to avoid negative pressurization problems.

Maintenance Tips

Condensate drain pans should be checked to make sure that they are clean and slope to the condensate drain. There should be no "puddling" in the condensate drain pan. Condensate drains should be maintained to avoid plugs. Air filters should be maintained to prevent dirt accumulation on the cooling coil. Dirt buildup on the coil reduces its ability to dehumidify and could become a substrate for mold growth. Avoiding mold growth in the air handler unit is especially important because of the risk of distributing mold spores throughout the building through the supply air distribution system.

Supply air ducts and chilled water and condensate drain piping should be properly insulated and sealed with a vapor barrier. Special attention to the details of insulating and applying vapor barriers to valves, strainers, pipe hangers and other system elements will minimize condensation on cold pipe and duct surfaces, prevent insulation failure, and reduce the risk of mold propagation.

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Lighten up your energy bill with fluorescent lamps

If you replace 25% of your lights in high-use areas with fluorescents, you can save about 50% of your lighting energy bill. Fluorescent lamps are more expensive than incandescents, but they more than pay for themselves because they save energy and last 6 to 10 times longer. Compact fluorescent lamps (CFLs) can be used inn portable table and floor lamps; consider carefully the size and fit of CFLs when you select them. Exterior lighting is one of the best places to use CFLs because of their long life.

What is carbon dioxide?

Carbon dioxide (CO_2) is an odorless and colorless gas. Small amounts of CO_2 can make you sick and even exposure can lead to death. The very young, the elderly, people with heart disease and those under the influence of alcohol, drugs or medication are particularly suscepible.

CO_2 can form if one of your appliances or your furnace is not vented properly. It could also form if your venting system becomes plugged by something as common as a bird's nest. This could cause CO_2 to spill into your living space.

Common indicators of the presence of CO_2 are:

1. Chronic headaches, nausea, or eye irritation when indoors.
2. An unidentified chronic odor inside the building.
3. Dying house plants.
4. Condensation on cool indoor surfaces.
5. Discoloration or soot buildup at warm air outlets of the heating system.

CO_2 detectors are commercially available and may aid in detecting the presence of CO_2.

Cut costs on water heating

Water heating is a home's third largest energy expense, but there are ways to reduce its cost. Use less water by repairing leaky faucets promptly and installing nonaerating, low-flow faucets and showerheads. Lower the thermostat on your water heater to 115 degrees, and insulate your hot-water storage tank and pipes. (Do not cover the thermostat, and for gas or oil units, do not cover the heater's top, bottom, or burner compartment.) Finally, buy an energy-efficient water heater. While it may cost more initially than a standard water heater, the energy savings will continue during the lifetime of the appliance.

Omaha District offers anti-terrorism and force protection engineering support

by Sheri Hronek

September 11, 2001 is a date that will be remembered by almost every American who lived through that shocking day of terror and misery.

For those in the U.S. Army Corps of Engineers Protective Design Center of Expertise (PDC), it spawned a tornado of activity.

"Our most immediate concern is with security of the assets that we control, such as dams, power generation plants, navigation locks and the like, " says Dan Sommer, Chief of the PDC, an Omaha District office.

Sommer says division and district teams (several in each division) will be stood up and trained over the next month to accomplish a review of the Corps' most critical civil works project sites. The goal: to identify vulnerabilities and then develop proposals to mitigate them.

A representative will accompany each of these teams from the Protective Design Center (PDC) and the Electronic Security Center (ESC). "We cannot support this level of demand with our in-house staff," says Sommer. "So we are looking at emergency contracting procedures to supplement PDC and ESC staffs and help us tackle a huge impending workload in the short term.

Over the long term, the PDC and ESC have been tasked with developing a detailed set of security engineering criteria and design manuals for the civil works infrastructure, similar to those that the PDC developed for the military, says Sommer.

"Corps leadership is looking for ways that we can contribute to the Homeland Security Initiative. The expertise residing in the PDC (Omaha) and the ESC (Huntsville, Alabama) – along with our extensive experience protecting military installations -- have all been pitched on Capitol Hill as resources that can and should be tapped by the nation," says Sommer.

PDC's work is in two mission areas -- security engineering and hardened structures. The first deals with criminal and terrorist threats, the second with military weapons. The district's sister office in Huntsville handles electronic security systems.

Force protection has been a priority since the destruction of Khobar Towers barracks.

"Ours is the brick and mortar side of engineering," said Sommer. The same physics of explosives apply whether the bomb comes from a terrorist or an aircraft. "The hardened structure is a wartime mission, and the force protection is our peacetime mission."

"We write the manuals here for both worlds, so we can coordinate both," said Curt Betts, who does threat and vulnerability assessments and site surveys.

Hardened construction is usually massive concrete. In the past, such structures had no windows, only one door, and may have been underground.

"After Desert Storm, we know a target can be hit from anywhere," said Patrick Lindsey, Chief of Hardened Structures Section. "So we're looking at the effects of smaller conventional weapons on structures."

For the last two years, most of the need has been in anti-terrorism force protection, especially for existing conventional buildings like offices and barracks. That need is predicted to increase in the next 10 years, but it does not detract from another PDC specialty – expeditionary temporary structures for troops deployed to places like Bosnia and Kosovo.

To accomplish these tasks, PDC includes all building disciplines -- structural, mechanical, electrical, civil, ➤

(Omaha, continued from page 35)

and architectural. "But in security engineering, a lot of times those disciplines seem to disappear because security is an overarching application," Sommer said. "The hardened structure side is obviously pretty serious structural engineering. When you get into anti-terrorism design for, say, car bombs, the two work hand-in-hand. You have security engineers who look at the standoff distances and how to protect windows from shattering. They work closely with structural engineers who look at the building to harden it against blast pressures from explosions."

Standoff distance is how near vehicles or individuals are allowed to come to a building. "In installations in the U.S., there's usually some standoff distance," said Betts. "The problems escalate outside the U.S. In Germany, for example, there isn't a lot of land, so often there's little standoff." Standoff is also a problem in densely populated areas like Japan and Korea.

Because DoD has an immense inventory of structures throughout the world, much of PDC's work is retrofitting existing buildings. "In response to a presidential directive, we're in a three-year program to survey all DoD installations," Sommer said. "In that program, there's about 200 surveys. We have one year under our belt, but we haven't done a third of the surveys yet because many of the requests came during the first year."

New construction

PDC expertise is also applied to new construction. A Joint Chiefs of Staff committee developed criteria, like standoff distances, for a new DoD construction standard for anti-terrorism force protection. (Betts is co-chair.) An interim version has been in effect for a year; the final version will be released later this year. The new standards address new construction, existing construction, and expeditionary structures.

Those criteria impact the cost of construction. For example, decreasing standoff distance increases cost. "If there's a bomb really close, it's hard to make that building stand up," Betts said. "Move the bomb away, and the effect is less severe. That's when we talk about minimum standoff. Keep that bomb a minimum distance away, and you can design the building with minimal cost increase."

PDC also works with manufacturers to ensure materials meet criteria. "We're always looking for things that are proven. Anything off the shelf is attractive if it's been tested," Betts said. "Unfortunately, a lot of times a manufacturer claims something works, but they have no real proof. Until it's actually been proven using standard testing techniques, we can't take it seriously. But that's part of what our testing program is doing. They're taking a lot of commercial products and testing them on structures to see how they work." Much of that work is done at the Engineering Research and Development Center labs.

Glass is a major hazard in any blast, and PDC works with research and development organizations to make office buildings perform better. "If a blast occurs, the majority of injuries (not deaths) occur because of glass," said Ed Conrath, who specializes in blast resistance. "If we can put in better glass and anchor it better at a nominal cost increase, we've gone a long way toward solving the injury problem."

Since glass is a major hazard in any blast, PDC works with R&D organizations to make buildings perform better.

Conrath spent a couple months in Israel testing glass. "They built a full-scale test structure out in the desert. We'd set up the different part of the test in this structure, whether we were testing a wall or a window or a column or whatever. I gathered data after the tests."

Technology transfer

Technology transfer is another major part of PDC's mission. PDC staff consults with all services, and calls also come from private firms that contract with the military. Betts estimated that about a quarter of each day is spent answering questions by phone or e-mail.

To aid technology transfer, PDC is creating tools to help users understand information. "The complexity is so high, the average engineer just can't stay up with it all," Betts said. "So part of our process is boiling it down to a simple tool (a computer program, or a look-up chart, or something) that helps them make their decisions quickly and get on with the design."

"Our 14-pound manual for designing conventional systems is much nicer on a CD," Lindsey said. PDC has also put standard information into computer programs. Using an autodesigner, an engineer can select different explosives, weights, and types of munitions, then get an analysis that can be applied to a structure. (This product is still in progress.)

To also help DoD designers, PDC has set up a web site for the Blast Mitigation Action Group. The web site has commercial products that have been tested, with links to the manufacturers' web sites.

Tele-engineering is another new PDC tool. "Anybody in the field can talk to us by video conference rather than us jumping on a plane to go there," Betts said. "We try to be responsive in as many different ways as possible, but we're stretched. So if we can do that without going there, it saves us time and reduces our customer's cost." ➤

(Omaha, continued from page 36)

Interest in this information waned a little after the Beirut bombing in 1985, but the destruction of the Khobar Towers barracks created new priorities. "Since 1996, we've seen a lot more awareness and a lot more things done that weren't done before," Sommer said. "Structures are being built to standards even as we speak."

Training

Interest has also grown in security engineering training. "We've taught this class since 1987," said Doug Wehring, Chief of the Security Engineering Section. "Before '96 we tried to have a mix of engineers and security people, but we had a problem getting engineering interest." But since 1996, engineering interest has grown. "We've had installation master planners, and other Army and DoD engineering interests. There's a huge interest, primarily because of top-down emphasis that force protection has received since Khobar Towers."

The minimum construction standards have also increased emphasis on learning about force protection. Four years ago, PDC taught six to eight classes a year. In 2000, there were 21 classes. Two to four classes are taught at Fort Belvoir, Virginia; the rest were taught throughout the world. Contractors are included because they must incorporate the standards into their designs.

"The success of all this is the teamwork between the different players in a project, including engineers, security people, and many others," Betts said. "That's why we teach our classes the way we do. It's imperative for Corps people to understand that they can never work in a vacuum. They have to consult with security people and other installation people."

Assessment

That teamwork includes assessment. Installation personnel are part of the planning team to help PDC engineers understand their particular requirements. "We don't set the threat environment," Wehring said. "We approach it from the engineering perspective. They need to know what their threats are and what they want to protect. Do they have to worry about car bombs? We don't know; they have to tell us."

Since the PDC structure section had designed this hardened aircraft shelter, the U.S. Air Force knew how to blow it up after Saddam Hussein took it over.

"Doug can help that local commander identify where money needs to be spent to improve force protection," Sommer said. "With that understanding, requirements can be set for projects, and money can be designated for them."

In the field

"One unique responsibility we have that other government agencies don't is the expeditionary requirement," Betts said. Compounds are sometimes in the middle of a field in places like Bosnia or Kosovo. "When we build a structure in Nebraska, the design is protective just in case someone attacks us. In Kosovo, you're potentially taking fire every night. One of the highest parts of our mission is to support troops in the field.

"Historically, the Corps' mission has been building fixed facilities, and it's only recently that we started to emphasize troop deployment," Betts said. "We determine what we think the threat will be and how we can mitigate it. One thing we looked at in Kosovo was mortars. We used the same basic principles we'd use for a fixed facility, but we use a lot more improvisation. We use things like timber and sandbags and soil. Things you wouldn't use in an office building, but it works perfectly well in the middle of a wheat field."

Getting involved early helps identify issues early. Wehring received the Kosovo call at 4 a.m.; Betts found out when he walked in the office at 9 a.m. He was on a plane by 3 p.m. "Curt was standing in front of the task force commander less than 24 hours after they asked us to be there," Wehring said. "That's what it took for us to be effective; get there early and have an opportunity to affect the basic layout."

The time to get there may be minimal, but time spent in-country can be for extended periods. "We were supposed to be in Kosovo six days; we were there six weeks," Betts said. Betts also spent two months in Bosnia. Conrath spent three weeks in Bosnia and Croatia and a month in Albania. Other PDC team members have similar stories.

On-site work is a broad topic. The Bureau of Alcohol, Tobacco, and Firearms hired PDC to collect data after the Oklahoma City bombing. Conrath was on the UN inspector team in Iraq, and spent three months in Kuwait after the Gulf War to help with rebuilding.

Video teleconferencing will minimize some travel, and increase PDC availability to the other services. But there are times when the team must be on-site. They will continue to work throughout the world, whether it's office buildings and installations in the U.S., hospitals in Korea, dormitories in Greece, facilities in Kuwait or Saudi Arabia, or shelters in the Balkans.

For more information on the PDC, check out its web site, http://pdcunx.mro.usace.army.mil.

Omaha offers Rapid Response too

The Omaha District is the USACE Center of Expertise for Rapid Response and it can be an integral part of contingency planning done by installations and MACOMS. The Omaha rapid response team can be a valuable asset in any contingency planning efforts. Not only can they assist in the development of contingency plans, but they can also implement the plans and resolve environmental problems and issues. The assistance they can provide spans the spectrum from contingency planning to simple tank removal to a sophisticated soil vapor extraction system.

The NWO web site has a link for the team that provides an excellent summary of capabilities, projects, customers, and points of contact. Go to www.nwo.usace.army.mil to Organization to Rapid Response HTRW Program.

For more information on the Rapid Response Program, please call John Kirschbaum at (402) 871-7071 or e-mail him at john.p.kirschbaum@usace.army.mil or An alternate is Mark Herse at (402) 293-2560 or mark.r.herse@usace.army.mil PWD

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O-ring sprinkler recall — a life safety issue

by Robert DiAngelo

The U.S. Consumer Product Safety Commission (CPSC) and the Central Sprinkler Company, an affiliate of Tyco Fire Products LP, have announced a voluntary replacement program. The company will provide free parts and labor to replace 35 million Central fire sprinklers that have O-ring seals.

The program also includes a limited number of O-ring models sold by Gem Sprinkler Company and Star Sprinkler, Inc. totaling about 167,000 sprinklers. The replacement program includes two kinds of sprinklers, "wet" and "dry." "Wet" sprinklers are installed in piping filled with water. "Dry" sprinklers are used in areas that may be exposed to freezing temperatures and do not contain water.

Central manufactured 33 million "wet" sprinklers with O-rings from 1989 to 2000 that are covered by the program. Central also manufactured 2 million "dry" sprinklers with O-rings from the mid-1970's to June 2001 that are covered by this program.

The program also covers 167,000 sprinklers with O-rings manufactured by Gem Sprinkler Co. and Star Sprinkler, Inc. from 1995 to 2001. A listing of all the models covered under this replacement program is in the recall websites listed below.

Central initiated this action because it discovered the performance of these O-rings can degrade over time. These sprinklers can corrode or minerals, salts, and other contaminants in water can affect the rubber O-ring seals. These factors could cause the sprinklers not to activate in a fire.

See the following websites for specific details:

http://www.cpsc.gov/cpscpub/prerel/prhtml01/01201.html

http://www.sprinklerreplacement.com/VRP/enterVRP.php3

This is the second recall by the Central Sprinkler Company. In 1997, their Omega model sprinklers were recalled. These sprinklers were also equipped with o-rings. As a consequence of this recall, the Corps sprinkler guide specifications were modified by notice change to prohibit any sprinkler with O-rings.

In addition, other O-ring type sprinklers have been reported, that are not included in the recall, such as the Model JN and Model GS sprinklers manufactured by the Globe Sprinkler Company, which exhibit leakage and corrosion problems and a potential for failure. For those sprinklers that are not part of the recall, Underwriters Laboratories, Inc. (UL) will test the O-ring sprinklers at no charge. Please contact Mr. Cary Bell of UL at 847-664-2629 to initiate this free testing.

Corps of Engineers sprinkler guide specifications, i.e., UFGS 13930, UFGS 13935 and UFGS 13945, have prohibited sprinklers with O-rings since 1997. Our construction office have been made aware of the problem and for projects under construction will take steps to replace any sprinkler equipped with an O-ring.

However, for projects that have been turned over to the installation, please advise the installation DPWs that the sprinklers must be surveyed to determine whether or not the sprinklers are part of the recall. If O-ring sprinklers are discovered that are apart of the recall, the installation should take the necessary action to have the sprinklers replaced.
The recall procedures are in the websites listed above.

We have asked our district construction offices to assist installation DPWs in this recall, if they have information or knowledge as to the type of sprinklers installed. If O-ring sprinklers are discovered that are not apart of the recall, they can be submitted to UL for free testing.

This is a life safety issue. All installations should take corrective action to prevent any potential failure of these sprinklers.

POCs are Bob DiAngelo, (202) 761-5543; or Gary Bauer, (202) 761-1228.

Robert DiAngelo, is a Fire Protection Engineer at HQ USACE. PWD

Construction-In-Progress (CIP) requires recording and reporting

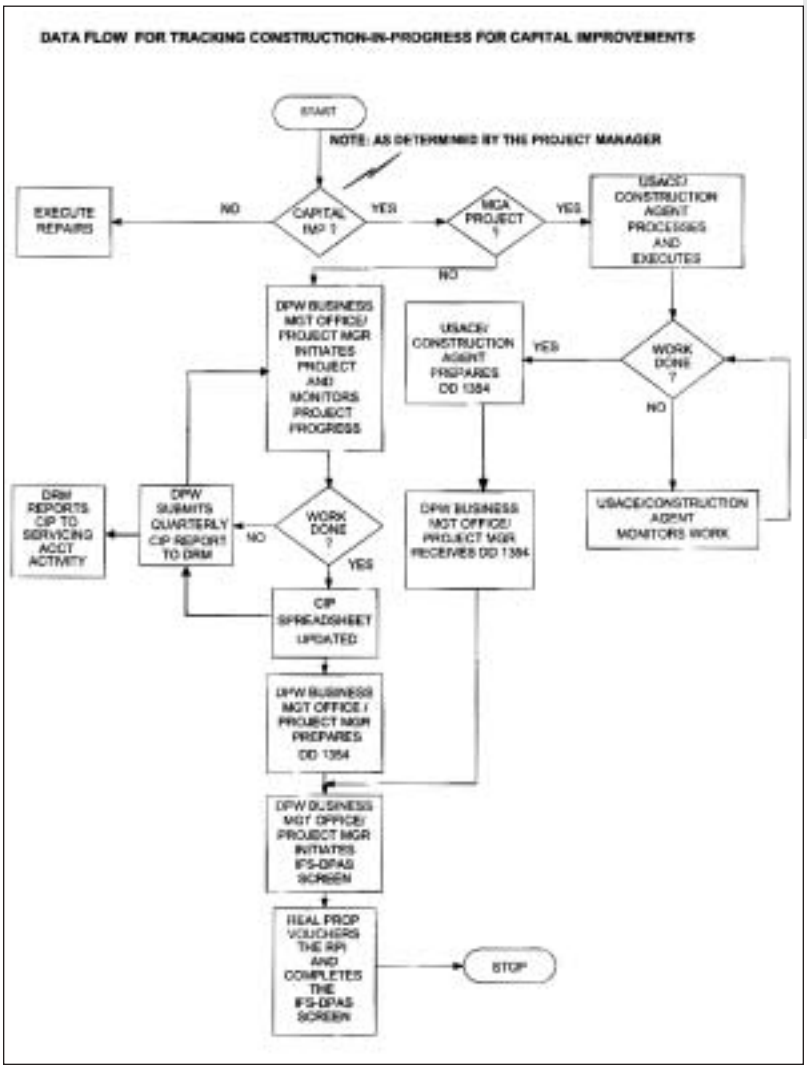
by David N. Purcell

The Chief Financial Officers Act (CFOA) requires that the value of Construction-In-Progress (CIP) for capital improvement projects that meet or exceed $100,000 per facility, be reported on the Army's annual financial statements. On 28 August 2001, the ACSIM signed a memorandum to the MACOM Chiefs of Staff that provides implementing instructions for the financial reporting of CIP costs associated with in-house capital improvement projects.

In addition, it was requested that the procedures be disseminated to both Engineering and Resource Management activities.

In general, ongoing expenses will be captured and reported as CIP for each capital improvement project that meets the $100,000 threshold per facility. These expenses include in-house direct labor, indirect labor, overhead, equipment, materials, engineering design, supervision and inspection.

For contracted projects, include all progress payments made on all ongoing minor construction projects. For troop construction projects, the project cost is the total funded (materials, TDY, equipment rentals, etc.).



Definition of terms:

In-house project: project initiated and paid for by the installation that meets the $100,000 threshold per facility (includes all means of accomplishment such as in-house workforce, commercial contract, troop construction, U. S. Army Corps of Engineers (USACE)).

Capital Improvements: ***Examples of capital improvements include:***

(a) Making an improvement to an existing facility which materially increases its size, efficiency, or useful life.

(b) A project executed to improve or expand the efficiency of an asset that was otherwise in good working order.

Examples of projects that are not considered a capital improvement:

(a) Replacement in kind of any component of an item of real property (e.g., roof, floor, utility lines) when the component has failed, is in the incipient stages of failing or is no longer performing the functions for which it was designated.

(b) Internal reconfiguration of a building, i.e., moving of partitions or equipment.

(c) Making an addition, alteration, improvement, rehabilitation, or replacement of fixed assets when they do not materially increase the capacity or operating efficiency of an asset.

The memorandum and instructions are applicable to the Active Army, U.S. Army Reserves and Army National Guard. All installation public works project officials should review the instructions at http://www.hqda.army.mil/acsimweb/fd/policy/CIPrecording.htm.

The USACE has been reporting CIP for MCA level projects but installations have not satisfactorily met this requirement for their in-house projects. The requirement was established as policy in the revised AR 405-45, Real Property Inventory Management, published 30 June 2000, with some additional guidance provided in the new DA Pam 405-45, Real Property Inventory Management, published 15 September 2000. Although the policy/guidance was established and disseminated, installation reporting of in-house CIP for FY99 and FY00 was ➤

Take my OPAC, please!

by Fred Reid and Robert Brown

In an effort to find the easiest and most cost-effective method for DPWs to electronically pay for USACE services, Headquarters, U.S. Army Corps of Engineers (HQ USACE) and the USACE Finance Center (UFC) evaluated different methods of transferring funds from customers to the Corps. Regardless of the method adopted, the MIPR (Military Inter-departmental Purchase Request) will still be a part of the process. The MIPR is the agreement used to do the work; it does not transfer funds.

Three options were evaluated, IMPAC (now the Government Purchase Card)), OPAC (On-line Payment and Collection), and Pay.gov.

IMPAC

The ***IMPAC***, issued to some agencies in 1986, was in general use by 1989. However, procurement using the card did not take off until the Federal Acquisition Streamlining Act was passed in 1994 and Executive Order 12931 on procurement reform was issued. These rulings eased paperwork requirements on procurements under $2500 and gave contracting and procurement officers greater power to authorize purchases.

One may envision using the IMPAC as you would VISA or MasterCard, but this is not true. The rules for using the IMPAC are different from those using a personal credit card because of the intent of its use, obligation to the Government and the accountability of Government funds.

The IMPAC process is not the most cost-effective method. IMPAC increases the costs of transactions and processing time. Fees charged by banks are approximately 2.44% of the order issued, $15 per month for software use, $0.30 for each transaction, and approximately $2,000 for equipment.

Also, IMPAC creates additional work in USACE Finance and Accounting offices that increases the processing time and requires additional resources to manage the bank required credit card accounts. All fees in connection with IMPAC have to be passed on to the customer because the Corps cannot legally absorb those costs.

OPAC

The ***On-line Payment and Collection (OPAC)*** is a Department of Treasury system that provides Electronic Funds Transfer (EFT) capability between government agencies. OPAC is a standard system accessible to government agencies. OPAC is the Department of Treasury's preferred method of payment between government agencies.

Using OPAC saves the government money because neither agency pays bank service fees for maintaining or using the accounts required for credit card usage. OPAC does not require any additional work for the UFC, DPW or the USACE activity.

A big advantage of using OPAC is that funds can be received overnight from most agencies. The UFC coordinates the receipt with USACE districts and places the money in the appropriate advance accounts. By using OPAC, DPWs advance-pay USACE for the service, which is similar to using IMPAC. The DPW Finance Office can contact the USACE Finance Center to establish a Trading Partnership Agreement (TPA). Once the TPA is signed, a DPW can push funds to the Corps via OPAC/IPAC or USACE can pull funds once billing occurs. Funds are generally received on the next business day.

Eventually, DPWs will be able to use pay.gov to transfer funds to the Corps, using IMPAC if they wish. This will not eliminate the MIPR, because, as with OPAC, it is only a bill payment mechanism.

Pay.gov

Pay.gov is a portal and transaction engine created by the U.S. Department of the Treasury's Financial Management Service, offering a package of electronic financial services to assist agencies. It is currently used by the private sector to pay bills owed to the government. The Department of the Treasury will work with the UFC to bring pay.gov on-line for use by government agencies. This will facilitate agency compliance with the Government Paperwork Elimination Act (GPEA) by October 2003.

OPAC appears to be the best alternative, but it does not replace the MIPR. While OPAC is a means by which funds are transferred, it does not eliminate the paperwork that is normally done for reimbursable work. The government order still has to be issued from the requesting agency and USACE will still have a customer order.

DPWs can begin using OPAC with this fiscal year's appropriation. To initiate an OPAC/IPAC TPA, please call Ms. Angela Williams at (901) 874-8412.

Fred Reid works for the Installation Support Division at Headquarters and Robert Brown works for the Corps' Finance Center. PWD

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poorly represented and was not auditable. These instructions will be added to DA Pam 405-45 when it is updated.

Proper recording and reporting of CIP costs requires a coordinated effort between the public works and resource management activities at every installation and will assist in achieving the Army's goal of obtaining an unqualified audit opinion of the annual financial statements. An accurate and consistent reporting process will validate the Army's procedures for reporting CIP as being in compliance with the CFOA and will enhance our credibility with the audit community.

POC is David N. Purcell, (703) 428-7613 DSN 328, e-mail: david.Purcell@hqda.army.mil

David N. Purcell works in the Facilities Policy Division of the ACSIM. PWD

Location changes for the DPW Worldwide Training Workshop

HQ, U.S. Army Corps of Engineers (HQ USACE) and the Office of the Assistant Chief of Staff for Installation Management (OACSIM) will co-sponsor the DPW Worldwide Training Workshop on 11-13 December 2001. Please note that the workshop location has changed for security reasons to the Wyndham Baltimore Hotel in Baltimore, Maryland. A MACOM Engineer Conference will follow on 13-14 December at the same location.

This DPW workshop will be similar in structure and purpose to the DPW workshop segment held under the umbrella of the ENFORCE conference; its focus, however, will be very different. While ENFORCE concentrates on the military engineering aspects as they interface with regimental issues and concerns such as Transformation, this separate DPW Worldwide Training Workshop will be geared towards the more detailed operations and functions. For example, this year's theme of "Facing DPW Challenges" will cover current and emerging issues on topics such as privatization/outsourcing, environment as well as civilian career planning and best business practices.

We expect to have 300-400 participate in this conference of DPWs and MACOM engineers from Army installations worldwide. Featuring senior Army speakers from the Pentagon and a variety of major commands, the workshop will provide an excellent opportunity to receive and share the latest information and best practices in the DPW service profession. Please mark the dates on your calendars and plan ahead to attend.

Exhibitors from both the private sector and government agencies will also be participating and time will be set aside for visits to the exhibit areas.

For more information or to register, please log on to: www.mhli.org.

POC is Edmund J. Davis at (202) 761-5770, e-mail: ed.j.davis@hq02.usace.army.mil PWD

Installation Management Institute to be held in January

The first annual Installation Management Institute (IMI) will be held 14-18 January 2002 in Orlando, Florida, at the Wyndham Hotel. The IMI replaces the DPW Combined User's Training Workshop and will follow the ISR Centralized Training of 7-11 January 2002 at the same location.

The purpose of the IMI is to offer centralized training and provide students with the latest information/instruction needed to accomplish the various DPW missions. This training will be focused classroom instruction presented in a university-style setting with individual attendees responsible for enrolling in their specific courses.

Each training class will be focused on a specific area. Classes will be offered multiple times throughout the week, depending on audience demand and nature of the course.

Individuals may register to attend the IMI via an Online Conference Registration system. MACOM POCs will be providing specific information and passwords needed to complete the IMI registration.

If you have any questions, please contact the IMI Coordinators: Rebecca Diamond at (703) 697-2892, e-mail: rebecca.diamond@hqda.army.mil or Radonna Parrish at (706) 935-4925, e-mail: parrishr@bah.com PWD

ISR improvements and training available

The Installation Status Report (ISR) continues to grow in importance as a major tool for assessing installation readiness and resource requirements.

The tool itself continues to evolve. The FY02 cycle introduces a new, web-based interface for Part I (Infrastructure), along with a new evaluation format and booklets (available now on the ISR website at (http://isr.xservices.com).

ACSIM sponsored centralized ISR Training will be conducted 7-11 January in Orlando, Florida. This training will cover the components of ISR Infrastructure, ISR Environment, ISR Services, Service Based Costing, and the Command Viewer. Emphasis will be on changes over the last data collection cycle and on the process and procedures of data collection, analysis, Quality Assurance/Quality Control, and use of data.

Attendance for this training will be coordinated between the MACOM and Installation MACOM ISR Points of Contact.

POC is Anthony Fasolo, ACSIM Plans & Operations, (703) 692-9246, e-mail: anthony.fasolo@hqda.army.mil PWD

Register for the DPW Basic Orientation Course

The Installation Support Training Division (ISTD) at Huntsville, Alabama, has vacancies in the following FY 02 Training & Career Development Opportunity:

CRS # 988
Course Title: DPW PWBOC (DPW Basic Orientation Course)
Session: 2002-01
Dates: 14-18 Jan 2002
Location: Huntsville, AL
Tuition: $625.00

This course provides students with an overview of the Army Installation Management Concepts and Organization and missions, and Directorate of Public Works (DPW) Operations.

The course covers the Real Property requirements planning, acquisition planning, financial and work management systems, and operational evaluation procedures, organization, function and mission of the DPW, and how to integrate real property maintenance activities. Classroom instructions includes lectures and practical exercises.

Nominees should be Department of the Army personnel.

To enroll in this class, please call Ms. Sherry Whitaker, 256-895-7425 or Ms. Tonya Parker, 256-895-7421, in the Registrar Division, Professional Development Support Center, Huntsville, Alabama. A DD Form 1556 or SF 182 can be faxed to: 256-895-7469.

For more information, please contact the Installation Support Training Division (ISTD), Ms. Beverly Carr, Course Manager, (256) 895-7432, FAX: (256) 895-7478, or e-mail: beverly.carr@hnd01.usace.army.mil PWD

VACNOT system discontinued — OPM alternative available

The vacancy notification (VACNOT) system is no longer operational.

The Department of the Army's Directorate of Human Resources did not extend the contract after it expired on 30 September 2001 because the value derived from the system did not justify the modification and maintenance costs required for the number of employees who regularly used it. Other factors contributing to this decision included anticipated changes in DA application procedures and a similar system the Office of Personnel Management provides free of charge.

Department of the Army intends to migrate to an inventory-based system which eliminates the need to separately announce each job. There is no need to notify applicants of Army jobs posted on the web when most positions won't be individually announced, but filled from open-and-continuous announcements.

The Office of Personnel Management provides, free of charge, an electronic notification system very similar to the VACNOT program. It not only provides information on Army vacancies, but vacancies in all federal agencies-- that is an advantage over VACNOT.

You are strongly encouraged to use this free service. To register, go to www.usajobs.opm.gov and click on Jobs to You by E-mail on the left side of the screen. To register for Real Estate positions, go to the 1170 option under "series" and choose geographic location options.

Once registered, you will receive automatic e-mails of announcements at any federal agency. All agencies are required to post their vacancy announcements on this web site. If you have any questions, please contact your servicing Civilian Personnel Advisory Center. PWD

Energy Management