



# Civil Engineer



## EXPEDITIONARY ENGINEERING

Vol. 2 No. 3

Newsletter

August 2013

### Community of Practices (CoPs) No Longer Active

Effective Aug 13 CoPs became inactive and were replaced with a new SharePoint system. The Air Force Civil Engineer Center (AFCEC) has made every effort to mirror the CoPs, but with all system changes there are things that are unique which may take some time to adjust. Please visit these sites and if you have questions please let us know.

The new Expeditionary Engineering SharePoint link is: <https://cs3.eis.af.mil/sites/OO-EN-CE-A6/21340/default.aspx>, please pay special attention to the Contingency Training Center link. This link provides the ability to register for Silver Flag, Mission Essential Equipment Training, and Prime BEEF (PB) Unit Deployment Managers (UDM) Training. (Mr. Larry Lomax, AFCEC/CXXE, DSN 523-6143)



### Innovative Readiness Training (IRT)

482d Civil Engineer Squadron (CES), Homestead Air Reserve Base (ARB), FL paired up with the 403d CES, Keesler Air Force Base (AFB), MS to provide engineering construction support to Fletcher Field, Clarksdale, MS as part of the Air Force (AF) IRT program.

The project consisted of the construction of one aircraft hangar, one office building, a taxi-lane, and the associated access road. During the two week annual tour MSgt Fred Corcoran, noncommissioned officer-in-charge (NCOIC), led a 22 man Homestead ARB, FL team while integrating with a 23 man Keesler AFB, MS team.

*Story continues on page 2*

### Barrier Arresting Kit (BAK)-12 Installation

Airmen from the 460th CES and 140th CES, Colorado Air National Guard (ANG), received assistance from the 200th RED HORSE Squadron (RHS), Ohio ANG, to install two BAK-12 systems April 12th on Buckley's flight line.

The team of power production Airmen assembled and installed the BAK-12 systems during a five-day span. "We did it in a short timeframe. Everyone started on Monday, and we had the certification run on Friday. We saw all inclement weather conditions, from snow to high winds, and zero visibility," said MSgt Joshua Barnett, 140th CES power productions NCOIC.

The barrier systems were installed on Buckley in preparation for upcoming flight line construction.

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Please assist us in future publications by providing your inputs to: Mr. Larry Lomax, DSN 523-6143, [larry.lomax@tyndall.af.mil](mailto:larry.lomax@tyndall.af.mil), Air Force Prime BEEF Program Manager and MSgt Michael Mabe, DSN 523-6127 [michael.mabe@tyndall.af.mil](mailto:michael.mabe@tyndall.af.mil), RED HORSE Program Manager at AFCEC/CXX

## Innovative Readiness Training (IRT)

*Story continued from page 1*

Over the course of the two weeks the team installed the office building wall headers, roof trusses and shear walls, compaction and ground preparation for the hanger, trenching, monitoring of soil bearing capacity, surveying, as well as heating, ventilation and air conditioning (HVAC) and electrical work. Project completion is slated for August 2013. *(Article submitted by Capt Patricia Hartman, 482d CES)*



(top left) A1C Derek Thys on a backhoe (top right) SrA Jaime Osorio (482d) and SSgt James Burns (403d)-3E5X1s. (bottom right) Office building wall headers, roof trusses and shear walls.

## Renovation Project

GRAND FORKS AFB, N.D. -- A portion of Building 408 is getting a facelift thanks to about 50 members of the 319th CES.

The work was chosen for what is known as a Contingency Construction Home Station Training (CCHST) project, completed every 12 months to hone engineers' skills in their respective vocations, as well as improve quality of life for building occupants.

According to officials from the Headquarters Air Mobility Command (AMC) Readiness and Emergency Management Division, AMC civil engineers should possess both construction and management skills to complete facility and infrastructure projects required of them in the deployed environment.

However, they are not always provided the opportunity to practice these skills at home station due to their focus on accomplishing small repair or recurring maintenance work. Structural and power production engineers, electricians, HVAC and refrigeration specialists, and other specialties within the CES come together to complete each project.

"It's important that our civil engineers get this experience here at home in between their routine repair and maintenance duties, because this is the kind of thing we do while deployed, and they've got to know what they're doing when they get there," said 2Lt Chrystopher Nicholson, 319th CES.

Projects selected for a CCHST are usually small-scale renovation or construction projects that take between 500-1,000 hours to complete, and are usually finished by the end of June each year.



Airman 1st Class Michael Hoersten, 319th Civil Engineer Squadron, grouts tile in a newly refurbished restroom



# Barrier Arresting Kit (BAK)-12

Story continued from page 1

The BAK-12 is an emergency stopping system for tail-hook equipped aircraft to prevent crashes and give assurance to pilots should their aircraft experience maintenance issues. The system consists of a cable stretched across the flight line that is attached to the braking mechanisms on both sides. As the aircraft engages the system, the braking mechanism will slowly apply pressure until the aircraft comes to a stop. After the week-long assembly, the BAK-12 proved it was capable of stopping a 29,000 pound F-16 Fighting Falcon traveling at a speed of more than 100 mph.

“The most rewarding part was seeing the plane hit the catch line. When I first went out there it was a patch of grass and a flight line. We got to see what we had worked so hard to do,” said SrA Taquan Kelley, 460th CES power production journeyman.

Eight Airmen from the 200th RHS provided Buckley’s power production teams with manpower, assets and expertise.

“This effort is a great example of leveraging ANG and active duty (AD) assets to complete a mission. Installing two BAK-12 systems in one week is not easy. The entire team of power production and heavy equipment personnel should be proud of their achievement and how well they were able to integrate operations,” said Maj Gibb Little, 460th CES operation flight commander. (Article submitted by SMSgt Joseph Nadeau, ANG NGB/A7XX)



Team Member prepares to move BAK-12 into position during installation

## 374 CES Member participates in Project with Engineering Ministries International



into their designs, using local materials and standard building practices when possible.

1Lt Goss utilized his skills as a Civil Engineer Officer, and pulled on knowledge he learned from a deployment to East Africa in 2011-2012 with the Combined Joint Task Force-Horn of Africa. During the deployment he was responsible for the construction of humanitarian projects in Ethiopia and Rwanda, such as health clinics, schools, and orphanages. He learned common building methods and pitfalls, and incorporated those into the design in Burundi.

(left) Lt Goss Surveying with plenty of help.  
(below) 3D rendering of the Phase II of the Master Plan Model for the Bujumbura, Burundi site.

The 374 CES had one of their own participate as a volunteer with Engineering Ministries International. 1Lt Jackson Goss, 374 CES/CENM, was a part of a ten person team comprised of engineers responsible for completing master plans and first phase design documents for a non-government organization.

The team, comprised of master planners, architects, civil engineers, electrical engineers, and structural engineers completed a thirty year master plan for an existing twenty acre site in Bujumbura, Burundi that currently has a church, two schools, offices, and residential areas. The team encountered the challenge of adapting local building techniques





## Firefighter Deployment for Training

The 156th CES Fire Emergency Services (FES) Flight, San Juan, PR sent 12 firefighters to participate in a DFT project at Kadena AB, Okinawa, Japan 20 May-7 June 2013.

This deployment supported the National Guard Bureau DFT program, and provided FES training. 156th CES firefighters had the opportunity to train with firefighters from the 18th CES and complete SORTS required training such as aircraft live fire and structural response exercises. Other training completed included vehicle extrication rescue, and fire vehicle driver/operator training. *(Submitted by MSgt David De Jesus, PRANG, Deputy Fire Chief, 156th CES FES)*



# Dam on Flathead Reservation being raised 2 feet to meet floodplain requirements

ST. IGNATIUS – An earthen dam built 94 years ago on the Flathead Reservation is getting a facelift this month, preparing it for a flood that occurs once every 1,000 years.

Crews with the 219th RHS, based at Malmstrom AFB in Great Falls, MT have spent the past few weeks raising Tabor Dam at St. Mary's Lake – one truckload of dirt at a time. “We’re raising the dam surface two feet to meet 1,000-year floodplain requirements,” said project manager MSgt Mike Thomas. “We’re moving 30,000 cubic yards of dirt.”

The dam runs a gentle curve below the Mission Mountains, providing irrigation water to the valley below. To raise the dam two feet in height, crews with the engineering battalion widened the base 12 feet.

It's a massive amount of dirt and heavy equipment operated by members of the Montana ANG (MTANG), including SSgt Mary St. Denis, who works as a nurse in her regular job, and SrA Jennifer Cowhick.

“I’ve been driving that non-stop for a week or so,” said SrA Cowhick, jumping off the bulldozer. “It’s a rush driving so much power.”

At the eastern rim of the dam, crews borrow dirt from a small knoll and transport it to the dam’s center, where much of the work is now focused.

The dirt is spread, graded, watered and tamped before engineers from Kalispell measure the work for density. MSgt Thomas placed the project’s value at roughly \$750,000 to \$1 million.

“For us, we’ve got roughly 3,400 man hours from start to finish,” said MSgt Thomas. “At an average of \$30 an hour, we’re saving the tribe \$102,000 in labor. They’ve been great to work with.”

Tabor Dam consists of 2 earthen dams connected by an earthen dike. Together, they create Tabor Reservoir from the naturally existing St. Mary's Lake.



The project is part of the Confederated Salish and Kootenai Tribes’ efforts to correct weaknesses in dams across the Flathead Indian Irrigation Project. The tribe completed its environmental assessment checklist on the Tabor project in December 2011, and found no significant long-term impacts.

“We’re allowed to work with communities and government organizations to perform innovative readiness training projects like this one,” said Maj Tim Crowe, spokesman for the Montana Army and ANG.

“The tribe’s request came through our normal process of review, and it has worked out very well. They’re providing the equipment, fuel and maintenance, and we provide the manpower and expertise to do the job.”

The project also keeps airmen with the 219th trained and ready to deploy. The unit currently has members in Kosovo and Hawaii, completing projects there.

MSgt Thomas has deployed with the 219th three times in recent years, including tours in Iraq and Afghanistan. The unit is self-sustaining, capable of completing everything from runway construction to military lodging. *(Article provided by MSgt David Cannon, ANG NGB/A7XX)*



# Making a Difference

No single organization at Bagram Airfield (BAF) has a larger impact on both the mission and overall quality of life than the 455th Expeditionary Civil Engineer Squadron (ECES). Led by Lt Col Keith Hodsdon and CMSgt John Talcott, the 455th ECES includes 5 Officers, 87 enlisted service-members and 83 contract civilians. The squadron is made up of 63 ANG and 29 AD airmen from 16 states around the country including Vermont, North Carolina, Rhode Island, Texas, New Jersey, Massachusetts, California, Delaware, West Virginia, Kansas, Montana, Arizona, Utah, Oklahoma, South Carolina, New Mexico. The 455th ECES is divided into four sections - the Operations Flight, Engineering Flight, Emergency Management (EM) Flight and Force Protection Flight, all collaborating together to win the fight.



The CE Operations Flight receives at least 350 work orders weekly for 1,200 facilities, maintaining a steady inventory of various materials for facilities maintenance and ongoing projects. These parts and materials include everything from utility parts for billeting latrines to electrical parts for transient tents. This section's mission is to not only maintain an operational airfield but also to provide consistent morale and welfare support to make our BAF warriors' lives a little more comfortable. There are also emergencies such as flooding of valuable, mission critical infrastructure and electrical power outages that require immediate attention.

One of the initial challenges facing squadron leadership was the large number of first time deployers. It was unclear how these airmen were going to handle being away from home and missing friends, family, and other "comforts." It was

critical for them to think of this deployment as a marathon and not a sprint. Supervisors stressed that it was going to be a long 6 months so it is important to do their work safely and look out for fellow airmen. "We we're hoping for a quick bond between the members in each section and that's exactly what we got - every shop just clicked, and that was amazing to see," said Lt Col Hodsdon.

Bagram is the busiest single airfield in the entire DOD and this creates plenty of challenges for the airfield lighting and barrier maintenance personnel. Even the engineering shop was tasked to design and layout a new landing zone to allow for simultaneous rotary and fixed wing aircraft operations. This project greatly enhanced the safety of rotary flight crews that previously had to hover outside the wire for an approach window.

One of the objectives for the 455th ECES was to make a difference and upgrade the quality of life for both military and civilians at BAF. Whether that included spreading 12,973 cubic meters of gravel around base to control mud during the rainy season, or making sure the nearly 500 air conditioning units were operational during the late spring heat, CE troops were on the job making an impact. The structures shop, led by MSgt Keith Tourville, was given a task to replace two unsafe foot bridges at the main base Entry Control Point. This team tore up the wooden planks and replaced both sections with custom-made steel bridges with handrails for safety. The shop had to research requirements, acquire materials and perform engineering load tests to ensure the bridges will hold the required weight. Skilled structural craftsmen then had to weld the bridge together, making use of limited materials and equipment. This small improvement may not seem like much for Americans at home; but for the people that cross that bridge every day it made a big difference – exactly what the airmen of the 455th ECES came to do in Afghanistan.

These are just some examples of what these dedicated airmen encountered while deployed to BAF. One of the hardest things they had to remember was that they were not in the United States so they often had to improvise with materials available on hand to get the job done.

"The Commander and I are so proud of the men and women of the 455th ECES" said CMSgt Talcott, "I can honestly say that every meeting the Commander and I attend, we get some sort of recognition on how Civil Engineering contributed to the base and to the people on BAF. You can't ask for anything more than that." *(Article submitted by CMSgt John L. Talcott, 455th ECES/CEM)*



# 219th RED HORSE participates in FTX

The MTANG's 219th RHS deployed more than 100 members to Fort Harrison to attend a FTX June 10th. While there, members gained contingency skills that focused on self-aid buddy care, troop movements, radio communication, beddown and vehicle training. During the training, members also focused on small unit leadership, team building, and camaraderie.

The MTANG's 189th Aviation Battalion picked up the 219th RHS members and flew them to Fort Harrison in C-47 Chinook helicopters. I thought it was pretty spectacular," said A1C Clancy Mickelson, 219th RHS member. "It's good for the troops because they get to do something they're normally not able to do unless in country down range," said TSgt Colton Sweeny, 219th RHS member.

The 219th RHS has a great working relationship with the MTANG. They provide instructors for the field training exercise and operate the training facilities at Fort Harrison. Lt Col Rusty Vaira, 219th RHS commander, said Fort Harrison offers remarkable courses that his squadron has utilized for training. "We've inserted ourselves into their training curriculum for self-aid buddy care, combat life saver courses and combat training," he said.

Members of the 219th RHS spent seven days completing contingency training. The first two days included class-



Members of the 219th RED HORSE Squadron form up during a field training exercise in Fort Harrison on June 10

room training at MTANG provided by Malmstrom AFB's 341st Security Forces Group. Members also spent three days in the field at Fort Harrison putting their classroom training into action. Each member had additional goals to meet while training, and many had a positive outlook on the training they received while at Fort Harrison.

TSgt Erik Vankirk, 219th RHS hoped to serve as a role model to the younger squadron members. "I hope to have a pleasant attitude, to be a good example for those younger airman as well as the others, be encouraging, uplifting, perform all the tasks asked of me with a certain level of proficiency, and look back and say 'I gave it my best,'" he said. *(Article provided by MSgt David Cannon, ANG NGB/A7XX)*



A 219th RED HORSE Squadron member erects a tent during a field training exercise at Fort Harrison



Members of the 219th RED HORSE Squadron conduct vehicle training.



# Water and Fuel Systems Maintenance UPdate

While deployed, an essential core competency for the WFSM work center is providing potable water for all base personnel regardless of service branch, country of origin, military or civilian status. This includes the warfighters traversing outside-the-wire in the local community keeping us safe, multi-national coalition forces bringing their specialty to the war against terror, or a civilian contract workforce that eases the deployment tempo for troops. One thing rings true, we all need water to survive. Water purification operations currently fall under contract here at Bagram Airfield but that didn't stand in the way of the 455th ECES's WFSM Shop. MSgt Clem Devlin stated "We realized early on that, if necessary, the water and fuels shop should be prepared to assume water purification operations." Being prepared is key to survival in a deployed environment.

This readiness was accomplished by reaching out to the professional staff at Fluor Government Group and establishing training on the multiple water points located around the airfield. "We have a very unique opportunity here at Bagram to gain experience on commercial reverse osmosis and nano-filtration systems that we would never see otherwise in a military application" says MSgt George Huffstetler, Shop Supervisor. These units operate on the identical theory of our expeditionary assets, just to a larger scale. This was familiar territory to MSgt Huffstetler who spent nearly ten

years as a ROWPU (Reverse Osmosis Water Purification Unit) instructor at the ANG's Regional Training Site in North Carolina.

Multiple brand international ROWPUs are utilized which can produce up to 6,000 gallons per hour each to supply potable water to the Craig Joint Theater Hospital, all dining facilities, air traffic control tower, and Army & Air Force Exchange Services vendors that serve food, drink and coffee. Each brand unit is unique in its maintenance and operational requirements to ensure concrete reliability. This means WFSM personnel must be familiar with each type. The product water must be put through a battery of tests in an onsite laboratory to verify the machines are operating at peak efficiency and water quality is within technical limits for use. A broad range of tests are accomplished and methodically logged for quality control measures and accountability. Our water and fuels personnel were trained on these procedures to maintain a continuity of operations, just in case. This training was essential to provide 100% reliability of the system and establish an organic capability to maintain this critical system so combat operations can continue, and we continue to "Win the Fight." A special thanks to the Fluor Government Group for allowing us to migrate in with their team of professionals. *(Article provided by MSgt George Huffstetler, 455th ECES)*







## Upcoming PB/UDM and Automated Civil Engineer System Personnel and Readiness (ACES PR) Training

To sign up for any of the classes below, access the Expeditionary Engineering SharePoint at <https://cs3.eis.af.mil/sites/OO-EN-CE-A6/21340/default.aspx> or contact Mr. Larry Lomax at [larry.lomax.1.ctr@us.af.mil](mailto:larry.lomax.1.ctr@us.af.mil) or DSN 523-6143/Com 850-283-6143.

- 16-20 Sep 13:** Gunter Annex, AL (PB/UDM Training/Includes ACES PR)
- 21-25 Oct 13:** Peterson AFB, CO
- 11-15 Nov 13:** Tentative Gunter Annex, AL (PB/UDM Training/Includes ACES PR)
- 13-17 Jan 14:** Tentative Gunter Annex, AL (PB/UDM Training/Includes ACES PR)

## Civil Engineer Manpower and Equipment Force Packagers (MEFPAK) Update

AFCEC Manpower and Equipment Force Packagers (MEFPAK) conducted the PB Engineering & Operations equipment and supply list (ESL) review 24-28 Jun 13 at Dobbins ARB, GA. This review encompassed 14 equipment unit type codes (UTC), 19 personnel UTCs, and mobility bags. Not all major commands (MAJCOM) were able to attend this face-to-face meeting but had the opportunity to participate via Defense Connect On-Line (DCO) and telecom.

The ESL working group recommended 56 updates and 12 deletions to the 14 equipment UTCs. These recommended changes will be briefed to the Expeditionary and Emergency Services Program Group at their next scheduled meeting and if approved will be implemented in accordance with their guidance. (Mr. Larry Lomax, AFCEC/CXX, DSN 523-6143)

## Joint Tactical Radio Systems (JTRS) Accountability & Transfer to Grissom ARB, IN

The next round of JTRS asset transfer has been approved. AFMC, AETC, AFSPC, AFSOC and ANG have been notified to begin releasing and shipping all JTRS assets to Grissom ARB, IN.

Before releasing shipments certain steps must be completed to ensure a smooth transition and transfer. There are two different types of tactical radios that look similar but have different identifiable characteristics. CF-310M radios, part # 0N689740-13, are used to support repeater operations. CF-310M radios are not accountable equipment and should not be on your Custodian Account & Custodian Request Log (CA/CRL) or Controlled Cryptographic Instrument (CCI) communication security (COMSEC) accounts. If they are on account, they are misidentified as AN/PRC-152 radios. Ship the CF-310M radios to Grissom ARB as part of your MAJCOM JTRS transfer.

AN/PRC-152C radios should be loaded on unit CA/CRL (R14) and CCI COMSEC accountability records. Each flight (EM, FES, Explosive Ordnance Disposal and PB Operations) should load their respective JTRS radios on their equipment/COMSEC accounts utilizing appropriate Allowance Source Codes as indicated below by UTC.

- a. 4F9ER – AS660NHOD
- b. 4F9ED – AS660NHOE
- c. 4F9WL – AS660NHOM
- d. 4F9K6 – AS660NHOS
- e. 4F9FE – AS660NHOF
- f. 4F9X1 – AS660NHON
- g. 4F9X3 – AS660NHOQ
- h. 4F9X6 – AS660NHOR
- i. Silver Flag (PACAF) – AS660AHAD
- j. Silver Flag (USAFE) – AS660AHAE
- k. CoBRA – AS660COBR
- l. RED HORSE Mobility – AS660NHOL



**Vehicle adapters:** DVM – NSN: 5996-01-573-1005, SVM – NSN: 5820-01-573-1004; base stations – NSN: 5820-01-581-7750; and repeaters – NSN: 5820-01-573-1011 are equipment items that are not accounted for on the CA/CRL but must still be accounted for and shipped to Grissom ARB.

AN/PRC-152C radios will include part #: 0N689740-3, 0N689740-7 and 0N689740-9. These radios are accountable equipment CCI COMSEC (i.e. controlled items)—they must be on unit CA/CRL and CCI COMSEC inventories. (Mr. Larry Lomax, AFCEC/CXX, DSN 523-6143)