

Navy returns to AEDC to test the next-generation heat shield materials for missiles, reentry vehicles

By Philip Lorenz III
ATA Public Affairs

Once it leaves a U.S. Navy Trident II submarine and is clear of the water, a submarine-launched ballistic missile (SLBM) rapidly accelerates to more than Mach 20, on its trajectory to impact and destroy a target.

An SLBM is the Navy's sea-based equivalent to the Air Force's land-based Inter-Continental Ballistic Missile.

How do the Navy fleet commanders know for sure the sixth generation D-5 fleet ballistic missile will survive those extremely hot and severe aero-thermal flight conditions and accomplish the mission?

This is where the Navy's Drew Pathwick and the test team at the AEDC's High-Enthalpy Arc-Heated facilities come into the picture.

Pathwick is the Navy Reentry Ground Test Coordinator for the Naval Surface Warfare Center's Dahlgren Division Detachment in Washington D.C.

Since 2000, he has been coming to AEDC to conduct aero-thermal testing to simulate what a missile's heat shield material candidates will experience in that flight regime – to ensure they will survive long enough and intact enough to complete the mission.

"A flight test is extremely costly, I mean we're talking about orders of magnitude more than performing a 'simple' ground test at AEDC," Pathwick said. "The Navy had decided many years ago that the data

we get out of AEDC for the price is actually a steal [when] compared to a flight test. And you get a very quick turnaround with your data, whereas with a flight test, from conception to flight, you're taking about three years or something like that."

Pathwick added, "Our systems see a very extreme environment, some very high heat fluxes and pressures. Although there are many other arc heaters [ground test facilities] in the U.S., none of them can actually provide the proper conditions that

we're looking for. AEDC is very unique in that respect."

Pathwick said he and his colleagues

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ATA machinist Larry Phipps installs a Naval Surface Warfare Center thermal protection wedge test article in the H3 test cell prior to a test run at AEDC. (Photo by Rick Goodfriend)



ACC presents Gen. Franklin O. Carroll photo to AEDC

Arnold Community Council (ACC) President Steve Cope (center) recently presented a framed picture of Gen. Franklin O. Carroll to the AEDC Commander, Col. Raymond Toth (right) with ATA General Manager Steve Pearson (left) looking on. Previously the building didn't have any pictures of Gen. Carroll, only a plaque. The picture includes several photos reminiscent of the General's days as AEDC's first commander. Gen. Carroll is only the third person to have an AEDC building named after him.

Read more about Gen. Carroll on page 5.

AEDC's economic impact exceeds \$642 million in 2012

By Kathy Gattis
ATA Public Affairs

AEDC's economic impact – which includes AEDC and its remote operating locations – the Hypervelocity Tunnel 9 at White Oak in Silver Spring, Md., and the National Full-Scale Aerodynamics Complex at Moffett Field, Calif. – was \$642.9 million for fiscal 2012.

Each location impacted the local areas through payroll, secondary jobs created through local spending, and other expenditures for supplies, utilities, fuel and services and the spin-off impact of those purchases.

AEDC employed a mixture of active-duty military personnel from the Air Force and Navy; Department of Defense civilians; and contractor personnel, which totaled 2,402 personnel in fiscal 2012. Of the 2,402 personnel, 52 were active-duty military; six Air Force Reserve and National Guard; 285 appropriated fund civilian employees (includes general schedule, federal wage board and other military branches); 66 government non-appropriated fund employees; 38 other civilians (credit union, Base Exchange and commissary tenants); and 1,955 contractor and sub-contractor employees.

Additionally, using the Tennessee Valley Authority economic impact model methodology, AEDC estimated that more than 1,657 secondary jobs were created in the local area, for a total of 4,059 jobs directly related to AEDC. Examples of secondary jobs include those created by home construction and at local supermarkets, car dealerships and department stores.

During fiscal 2012, the payroll cost for AEDC government and contractor personnel was \$279 million. AEDC's direct expenditures – which include utility costs, service contracts with outside vendors and military health insurance paid to local doctors and hospitals – was more than \$159

million. Furthermore, the indirect spin-off impact of these direct expenditures is approximately \$206 million.

The overall economic impact figure does not include more than \$95 million paid to the approximately 4,434 retired military personnel living in the local area. In total, this retired pay group generates more than \$140 million, including the spin-off effect.

Additionally, these figures do not include the impact from test customers or other companies who maintain staff at AEDC to manage tests of their products or participate in the test process.

The economic impact data and secondary employment estimates represent AEDC's economic impact during fiscal 2012, which runs from Oct. 1, 2011 to Sept. 30, 2012.

AEDC operates the world's largest complex of ground test facilities with a replacement value of more than \$11.8 billion.

Direct Employment Personnel at AEDC

Military	52
Reserve and National Guard	6
DOD Civilian	285
Non-appropriated Fund	66
ATA	1955
Other	38
Base Exchange	
Commissary	
Ascend Federal Credit Union	

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HIGH MACH

Arnold Engineering Development Complex
An Air Force Materiel Command Test Complex

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- Integrity first
- Service before self
- Excellence in all we do



Vision

"ATA will be a trusted partner in delivering best value warfighter support and assert stewardship to AEDC"

Core Values

- Be accountable for our own actions
- Ensure the safety of individuals and equipment
- Demonstrate the highest integrity and ethical standards
- Communicate clearly and openly
- Deliver professional and technical excellence
- Nurture, enable and treat people fairly
- Align with customer goals and objectives
 - Use disciplined and innovative processes
- Continually improve in all that we do

Appropriate material in the Air Force workplace

Commentary by Master Sgt. Walker Julius
373rd Training Squadron Det. 5

JOINT BASE CHARLESTON, S.C. (AFNS) – I remember many years ago as a young Airman in the maintenance career field, I would come to work and during my break time I would read some of the "literature" left lying around the work area.

I would read Maxim or Fitness and Health magazines and nobody said a thing about it. I was oblivious that magazines like this could be harassing to some members of our work area. I mean, everyone seemed cool with it. Or were they merely tolerating it to fit in and not

make waves? I had a very narrow view of the effect having material like this in the workplace could have. After years of training and being able to take myself outside of my own personal viewpoint, I understand material like this can only serve to drive a wedge between what brings all of us together as an Air Force. We want everyone, regardless of their background, genetic makeup, etc., to feel like they are a valuable part of the Air Force family. When we tolerate potentially offensive material in the workplace, we tolerate

alienating vital members of our team. We tolerate suppressing those members who could make a great contribution to the mission.

By not taking others into account, is that really service before self?

My challenge to you is to find those things that may be in your workplace and critically think if there is value added by having that particular item in your workplace. Just because a particular

magazine is sold at the base exchange or shoppette, does not mean it can be brought back to share with everyone at work.

Does music with explicit lyrics need to be played so anyone can walk by and hear it? Does that signed cheerleader poster really have a place in your cubical? Do you really need to tell that joke or talk about that particular subject matter?

Remember our core values. Bringing something back to the workplace just to show to my buddies when I know it is wrong, is that integrity first? When I am only thinking about my own particular taste in music, is

listening to explicit music the right thing to do? By not taking others into account, is that really service before self? By having offensive material lying around the work area, is that exhibiting excellence in all we do? It is time to step back and start considering the team as a whole.

During these challenging times, we need the full contribution of each of our team members. We can achieve everyone's full potential if we serve to unite us under our common goals. Offensive material will only divide us and hamper our ability to accomplish the mission effectively.



(AEDC file photo)

Tennessee winter weather: Know threats and terms

By Vicki Peters
ATA Safety, Health and Environmental

If you've lived in this area very long, you may have heard the saying, "If you don't like the weather, stick around a day or two. It will change."

In recent weeks, we've experienced near-record highs followed immediately by near-record lows. But the weather can go to extremes in other ways. Tornadoes strike with unwanted regularity.

Severe thunderstorms with downburst winds and large hail occur even more often. Flash floods can wash away people and property with little notice. These types of severe weather are not restricted to a specific season or time of year, and we need to be ready to react at a moment's notice. But there's yet another type of weather extreme to prepare for:

Friday is officially the first day of winter, and it's time to talk about another unpredictable weather threat – cold weather. Are you prepared?

Know the Threat!!
Heavy snow and/or freezing rain can immobilize a region and paralyze a city. Snow accumulations can collapse buildings, knock down trees and power lines, and isolate rural areas for days. That's why each household should have provisions and the ability to remain self-sufficient for at least three days without power, or help, as it may take this long to reopen main roads and reestablish vital services.

Wind chill is based on the rate of heat loss from exposed skin caused by the combined effects of

wind and cold. As wind increases, heat is carried away from the body at an accelerated rate, driving the body temperature down. Animals are also affected by wind chill. A big question that comes up with wind chill is "Does it affect water pipes and car radiators?" The answer is "No. The accelerated loss of heat occurs on exposed skin only."

Frostbite is damage to body tissue caused by the tissue being frozen. Frostbite causes loss of feeling and a white or pale appearance in extremities, such as, fingers, toes, earlobes, or the tip of the nose. If symptoms are detected, get medical help immediately. If you must wait for help, slowly re-warm affected areas. If the victim shows signs of hypothermia, warm the body core before the extremities.

You, the author

Commentary by Chaplain Paul Gunn
Air Force Reserve Command

Every year you write a book. Your book has 365 pages. Every four years you have the privilege of extending your book by one page. Your book has twelve chapters. Each chapter has 28 to 31 pages.

You are the main character of your book. You choose what type of character you want to be. The only rule is that your book will tell all. There are no secrets.

Probably your book will not be read in its entirety, because no person will be with you every moment of every day for a year. Your readers will only take glimpses at your book, some reading a page or two, and some reading several chapters.

You decide the genre, style and format of your book. You decide how you react to situations around you, how you relate to others, how you view the world. Ultimately you decide if your book has meaning or not.

Will you write a book that inspires, stirs anger, or makes others laugh? You could include all these things and more, because it's your book. You do not have to follow preset writing rules.

It's important for you to write carefully because there will be a grade. You'll be held accountable for the quality and content of your book because there is One Who will watch you write it. He'll help you write it, if you so choose. He'll give you tools, but you can throw them away. He doesn't

force you to use them.

You could be very clever and write with such intention that no one knows you are the author. In this style, you will actually remove yourself as the main character. Your first book will be your most challenging undertaking. At first it will be difficult to hide, but in time you'll get better at it. People will see themselves as the heroes. They will get all the praise and you won't get any at all, because you'll become the master of crafting situations where others get the accolades. In your older years when you have nothing to do but read the books of your life, you'll find satisfaction in reading great stories.

Or you could write as many people do, with randomness, disconnected selfish thoughts about how to use others for one's own gain. You could document page after page about topics such as insecurity, jealousy, bitterness, greed and the flaws of others. Such authors find difficulty writing new books because they keep reflecting on past ones and inserting more information.

It's possible for you to start a new chapter in the middle of your book that goes in a completely new and fresh direction. It takes much effort and few actually do it but those who do find a captive audience.

It's your book. Write well.

Chaplain, Major Paul Gunn, is an Air Force Reserve Chaplain Recruiter for the eastern U.S.

Know the Terms!!

Winter Weather Advisory – Ice or snow is expected to hinder travel, but conditions are not serious enough to require warnings.

Winter Storm Watch – Severe winter weather is possible within the next day or two.

Winter Storm Warning – Severe winter weather conditions are expected within the next 24 hours.

Blizzard Warning – Heavy snow; winds of 35 mph or more are expected.

Action Line

Team AEDC

I believe in free and open communications with our Team AEDC employees, and that's why we have the Action Line available. People can use the Action Line to clear up rumors, ask questions, suggest ideas on improvements, enter complaints or get other issues off their chests. They can access the Action Line in one of three ways: via the AEDC intranet home page, Action Line boxes at the base cafeterias and by calling 454-6000.

Although the Action Line is always available, the best and fastest way to get things resolved is by using your chain of command or by contacting the organization directly involved. I encourage everyone to go that route first, then if the situation isn't made right, give us a chance.

Col. Raymond Toth
AEDC Commander

Smoking Policy

1. The following revised AEDC smoking policy is effective immediately. Smoking is permitted solely in designated areas identified by a plastic "smoke genie." This receptacle is for the sole purpose of cigarette butt disposal. If there is no receptacle, you cannot smoke in that area. It is the responsibility of all smokers to clean up the area surrounding the receptacles for any cigarette butts on the ground. Smoking in government-owned vehicles is strictly prohibited. Personnel are allowed to smoke in their personal vehicles at any time. In case of inclement or cold weather, employees are encouraged to use their personal vehicles if a sheltered designated smoking area is not available nearby. Smoking areas will be held to the absolute minimum and will be located in low traffic, low visibility areas away from points of building ingress/egress and air intakes. A map of all authorized smoking areas is available on the AEDC web portal at https://es.eis.afmc.af.mil/sites/cio/1M/Pubs/AEDC/Pubs%20and%20Forms/AEDC%20Publications/Smoking_area_map.pdf. Smoking near a facility in an area not designated on the map is prohibited and any smoking receptacles located in areas not shown on the map will be removed. All "smoking permitted" and "no smoking" signs will be removed unless specifically required by OSHA.

The fact a person smokes has no bearing on the number of breaks they may take. Breaks should be taken in accordance with the company/agency personnel policies that apply to all employees.

Regarding use of smokeless tobacco, containers of tobacco waste product, including sealed containers, must not be left unattended or disposed of in trash receptacles. Users of smokeless tobacco must flush tobacco waste down the toilet. Smokeless is strictly prohibited in conference room meetings and other areas, e.g. PMEL, where Air Force regulations specifically prohibit.

Due to the nature, appearance, and safety concerns of electronic cigarettes (also known as "e-cigs"), they are considered to be in the same category of tobacco products whose use is governed by Air Force Instruction (AFI) 40-102, Tobacco Use in the Air Force. Therefore, all rules stated above for tobacco products apply to electronic cigarettes.

- Supervisors at every level will ensure this policy is followed. Disciplinary action is appropriate for repeated violations.
- Updates to this policy will be made in the future to further align with Air Force guidelines.
- This letter supersedes the previous letter dated 28 October 2006, subject as above.

AF small business achievement awards presented

By Brian Brackens

Air Force Materiel Command Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio – In a Dec. 17 ceremony held on the 109th anniversary of Wilbur and Orville Wright's first powered flight, the Air Force honored 15 Air Force employees and organizations for significant contributions to the Air Force Small Business Program.

Acting Under Secretary of the Air Force Dr. Jamie Morin was the keynote speaker for the event.

"Today is a great day because I have the opportunity to recognize extraordinary performers," said Morin. "The Air Force relies more than ever on innovative Airmen such as the folks who are doing exemplary work in support of the Air Force's Small Business Program."

Joseph McDade, director of the Air Force Office of Small Business Programs, said he is proud of the hard work and dedication of the many professionals in the Air Force and Small Business community who helped the service meet its goals for Small Business.

"No one is working harder for our Air Force each and every day than those of you being honored today," he said. "It makes me proud that we rose to a level of performance that exceeded expectations."

Among the recipients was Air Force Materiel Command, who received the top major command award for developing new initiatives to increase small business participation in the face of declining budgets. During fiscal year 2012, the command awarded \$3.9 billion in contracts to small businesses.

During his visit, Morin also spoke with senior leaders about the importance of strengthening and improving the Small Business Program in the future.

"The pace of change is one of the fundamental challenges facing our Air Force today," Morin said. "We have technological, geopolitical and economic changes which create uncertainty. Despite these challenges, the Air Force remains committed to improving our Small Business Program. When we talk about being more innovative, more rapidly responsive, and finding more efficient ways to provide capabilities to our troops, what comes to mind are our small business partners."

Morin also thanked local small business owners and acknowledged that the Air Force benefits when it utilizes the talent and skill of small business contractors.

"As a vital segment of our nation's economic strength and re-

covery, the entrepreneurial spirit of small businesses injects agility, innovation and essential competition into the marketplace," Morin said. "Promoting small business not only provides value to the taxpayer, but it helps us fulfill the Air Force mission."

Morin's visit to Wright-Patterson was part of a full day of activities aimed at recognizing superior support of the Air Force Small Business Program. Morin also visited Seymour Johnson Air Force Base, N.C., where he recognized an additional three award recipients and met with base and community leaders.

Seymour Johnson received the top installation award, leading the Air Force with an unprecedented 96 percent contracting rate with small business, far exceeding the Congressional standard of 23 percent.

The Air Force Small Business Program is tasked with promoting small businesses nation-wide to obtain innovative and efficient solutions to Air Force needs. Often, these businesses are asked to develop technology that is used to give the Air Force a significant advantage in its war-fighting capabilities.

Recipients of the 2012 Air Force Small Business Program awards include:

Director's Award for Senior Executive Service/General Officer Outstanding Leadership

- Maj. Gen. Wendy Masiello, Office of the Assistant Secretary of the Air Force for Acquisition, the Pentagon

- Randall Culpepper, Air Force Program Executive Office for Combat and Mission Support, the Pentagon

- Dr. Steven Butler, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio

Small Business Specialist Award- Individual

- Connie Robben, Headquarters Air Mobility Command, Scott Air Force Base, Ill.

- Kyle Donah, 4th Contracting Squadron, Seymour Johnson AFB, N.C., Air Combat Command

Special Achievement-Small Business Unit Award - Unit

- 7th Contracting Squadron, Dyess Air Force Base, Texas, Air Combat Command

Special Achievement-Small Business Award - Individual

- Gabriel McKenna-Groves, Luke Air Force Base, Ariz., Air Education and Training Command

Major Command Small Business Director's Award - Individual

- Becky Carpenter, Headquarters Air Combat Command,



Acting Under Secretary of the Air Force Dr. Jamie Morin (left) and Joseph McDade (far right), director of the Air Force Office of Small Business Programs, stand with award recipients following the Air Force Small Business Program award ceremony at Wright-Patterson Air Force Base, Ohio, Dec. 17. Morin's visit to Wright Patterson was part of a full day of activities aimed at recognizing superior support of the Air Force Small Business Program. Following the award ceremony he visited with senior leaders and industry partners, and then traveled to Seymour Johnson Air Force Base, N.C., where he presented three more awards and spoke to base and community leaders. (Photo by Michelle Gigante)

Langley Air Force, Va.

Market Research Award - Team

- Eric Halter, Sue Tormey, Annette Dunbar, Lynne Imhoff, Michael Eidsaune, Kendra Kershner, Lisa Thibeault, Denise Trapp, Gregory Koesters, Gregory Turner, Jason Cadek, Lance Pritchard and Lou Knapp, Headquarters Air Force Materiel Command, Wright-Patterson AFB, Ohio

Denise Stice Memorial Award-Demonstration of cre-

ativity and persistence

- Mary Urey, Enterprise Sourcing Group, Lackland Air Force Base, Texas, Air Force Materiel Command

Tandy Weaver Memorial Award- Community outreach and involvement

- Renee Gifford, 82nd Contracting Squadron, Sheppard Air Force Base, Texas, Air Education and Training Command

Small Business Director's "Beyond Goals" Award - Profes-

sional achievement, initiative and innovation

- Barbara Liptak, Enterprise Sourcing Group, Wright-Patterson Air Force Base, Ohio Air Force Materiel Command

Small Business Top Installation Award

- Seymour Johnson Air Force Base, Air Combat Command Top MAJCOM Award

- Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio

First CyberPatriot program team in middle Tennessee recognized



From left, Cameron Liner, an Air Force data acquisition and instrumentation engineer with AEDC's Test and Base Communications Branch and CyberPatriot mentor, Jere Matty, AEDC STEM educational outreach specialist, Lt. Col. Philip Bailey, AFJROTC SASI CyberPatriot coach, and AFJROTC cadets Matt Slack, Clayton Whitt, Dawson Carlton, Robert Damron, Sam West and James Moore, AEDC Commander Col. Raymond Toth and Michael Glennon, AEDC's technical director of engineering and technical management and CyberPatriot mentor gathered recently to recognize middle Tennessee's first CyberPatriot high school team. CyberPatriot V was established by the Air Force Association. The Northrop Grumman Foundation is the sponsor for the 5th phase of the program, CyberPatriot V. The organizations founding partners are the Science Applications International Corporation (SAIC) and the Center for Infrastructure Assurance & Security (CIAS) at the University of Texas-San Antonio. (Photo provided)

HEAT SHIELD from page 1

have formed a solidly professional and collaborative relationship with the test team at AEDC's Arc Heater facilities over the years.

"I interface a lot with Mark Smith and the other engineers there," he said. "They're very good at taking our requirements and ensuring that the proper test environment that we're looking for is provided, including keeping things on schedule. And the operations folks down there do a great job at meeting our sometime unusual test requirements."

"We typically have a standard type of test configuration that we're looking for, but for some reason it seems every time we come there we have some sort of new wrinkle and the crew there is very good at helping us out and ensuring that we get the data we're looking for."

The Navy's current test entries are next-generation SLBM heat shield material candidates and these are being tested in the Complex's most cutting-edge high-pressure segmented arc heater, H3, as well as in the legacy H1 segmented arc heater.

"The data we're getting out of this test is going to be used to provide relative performance data for new build thermal protection system materials," Pathwick

continued. "We're comparing that to our current thermal protection systems so that we have candidates for a new system if the opportunity arises."

He emphasized it is important to put the current material candidates testing into perspective.

"Our systems are working just fine, but there will be an end date to the service life of this system and we want to be prepared for when that day comes," he said, acknowledging some of the challenges to fielding any new weapon system or its components.

As new missiles are conceived, designed and fielded, the existing TPS materials will no longer be available and new materials will be required. Ground testing in AEDC's High-Enthalpy Arc-Heated facilities remains the only way to gain confidence and validate these newer materials.

"We can't say this is a simulation of flight test, because it really is not, especially when you consider the Mach numbers [and considering] the aerodynamics," Pathwick said. "This is really screening from a thermal perspective. We're looking at providing flight-like heat fluxes, pressures, so we get the right thermal soak through the material as a screen-

ing process. Again, the only true way to check out a material is to eventually flight test it.

"So, this is a great screening tool so we can narrow down our candidates to a few that we can then actually put in the air and flight test."

Pathwick also said his test team has also been getting help from another group at AEDC on the Navy's test entry in H3.

"Since it's a new arc heater, we're trying to better understand the flow field that we're getting out of it," he said. "H3 is a whole different beast – we just want to make sure we understand it as well as we can. And we're getting help from AEDC's analysis branch with this facility in defining the nozzle flow conditions."

2nd Lt. Julie Sung, who is AEDC's Air Force program manager for the test, said that although she only recently joined the Complex's workforce, "In my short time here I have already gotten the impression that our arcs team has established many positive and outstanding relationships."

"Since NSWC has worked with AEDC on this test effort for many years now, I get the impression that each time NSWC comes to test here, all the logistics that lead up

to their visit goes very smoothly and is nearly routine now. Mark, his team, and Drew Pathwick seem very knowledgeable in their jobs, and most importantly, I get the impression that they are very passionate about it as well."

Sung added, "Ground testing done at AEDC is an invaluable resource in lieu of flight testing. Having this cost effective option very likely delivers a wealth of data that can be used by the Navy to continue their efforts in maintaining progress on their SLBM programs which in turn, support the defense of our country."

Mark Smith, the ATA project engineer on the NSWC re-entry candidate materials at AEDC, has worked closely with the Navy during his 26 years at the Complex.

"The Navy has a rigorous materials test program underway in the AEDC arcs going back some 30 years, with several different Navy-related programs in the testing mix," he said. "The Navy is the single largest test customer in the AEDC arcs in terms of test workload, and they have been for many years. The collaboration between AEDC and NSWC has always been a dynamic one, with excellent communication and forward-thinking on both sides.

"[This relationship] has enabled the 'stand-up' of many new test techniques and capabilities which directly support the Navy systems and provides additional capability to the DOD warfighter for development of high-speed missiles and vehicles. In turn, the Navy has been very proactive in helping to bring these capabilities to fruition through various partnerships and most importantly, through systematic utilization of the legacy and developing arc jet capabilities at AEDC."

Asked why the Navy has continually brought their thermal protection system materials to AEDC for ground testing before subjecting the materials to a flight test, Smith said the answer is relatively straightforward.

"The AEDC arc facilities are unique in the world in their ability to simulate heat flux and pressure conditions typical of long-range ballistic missile reentry through the atmosphere," he said. "For tests such as these, the Navy as well as the Air Force (for ICBM) require high-temperature air flows lasting several minutes with turbulent boundary-layer conditions on wedge and nose tip test articles. There is no other place in the world to conduct tests of this nature."

AEDC employees to participate in Relay for Life

By Raquel March
ATA Public Affairs

AEDC employee Shawn Wolfe is encouraging other AEDC employees to participate in the 2013 Coffee County Relay for Life for the American Cancer Society, April 26-27 at the Coffee County Middle School football field in Manchester on Highway 55.

Employees may join team "Remember" to take part in the relay and assist in fund-raising activities.

During the relay, teams of people camp out and take turns walking or running around the track. Each team is asked to have a representative on the track at all times during the event.

Dee Wolfe and her hus-



band Shawn, both AEDC employees, coordinate team "Remember's" involvement in the event. Two teams from AEDC, "Remember" and "Honoring Mark and Moe," participated in last year's Relay for Life and together collected more than \$3,000.

The teams raised money at the event by selling Crush Cancer T-shirts, offering chair massages, and providing attendees the opportunity to beat on a donated car with sledgehammers.

"When I arrived in October 2008, AEDC as a

whole didn't know what Relay for Life was all about," Wolfe said. "I told my story of my battle with thyroid cancer and asked AEDC to come out and support me and the American Cancer Society by joining a team at Relay for Life. Since 2009, AEDC teams have shown their support and raised more than \$28,000 for cancer research."

Wolfe said her life has been touched by cancer since she first told her story at AEDC.

"My Dad found out he had prostate cancer and went through treatment in 2009; in September 2010, I was told I had cervical cancer and had surgery; and then in October 2012, cancer has once again

struck my family as my step-mom was diagnosed with kidney cancer," she said. "Relay has meant a lot to me and my family since we first got involved in 2007, but each year it comes to mean more as cancer affects more of our friends and family."

The relay starts at 6 p.m. Friday and ends at 6 a.m. Saturday. All team members do not have to be at the relay the entire night.

As in previous years, individuals can purchase a luminary, track torch or company sign that will be displayed the night of the relay.

For more information about Relay for Life, joining team "Remember," purchasing a luminary or making a donation, please



During the Relay For Life Luminaria Ceremony, votive candles are lit inside personalized bags to shine a light on the fight against cancer. The ceremony provides an opportunity for individuals to share their grief and find hope. Luminaria may be personalized and dedicated in honor, memory, or support of a loved one. Donation dollars may be assigned to a Relay For Life event, team, or participant to help teams get a step closer to their fundraising goal. (photo provided)

contact Dee Wolfe at dee_wolfe@arnold.af.mil. Individuals can also register online at www.relayforlife.org/coffeetn.

F-35 Integrated Test Force pushes the envelope

EDWARDS AIR FORCE BASE, Calif. – The F-35 Integrated Test Force made significant progress expanding the flight envelope of the F-35A conventional take-off and landing variant over the past few months with numerous successes in High Angle of Attack (AoA) flight test, with the completion of the first intentional departure of controlled flight Dec. 4

and now having tested the aircraft to 50 degrees AoA. Prior to these milestones, developmental test with the F-35A was restricted to a flight envelope between 10 and 20 degrees AoA. Now, test maneuvers are being executed up to 50 AoA and intentional departures are being conducted to explore the aircraft behavior even beyond this boundary. Results will be used to clear F-35 opera-

tional aircraft to 50 AOA, directly supporting the air superiority needs of the warfighter by allowing them to aggressively maneuver the F-35A.

Throughout the High AoA testing, the F-35A's performance has closely matched piloted simulator results and modeled predictions, giving the team the confidence in the jet to continue moving forward in the test plan.

"We are significantly matching models and it gives us good confidence in the aircraft and how to polish the flight control systems so it's even better than what we started with. Going into this unknown area of High AoA, we really like when things match. It makes you feel very safe, although we will remain cautious all the way though," said David Nelson, F-35 chief test pilot



David Nelson, Lockheed Martin F-35 chief test pilot, flew AF-4 during High Angle of Attack testing Dec. 5, 2012, over Edwards Air Force Base, Calif. This was the first intentional departure from controlled flight of the F-35A. (Photo by Tom Reynolds/Lockheed Martin)

from Lockheed Martin.

"We don't want a first lieutenant going through

F-35 school to be the first person to see something. We, as a flight test com-

munity, feel this is a protection and a promise we must deliver to the warfighter," he continued.

As a result of the success, the F-35 ITF has also gained momentum in delivering an envelope in 2014 to the program office to the design limit of 50 degrees AoA, along with the ability to pull 7Gs throughout the envelope, and also ensuring that the jet can fly out to 700 knots and 1.6 mach.

"This is a huge milestone for the program. This is so important because in 2014, the F-35 program has made a commitment to deliver a flight envelope to the U.S. Air Force. But more than that, we are doing this so we put test pilots like "Doc" Nelson in a position where we hope no other pilot ever has to deal with. But, if they find themselves in that position, we will have seen it and

have verified that they can recover the aircraft," said Lt. Col. George Schwartz, 461st Flight Test Squadron commander.

To mitigate the inherent risk associated with the testing, the High AoA test team began taking shape more than eight years ago, made up of the best flight test professionals in their respective fields, with diverse backgrounds including the F-15 Eagle, F-16 Fighting Falcon, F-18 Hornet and F-22 Raptor.

"We have a team where every person is first-string. No one in the world today, who is testing airplanes, is more proficient at doing this than the members of the High Angle of Attack Test Team. They are the world class experts for this particular type of testing," said Nelson.

See F-35, page 6

A look back at Gen. Franklin O. Carroll at AEDC

Gen. Franklin O. Carroll was the first commander of the Arnold Engineering Development Center from 1950 - 1952. The complex's Engineering Analysis Facility was dedicated in memory of AEDC's first commander and named the Carroll Engineering Analysis Facility in 1991. For a summary of Carroll's history at AEDC, read the excerpt below from the AEDC publication *Beyond the Speed of Sound* which is also available at this link: <http://www.arnold.af.mil/shared/media/document/AFD-100323-069.pdf>.

The History of AEDC

As one of von Kármán's associates during the survey of captured German test and research facilities, Wattendorf knew first hand the sad state of aeronautical research in the U.S. The Germans had far outclassed all of the Allied nations in ground testing, but the capture of these testing facilities would give the U.S. a big boost. In fact, it was just the solution Wattendorf needed to a problem presented to him by Brig. Gen. Franklin O. Carroll, commander of Wright Field's engineering division.

A New Challenge

Carroll wasn't new to research and testing facilities. He graduated from the Massachusetts Institute of Technology (MIT) in 1921 – the first Air Service officer to be trained in aeronautical engineering. He had also commanded the engineering division at Wright Field for six years. In that capacity, he tried to persuade von Kármán to leave Washington, D.C., and work at Wright Field instead. Carroll was the kind of "doer" that Arnold liked to have around.

But he had one big headache at Wright Field – the limited space and available power in the Dayton area. New test facilities for testing jet engines would require more of both – more than he had available without drastically reshaping existing facilities. When Wattendorf reported to Carroll as a research adviser, he inherited the General's headache – how to fit new facilities into the existing space and power limitations. The trip to Europe with von Kármán opened new possibilities.

The Trans-Atlantic Memo

With the survey of German facilities completed, Wattendorf went to Paris to write up his findings. While there, he received word that his father had died, and he left on emergency leave aboard a C-54. It would be a long flight, which gave him a perfect opportunity to summarize his findings.

Wattendorf's report of June 19, 1945, became known as the Trans-Atlantic Memo and was to become the baseline for establishing a "new Air Forces development center."

The memo, given to Carroll through Col. Paul H. Kemmer, became the basis of Carroll's presentation to Arnold's Air Staff.

In his presentation, Carroll advised the Air Staff of the advancements in ground testing that the Germans had made and outlined the deficiencies in America's wind tunnels.

He noted that "no facilities exist [in the U.S.] for the testing of turbojet compressors." Carroll also listed what he felt were the necessary facilities for U.S. research and development, suggesting that the Air Technical Service Command be charged with making a preliminary study "for the establishment of a new Army Air Force's (AAF) Applied Research and Development Center for Fluid Dynamics."

Maj. Gen. E. M. Powers, assistant chief of staff, materiel and services, gave Carroll the green light to proceed on July 31, 1945.

On Oct. 5, Kemmer, Carroll's deputy, formed a committee to do the study. The Kemmer Committee's initial report was completed on Dec. 18 for submittal to Arnold, five days before *Toward New Horizons* was published.

Both reports recommended using captured German test facilities in a new installation located near large sources of water and electric power. They anticipated power requirements at more than one million horsepower – too great to be handled at Wright Field. Using the German equipment would save almost eight years in facility design and construction. The Kemmer Committee Report also asked for \$300 million for purchase of the site and construction of housing, roads, utilities and the initial portion of the facility.

The report, "Proposed Air Engineering Development Center," was presented to the Air Staff Jan. 24, 1946. On March 21, Brig. Gen. H. I. Hodes, assistant chief of the War Department General Staff, authorized further planning on the proposed center, and Sverdrup & Parcel Inc. (S&P), a St. Louis engineering firm, was awarded a \$1.5

million Army Air Forces contract to conduct the survey.

General Carroll's Career

General Carroll was born on Feb. 10, 1893 and served during three wars tours on three continents. He started his career in 1915 in the Calvary and serving with General Pershing's Expeditionary Force chasing Pancho Villa across Mexico.

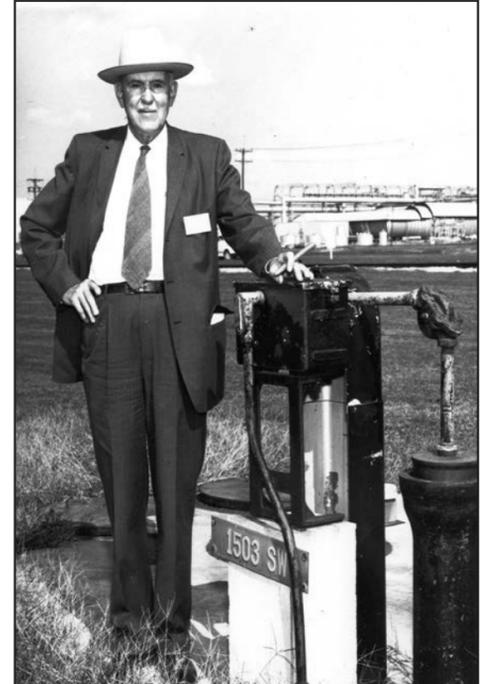
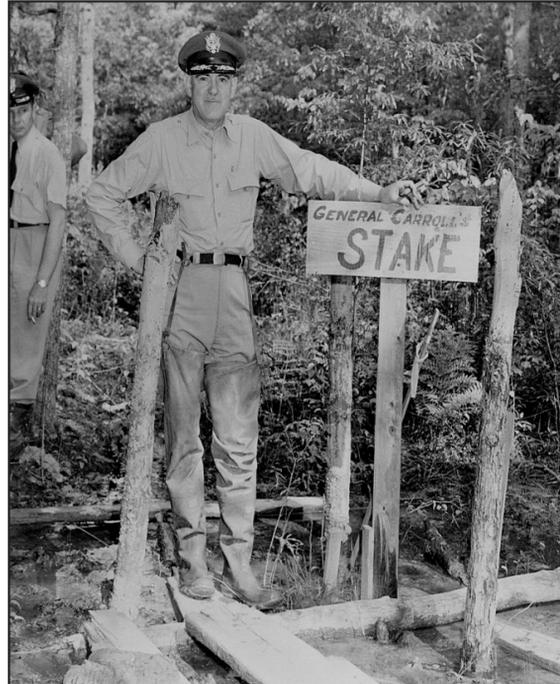
He became a flight instructor in World War I, teaching students how to fly early biplanes. On the eve of the "Battle of Britain," General Carroll was an air attache in London. He helped develop light beacons and radio signals for navigation, as well as variable pitch props, high octane fuels and pressurized flight suits.

He commanded several major organizations, including the Air University, and the Air Materiel Command, which was the forerunner of Systems Command, Logistics Command, and the new Air Force Materiel Command.

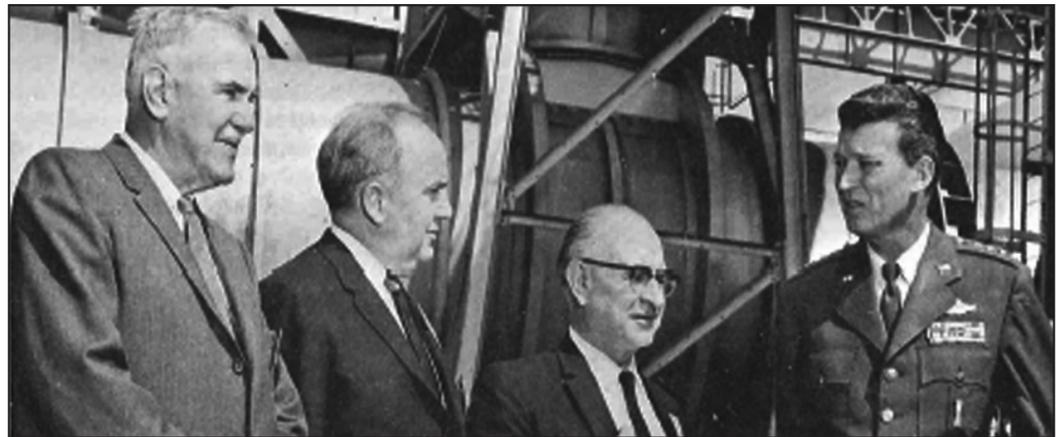
General Carroll retired from the United States Air Force in 1953, after 41 years of service to his country. He died on Sept. 13, 1988, at the age of 95.



Gen. Franklin O. Carroll



Near the end of a rainy April in 1950, a photo was taken of the center's first commander, Maj. Gen. Frank Carroll, at the base stake for the construction grid. During a center tour some 15 years later, AEDC photographer Phil Tarver asked Gen. Carroll to strike the same pose - note the cigar - at the same location. (Air Force Photos)



DISCUSS CURRENT WORK - The Arnold Center in November 1965 arranged a special 20th Anniversary program sponsored by Gen. Bernard A. Schriever, to honor some of the people who played key roles in laying the original groundwork for the Center in 1945. The current work and future plans of the Center prompted many interesting questions from the 20th Anniversary visitors. Engaged in one such interchange of information are: (left to right) Gen. Carroll, R.M. Williams, Dr. Wattendorf and Gen. Schriever. (Photo from the November 1965 High Mach)

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Milestones

35 YEARS

Arthur Stovall, ATA

30 YEARS

Debra Grosch, ATA

25 YEARS

Joe Syler, ATA
John McFadden, ATA
Ronald Skipworth, ATA

20 YEARS

Larry Phipps, ATA
James Sirbaugh, ATA

15 YEARS

Donald Rotach, ATA

10 YEARS

Brian Anderson, ATA
Michael Spencer, ATA
Tommy Kirk, AF

5 YEARS

Misty Layne, ATA
William Layne, ATA
Charles Patterson, ATA
Thomas Payne, ATA
Kenneth Staten, ATA
Jerry Reed, ATA
Robert Baltz IV, ATA

INBOUND

MILITARY

Capt. Erica Elkins, AF
Maj. Wesley Turner, AF

RETIREMENTS

Master Sgt. Whitney Smith, AF
David Hiebert, AF
Richard Rose, ATA
John Bowen, ATA

NEW HIRES

Dr. Douglas Blake, AF
James Drnek, AF
Peggy Proffitt, AF
Ronnie Long, ATA
Jesse Rhew, ATA
Gary Bise, ATA
James Hice, ATA
George Luttrell Jr., ATA
Elizabeth Parsons, ATA
Matthew Meacham, Premiere

PROMOTIONS

Roger Johnson, ATA
Dustin Fleenor, ATA
James Pickett, ATA
Martha Simmons, ATA

Congratulations!

Agreement reached on 5th production of F-35s

Washington D.C. – The U.S. Department of Defense and Lockheed Martin have reached an agreement in principle to manufacture 32 F-35 Lightning II stealth fighters as part of Low-Rate Initial Production 5 (LRIP-5). The contract will also fund manufacturing-support equipment, flight test instrumentation and ancillary mission equipment.

"It's been a long journey, but I'm pleased we've achieved an agreement that is beneficial to the government and Lockheed Martin," said Vice Admiral Dave Venlet, F-35 Program Executive Officer. "Production costs are decreasing and I appreciate everyone's commitment to this important negotiation process. The LRIP-5 agreement will end the year on a positive note and sets the table for the program to move forward with improving business timelines for the greater good of all the nations partnered with us."

Under the contract, Lockheed Martin will produce 22 F-35A conventional take-off and landing (CTOL) variants for the U.S. Air Force, three F-35B short takeoff/vertical landing (STOVL) variants

for the U.S. Marine Corps and seven F-35C carrier variants (CV) for the U.S. Navy. Aircraft production was started in December 2011 under a previously authorized undefinitized contract action.

"We remain committed to working with our government and international customers, and we continue to see excellent production performance," said Orlando Carvalho, Lockheed Martin F-35 Program General Manager. "Our top priority is to deliver the F-35's 5th generation capability to our U.S. and partner national warfighters."

The LRIP 5 aircraft will join 63 F-35s contracted under LRIPs 1-4. To date, 29 LRIP aircraft along with 19 previously built System Development and Demonstration aircraft have been delivered from Lockheed Martin's production facility in Fort Worth, Texas. The most recent deliveries took place in November when three STOVL aircraft were delivered to Marine Corps Air Station Yuma, Ariz. The U.S. and eight partner nations plan to acquire more than 3,100 F-35 fighters.

Airman shows skills as F-22 demo pilot

By Airman 1st Class Austin Harvill

633rd Air Base Wing Public Affairs

LANGLEY AIR FORCE BASE, Va.

(AFNS) – The serenity of a sleepy, morning sky broke as a dark form rose from the ground and blotted out the sun. An F-22 Raptor maneuvered through the dawn, banking and rolling, rising and falling at impossible angles. Through the cockpit window, a faceless aviator disguised the pilot's exertion.

He angled the jet into

a vertical climb as the engines roared to defy gravity. His plane leveled out, and he slowly spun to the earth.

Such complex maneuvers become routine for one pilot at Langley Air Force Base, Va.

Capt. Patrick Williams, the new Air Force F-22 Raptor demonstration pilot, practiced these maneuvers to give crowds worldwide a taste of both the Raptor's, and the Air

Force's, capabilities.

"People typically see the Air Force on the news, and that's it," said Williams. "The air show is the best way we can say 'Hey America, look at this awesome airplane you've given us. This is why we are so successful at what we do.'"

Before taking the controls of the world's premier, fifth-generation jet fighter, Williams honed his skills in the back-country skies of Idaho at the age of five.

"I still remember my very first log-book entry," said Williams. "My dad let me sit on his lap during a flight, so he wrote down the entry. It said 'we saw horses and cows in the Salmon River valley.'"

After speaking with his father about the future of flying as a career, Williams embraced his desire to fly fighters by joining the U.S. Air Force Academy in Colorado Springs, Co., as a prospective pilot.

See PILOT, page 14

F-35 from page 4

From the team's inception, Nelson found out he had been selected to fly the High AoA missions. For more than eight years, he has been flying the High AoA maneuvers in a simulator preparing for the opportunity to fly the missions at Edwards.

Nelson was not alone in preparing for the High AoA testing. By the time the F-35 ITF was ready to fly the first mission, the test team had already been functioning like a well-oiled machine.

"This isn't cliché; the team really does function as a well-oiled machine. These people were trained very well. For many of them, training began in air start testing earlier this year. Talk about high risk, we turned our one engine off and were able to get it started again," said Nelson.

"That was a build-up to High AoA because when we go out of control, there's always a chance we don't know what's going to happen. It could be that the engine flames out because the intake wasn't meant to spin sideways. And we've seen that before. As a result, we're ready. All pilots flying High AoA did air starts earlier this year," he continued.

While the F-35 ITF was well rehearsed and prepared to begin High AoA testing, the team had one more challenge to overcome before getting underway.

They had to successfully attach the spin recovery chute (SRC) to the aft of AF-4; giving pilots the capability to deploy the parachute and safely recover the aircraft in flight should the aircraft not be able to regain control during High AoA testing.

"This piece of equipment is a safety of test hardware;



The F-35A, AF-4, can be seen outfitted with a spin recovery chute (SRC) during High Angle of Attack testing accomplished by the F-35 Integrated Test Force team at Edwards Air Force Base, Calif. (Photo by Darin Russell/Lockheed Martin)

meaning that it's critical for the testing of High AoA for safety reasons. We're intentionally putting the aircraft into a nearly unrecoverable state of flight conditions and this piece of equipment is absolutely necessary if we do go out of control," said Dillon Davis, F-35 flight test engineer from Lockheed Martin.

"The SRC is necessary to be able to recover the aircraft in flight. It's necessary for safety of hardware, but more importantly safety for the pilot," he continued.

Maintainers from the F-35 ITF encountered several unique challenges while performing the modification to the aircraft. While some of the problems were anticipated, the team remained unsure of their extent. Through creative ingenuity the F-35 ITF overcame challenges associated with executing the modification for the first time.

"We ran into a lot of first times with this modification and that always adds additional challenges when you're doing something for the first time," said Davis.

Contributing to the challenging circumstances, is the design of the F-35 and the fact that the SRC is considered flight test hardware and therefore not designed with long-term maintenance in mind.

"There were some inaccessible nut plates inside a fuel cell and when you break the nut plates off they were not accessible through any standard way. In the end, we ended up cutting holes directly into the skin of the aircraft, right into a fuel cell. That was not the only inaccessible area for nut plates. Another area only became accessible once the engine was removed," said Davis.

Once the team integrated the SRC to AF-4, they were once again faced with a unique challenge and had to figure out how to fix the gaps between the SRC fittings and the aircraft.

"Once the SRC quadrapod was integrated on the aircraft, we found gaps between the SRC fittings and the aircraft structure. We had to figure out how to shim those gaps. We found some liquid shim,

which is a tricky material to work with especially in the horizontal configuration. In fact, using this had never been done in a horizontal configuration for SRC fittings," said Davis.

Modification for the aircraft began in early August and continued throughout the month of October until the team finally conducted the SRC taxi deployment test Oct. 20.

Although the integration of the SRC took longer than initially expected, the program made up valuable time with the recent successes of the High AoA testing.

"The testing is going very well; I'm extremely pleased with the progress. But, it's important to note that we are finding areas for improvement. We are feeding that information back for follow-on software versions that will make the aircraft safer and effective in maneuvering at high angles of attack. By the time we get done, the aircraft will fly up to 50 degrees angle of attack with care-free handling qualities" said Schwartz.

U.S. better ballistic missile defenses

By Donna Miles

American Forces Press Service

PETERSON AIR FORCE BASE, Colo. (AFNS) – While refining the systems that protect the homeland against long-range ballistic missile attacks, the United States is advancing technologies to counter the growing threat of short- and medium-range missiles launched by rogue states or terrorists, a top U.S. Northern Command officer told American Forces Press Service.

North Korea's successful long-range missile launch last month in violation of U.N. resolutions, and Iran's reported testing of a new, mid-range surface-to-air missile last week represent two ends of the spectrum that U.S. missile defenses must be prepared to address, said Air Force Brig. Gen. Kenneth E. Todorov, Northcom's deputy operations director.

Toward that end, Todorov said he envisions an integrated system capable of detecting and intercepting the full range of ballistic missile threats, conceivably within the decade. And ideally, he said it will dovetail with NATO's European

Phased Adaptive Approach Missile Defense System being phased in to counter short-, medium- and long-range missiles, primarily from the Middle East.

Almost since its inception more than a half-century ago, North American Aerospace Defense Command has focused primarily on long-range ballistic missile threats. However, in light of proliferation, and the willingness of bad actors to deliver sophisticated missile technology to countries or organizations hostile to the United States, it also recognizes the threat posed by shorter-range missiles, Todorov said.

NORAD commander Army Gen. Charles H. Jacoby Jr. and his staff monitor the half-dozen space launches that take place around the globe every day and assess if any pose a threat to the U.S. or Canada. But because NORAD's mission is missile warning – not missile defense – Jacoby would act in his capacity as Northcom commander to authorize

See **MISSILE**, page 11

AEDC Fire Department hosts a visit by honorary fire chief Mark Kelly Olson



The AEDC Fire Department, represented by, from left to right, Kip Luttrell, crew chief; John Templeton, firefighter; Joey Edwards, driver operator; Sam Teat, fire fighter; Tom Lombard, assistant chief; Lonnie Brown, driver/operator; Dwane Kimmel, crew chief; Billy Miles, paramedic/firefighter; Jay Baldwin, driver/operator; Odell Crutchfield, crew chief; and Carey Powers, driver/operator, stand behind Mark Kelly Olson during the young man's recent visit to the base. Olson is a 10-year-old boy who was diagnosed with very high-risk, acute lymphocytic leukemia in May and was later adopted by the Arnold AFB Fire Department as their new deputy fire chief. While visiting AEDC, Olson got the opportunity to play the role as honorary fire chief, conducting roll call, inspecting firefighting equipment and helping to demolish a car, symbolizing the young man's battle with cancer. Olson's father, Mark, is an ATA operations controller at Arnold Air Force Base. (Photo by Rick Goodfriend)

AEDC displays menacing power in the night



This photo of the F-15 static display aircraft at AEDC's main gate, was taken by Antonio Moré, a UTSI Flight Test Engineering graduate student. Moré admits he has a passion for aviation photography. His goal was to capture this F-15 looking "as menacing and powerful as the day it last took to the skies," he said. The F-15 static display aircraft was dedicated Aug. 9 in honor of Maj. Jim Duricy who was killed when he was forced to eject at a high speed as the F-15 he piloted crashed into the Gulf of Mexico April 30, 2002. He was assigned to the 40th Flight Test Squadron, Eglin Air Force Base, Fla. (Photo by Antonio Moré)

Navigating the Social Network

Do's and Dont's of Social Media for Leaders

- Do listen to your followers and engage as necessary.
- Do keep your interactions conversational and informal, yet professional.
- Do consider your public image when using social media professionally and personally.
- Do pick the right communication tools for your audiences.
- Don't rely on social media alone to communicate your messages.
- Don't stifle conversations. If a comment or post doesn't hurt anyone and doesn't violate your comment policy, don't delete it.
- Don't be afraid of negative comments or opinions. It's just feedback and a potential opportunity to educate people about a topic.



Air Force
Public Affairs Agency
Social Media Division

Checkout AEDC's new Facebook Fan Page



Air Force Marathon registration opens with special discounts

By Tiffany Johnson
U.S. Air Force Marathon Office

WRIGHT-PATTERSON AIR FORCE BASE, Ohio (AFNS) – Registration for the 2013 Air Force Marathon, Half Marathon and 10K scheduled for Sept. 21 opened Jan. 1 with special New Year's resolution discounts.

The full and half marathons held at Wright-Patterson Air Force Base in Ohio will be discounted by \$10 Jan. 1. The 10K and 5K races will be discounted by \$5.

"We encourage all participants to register as early as possible," said race director Robert Aguiar. "Not only are the prices lower the earlier you register, but we sell out very quickly."

The Air Force Marathon sold out in record time in 2012 and organizers anticipate selling out even faster this year. Officials will not be increasing the number of runners this year, capping the participants at 15,000.

"We sold out on May 19 in 2012," Aguiar said, "And we are very excited to debut our course changes in 2013. We believe runners will really

like the changes."

The featured aircraft in 2013 is the C-130J Super Hercules, a military transport plane that has been used in military, civilian and humanitarian aid operations. The Hercules

family is the longest continuous production run of any military aircraft in history.

Look for more information about the prices and registration at www.usafmarathon.com.



Air Force Marathon deployed runners (Air Force Photo)

AF Marathon Registration Fees

DISTANCE	JAN 1 ONLY	JAN 2 - APR 1	APR 2 - JUN 1	JUN 2 - SELLOUT
MARATHON	\$80	\$90	\$95	\$105
HALF MARATHON	\$65	\$75	\$80	\$90
10K	\$35	\$40	\$45	\$50
5K	\$25	\$30	\$35	\$35 until Aug. 2*

*If there are any 5K slots left after Aug. 2, the price will increase to \$40.

Conserve
to
Preserve



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AEDC Victim Advocates Hotline:
(931) 581-7494
Preventing Sexual Assault is part of our duty

Visit: MyDuty.mil

READINESS = RESPECT

Give blood during National Blood Donor Month at AEDC

By Raquel March
ATA Public Affairs

January is National Blood Donor Month and AEDC employees will have an opportunity to donate blood with Blood Assurance during a blood drive Jan. 21-25, 11 a.m. – 3 p.m.

Blood Assurance provides a convenient method for donating blood using a mobile blood collection lab.

The bloodmobile will move to a different location each day while stationed at AEDC.

The dates and corresponding locations are: Jan. 21 – the Engine Test Facility office building 877; Jan. 22 – the Propulsion Wind Tunnel office building 740; Jan. 23 – the Administration and Engineering building 100; Jan. 24 – the Aeropropulsion Systems Testing Facility Test Support building 1099; and Jan. 25 – the Main Cafeteria building 452.

During this blood drive, donors will receive a long sleeve T-shirt, snack and drink. Donors will also have

a chance to register for the January giveaway which is an Apple iPad 16GB Wi-Fi Tablet with retina display. Participants can complete one registration form per person, per day. One winner will be drawn on Feb. 1.

It takes more than 400 donations every day to meet the need for blood in the areas serviced by Blood Assurance. The donations received will be used in Winchester, Manchester and Tullahoma hospitals.

Some common struggles this time of the year with

receiving donations are holiday schedules, inclement weather and winter illnesses.

“According to Blood Assurance the goal for this upcoming blood drive is 125 units of blood,” said Leslie Myers, a Comprehensive Occupational Resources (CORE) registered nurse (RN) for Aerospace Testing Alliance (ATA).

The donation is limited to a single blood donation and usually takes less than 10 minutes.

Myers said preparation

is the key to an enjoyable donation.

“Hydrate, hydrate, hydrate,” she said. “Eat something at least three hours prior to the donation.”

Blood Assurance is a non-profit, full-service regional blood center serving more than 50 health care facilities in Tennessee, Georgia, Alabama and North Carolina. Founded in 1972 as a joint effort of the Chattanooga-Hamilton County Medical Society, the Chattanooga Area Hospital Council, and the Chat-

tanooga Jaycees, the mission of Blood Assurance is to provide a safe and adequate supply of blood and blood components to every area patient in need.

Blood Assurance is licensed by the Tennessee Department of Public Health, the Georgia Department of Human Resources, the Alabama State Board of Health and the U.S. Food and Drug Administration.

For more AEDC blood donation guidelines and information, contact Myers at 454-5387.

www.bloodassurance.org

Myths about donating blood



Myth - “You don’t want my blood.”

Fact - With less than 10% of the eligible population actually donating blood, we need every able donor to give blood. We perform 13 tests on each unit of blood to ensure that the blood is safe for the recipient.

Myth - “I can’t give blood because I’m diabetic.”

Fact - Diabetics may donate blood as long as the other medical requirements are met. However, the previous use of bovine-derived insulin (insulin from a cow) will result in deferral from blood donation.

Myth - “I can’t give blood because I’m scared of needles.”

Fact - It’s perfectly normal to feel apprehensive about donating blood for the first time. Donating blood is a momentary discomfort for the donor that can provide a lifetime of difference for the patient.

Myth - “I can’t give blood because I’m anemic.”

Fact - Your hemoglobin (iron) level will be checked prior to donating blood. As long as levels are normal on the day of donation, you can give blood. We recommend eating meals that are rich in iron leading up to your donation.

Myth - “I need my blood.”

Fact - The average adult has approximately 10 pints of blood in his/her body. Your body will replace your

donated red blood cells within 3-4 weeks.

Myth - “I can’t give blood because I’m on medication.”

Fact - The following medications are the only ones which would prevent you from donating blood: antibiotics*, blood thinners (such as Coumadin, Heparin, Lovenox, Warfarin), Proscar, Avodart, Jalyn, Propecia, Accutane, Soriatane, Tegison, human-derived growth hormones, bovine insulin, Hepatitis B Immune Globulin, and anyone who has received an unlicensed vaccine, usually associated with research.

*Donors who are taking antibiotics are eligible to donate 24 hours after their last dose.

Myth - “I can’t donate blood because I had cancer.”

Fact - While some types of cancer such as leukemia and lymphoma (Hodgkins, non-Hodgkins, etc.) will defer a donor permanently, other cancer survivors can donate blood after being in remission for at least one year.

Myth - “I can’t donate blood because I’ve been out of the country.”

Fact - Simply traveling outside of the United States will not defer you from donating blood. Temporary restrictions are placed on potential donors who have visited countries with a high risk of malaria. These restrictions change almost yearly, so contact Blood

Assurance to ask about a specific destination.

Myth - “I can get paid to donate blood.”

Fact - To protect the safety of the blood supply, our donors are not paid. There are two very distinct divisions of blood banking, according to the U.S. Food and Drug Administration. One consists of non-profit regional blood centers like Blood Assurance who supply blood products to area hospitals. They receive reimbursement from the hospitals for the costs incurred in collecting, testing and shipping the blood. The other division consists of for-profit paid plasma collections, in which people receive monetary compensation for their blood. The FDA does not allow these blood collections to be used for human transfusion. They are most often used in the manufacturing of cosmetic and pharmaceutical products.

Myth - “I can’t donate because I have a tattoo.”

Fact - If you received your tattoo from a licensed tattoo artist in Alabama, North Carolina or Tennessee, you no longer have to wait one year before donating blood. Tattoos received in Georgia still require a one year deferral.



Do you have a question about donating blood? Get the answers online:



facebook.com/bloodassurance
twitter.com/bloodassurance

**You have the power
to conserve**



MISSILE *from page 7*

an engagement, Todorov explained.

"General Jacoby refers to this mission as part of the sacred trust he has with the American people," Todorov said. "He, and we as a command, are responsible for defending the U.S. homeland against ballistic missile threats."

That capability is delivered through the Ballistic Missile Defense System. Todorov described it as a "system of systems architecture" of networked space-based and terrestrial sensors able to detect and track missile threats to North America.

Currently arrayed toward both the Atlantic and Pacific, the deployed sensors are postured to identify inbound threats from either theater, he said. Based on well-rehearsed protocols, the system is designed to destroy threat missiles in space before they reach their intended targets.

Members of the Alaska National Guard's 49th Mis-

sile Defense Battalion stand on 24/7 alert at Fort Greeley, Alaska, ready to launch the 26 ground-based interceptors there at a moment's notice. Other members of the Colorado National Guard's 100th Missile Defense Brigade maintain and man four additional interceptors at Vandenberg Air Force Base, Calif.

"These are 300 National Guardsmen defending 300 million citizens of the United States, Todorov said. "They are the no-kidding, 24/7 watch, watching for threats and waiting for them to come. And if they come, they are going to shoot them down."

Jacoby said he's confident in Northcom's ability to leverage existing capabilities to defend the United States against limited long-range ballistic missile threats. But as these threats evolve, he said ballistic missile defenses must evolve, too.

That, Todorov said, requires building on existing

ballistic missile defenses to keep a step ahead of potential adversaries.

Much of the United States' missile defense focus has been on the NATO system that will offer broad protection to Europe once it is fully deployed in 2020 – and by extension, to the United States and Canada.

Meanwhile, Northcom is collaborating closely with the Missile Defense Agency to improve the capability of the Ground-based Midcourse Defense System, which is designed to defeat long-range ballistic missiles.

"We have focused very hard on improving GMD system capabilities since it became operational in 2006," Todorov said. "But as we go forward as a command, one thing that we will change will be our emphasis and focus on short- and medium-range missile defense of the homeland."

Instead of developing new independent systems to address these threats,

Todorov said the better approach is to build on existing defense capabilities.

"Rather than looking at these systems independently – the GMD system to fight the long-range threat and another system that might fight the medium-range one and another that might fight the short range – let's try to build them into an interconnecting group of systems that we can refer to as an integrated air and missile defense," he said.

"The same sensors won't be able to do it all," he acknowledged. "But hopefully there will be some connects and shared data, with shared information and shared situational awareness between the sensors. Each of those will help us tie the picture together."

With work on this integrated system already under way, Todorov anticipates "cylinders of capability" that will be fielded as they are developed, probably within the next few years.

"Then as it develops and

matures, I think we will start to knit the capabilities together to strengthen the numbers, if you will, and overlapping sensors from the short-range to the medium-range to the long-range," he said.

Within the next 10 years, Todorov said he hopes to have an interconnected and overlapping system of systems that provides stronger, more reliable defenses than any individual systems could. "With the synergy among all of it, one plus one will equal three," he said.

The success of that endeavor will be vital to the United States' long-term security, he said.

"We can't take anything for granted," Todorov said. "There are adversaries out there and groups of people and nation states that would like to do us harm."

The 9/11 Memorial outside the NORAD and Northcom headquarters, built of rubble from the World Trade Center in New York and the Pentagon and

soil from the Shanksville, Pa., crash site, offers a daily reminder to workers here of the gravity of their homeland defense mission.

"I think it is our job, every day, to walk past that 9/11 Memorial as we come in here and think, 'We are not going to let anybody do harm to us like they did on that day,'" Todorov said.

Reduce
Reuse
Recycle



AF opens new nuclear training center

By Staff Sgt. Torri Savarese
90th Missile Wing Public Affairs

F.E. WARREN AIR FORCE BASE, Wyo. (AFNS) – Almost 10 years of joint effort and cooperation culminated in a ribbon-cutting ceremony at the new Nuclear Security Tactics Training Center in Guernsey, Wyo., Dec. 13.

The \$4.2 million facility boasts 14,500 square feet of functional space for training classrooms and cadre offices, and has been something the leadership of the 20th Air Force has been hoping for since 2004.

"This facility has been a vision of Air Force nuclear leaders, as well as Wyoming state leaders, for years," said Maj. Gen. Michael J. Carey, 20th AF commander. "It was truly a joint effort between the town of Guernsey, the state of Wyoming and the Air Force to make that vision come to fruition."

Carey was the keynote speaker for the ceremony, and shared the honor of cutting the ribbon with Maj. Gen. Luke Reiner, The Adjutant General of Wyoming, and Maj. Jay Parsons, 620th Ground Combat Training Squadron commander.

"The Air Force has always had a requirement to secure nuclear weapons, to ensure the safe and secure transport of these weapons and to deny any unauthorized access to secure areas," Carey said. "Camp Guernsey (Wyo.) is the only place in the world where this type of specialized training, to prepare security forces Airmen for that mission, takes place. This facility gives us the necessary infrastructure for both cadre

and students to participate in professional training for nuclear security."

Carey expressed the importance of the 620th GCTS mission, both in training nuclear security forces Airmen, and Airmen who are preparing to deploy overseas for contingency operations.

"This allows more fielded forces to benefit from structured, focused training and further develop in-home squadron advanced training," Carey said.

The new facility increases the training capability by four times what it was before, Carey added. Instead of only 100 students able to receive training at one time, now 400 are able to train at Guernsey.

"We work hand-in-hand with Guernsey and the surrounding communities," Parsons said. "We do a lot for each other and having that relationship helps us all get a lot of things done."

He explained how the members of the 620th GCTS participate in everything local from parades to clean up to cattle branding.

"It really makes us a tighter group," he said.

Dave Lycan, 620th GCTS deputy commander, who has been involved in the project since the beginning, cited how beneficial the increased space will be for the 620th GCTS, as well as incoming students.

"We're not limited in class size, so we can have 150 students per classroom, allowing students to get all their classroom training before going out for the application piece," he explained. "This in-



Army Maj. Gen. Luke Reiner, Wyoming National Guard adjutant general; Maj. Gen. Michael Carey, 20th Air Force commander; and Maj. Jay Parson, 620th Ground Combat Training Squadron commander, cut a ceremonial ribbon with a dagger at a ceremony for the Nuclear Security Tactics Training Center Dec. 13, in Guernsey, Wyo. The new center will be used by the 620th GCTS to train 20th AF security forces personnel in the protection of nuclear assets in the missile fields and while transporting them. (U.S. Air Force photo by R.J. Oriez)



The ribbon cutting ceremony for new Nuclear Security Tactics Training Center was held Dec. 13, 2012, in Guernsey, Wyo. The new facility will increase the 620th Ground Combat Training Squadron's training capabilities by four times. (U.S. Air Force photo/R.J. Oriez)

creases throughput, as well as gives us more room for staff and cadre."

The new facility adds to the existing 23,000 square-foot building the squadron inhabits on Camp Guernsey.

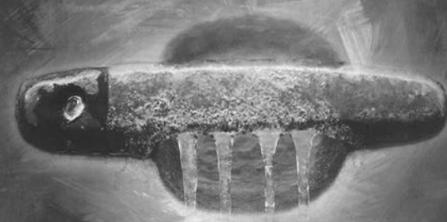
Carey, Parsons and Lycan all stated how good it was to see the project all come together, and how it could not have been completed without the joint efforts of local, state and Air Force leadership.

Along with his appreciation for the local community, Carey concluded his visit with a thank-you to the men and women who serve at Camp Guernsey every day.

"Thank you. I salute you, and I'm proud of you," he said.

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BE READY

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PILOT *from page 6*

During his tenure at the academy, Williams participated in the glider program, became a cadet instructor and graduated with a degree in Astronautical Engineering. Upon completion of his academy training, he travelled to Mississippi to begin basic fighter training, after which he began training to fly the F-15C Eagle.

Williams was assigned to the 12th Fighter Squadron in Alaska, and then transferred to the Raptor once the 90th Fighter Squadron stood up. After showing his skills in the

cockpit at both Alaska and Hawaii, the Air Force selected him to become the next Raptor demo pilot.

With the new Raptor demo season quickly approaching, Williams said he was excited to show the world the power of the jet. The demo team plans to tour across the country and hopes to make some international stops as well.

As a demo pilot, Williams said he is honored to be the face of both the Raptor and the Air Force.

“I have to pinch myself every time I get out of the jet,” Williams said.



Capt. Patrick Williams, Air Force F-22 Raptor demonstration pilot, awaits final preparation of his Raptor before flying at Langley Air Force Base, Va., Nov. 30. Williams wanted to be a pilot after he began flying as a 5-year-old boy with his father in Idaho. Before the demo team goes on tour, the incoming pilot undergoes extensive training with the help of the former pilot. (U.S. Air Force photo/Airman 1st Class Austin Harvill)

**Secure
Your
Personal
Information**

New F-16 software platform to be tested by 40th, 85th

By Samuel King Jr.
96th Test Wing Public Affairs

EGLIN AIR FORCE BASE, Fla. – For the first time ever, developmental testing for an F-16 operational flight program will occur at the 40th Flight Test Squadron here.

The testing for Block 40 and 50 model F-16s is scheduled to begin in 2014 and will also be the first time developmental testing and operational testing of the OFP will be conducted at the same base.

"This not only gives DT and OT pilots the unique opportunity for daily face-to-face contact to discuss potential test issues, but also allows OT pilots to participate in DT missions alongside their counterparts," said Beau Booth, the F-16 M7 OFP project specialist for the 40th Flight Test Squadron.

An OFP is the software in the F-16 that controls the avionics and allows the jet to interface with external weapons. It is currently in the design-try-out phase here. This phase is primarily to help the software developers.

"In the DTO phase, a few early versions of the software, with limited subsets of the planned new capabilities, are flight-tested to ensure basic functionality so the software engineers can easily make any fundamental changes before they get too far into the coding," said Booth.

This takes on a greater importance with this new OFP because it's the first time an Air Force unit has developed the software. Previous F-16 OFP updates were created by Lockheed-Martin, but the 309th Software Maintenance Group from Hill Air Force Base, Utah, is the developer for this iteration.

Previous DTO phases had a limited number of sorties due to resources

and test objectives.

"While this approach is adequate, it results in a relatively small number of opportunities to find potential errors," said Booth. "Since there are multiple ways to execute most tasks in the F-16, there are a lot of potential combinations of pilot actions. DT does not have the resources to test."

This was not the case with this DTO phase, however, since both OT and DT pilots were available to participate. To date, the combined test team has flown 41 test sorties. The previous F-16 OFP DTO included only 13 test sorties.

"The ability to conduct a fully integrated DT/OT test program allows us to test new OFPs more thoroughly and field them faster and cheaper than ever before," said Booth.

Historically, even though an OFP passes DT, OT pilots would find new software errors due to the amount of flight time and pilot availability. The added use of OT resources increases the potential of finding anomalies in the software. It also gives OT

pilots, who are ultimately responsible for the final fielding recommendation, a chance to evaluate the software development early. OT's upfront involvement cuts down on any late software changes. It also avoids the associated extra test requirements, increased costs and fielding delays that could happen.

Although this F-16 OFP partnership is a new endeavor for the squadrons, the 40th and 85th are frequent collaborators in developmental and operational testing. They are even headquartered in the same building for additional functionality.

"In these fiscally constrained times, the 40th and 85th are setting the benchmark on how to perform integrated test," said Lt. Col. Thomas Seymour, the 85th TES commander. "Being collocated is the key. This allows us to share aircraft, infrastructure, aircrew and ideas, which results in more effective and efficient test and a better end product for the warfighter."

This new software package will be incorporated in all active-duty F-16s and many Reserve aircraft.



F-16 Fighting Falcons from the 40th Flight Test Squadron and 85th Test and Evaluation Squadron fly over the Emerald Coast Dec. 6 on a design-try-out mission for a new operational flight program software upgrade. The newest OFP for Block 40 and 50 model F-16s will be tested developmentally and operationally at Eglin Air Force Base, Fla., in 2014. This marks the first time ever an F-16 OFP has undergone developmental and operational testing in the same location. (Courtesy photo)



January Airman available now

FORT GEORGE G. MEADE, Md. (AFNS) – In the latest issue of Airman magazine, our "Bird of Prey" feature highlights the F-22 Raptor, which brings never-before-seen capabilities to aerial warfare. The F-22 Raptor, the Air

Force's preeminent fighter aircraft, provides the United States unrivaled dominance in the air with its state-of-the-art technology.

Read more about the Air Force's newest fighter aircraft, watch videos of the Raptor in action and down-

load the January issue of Airman magazine for your tablet here:

APPLE: <http://bit.ly/TK559c>

ANDROID: <http://bit.ly/WE3FTX>

KINDLE: <http://amzn.to/UgBDaN>

Who's Watching?

All violations are reported to the AF Cyber Command and the local base commander
"Apparent" violations are investigated.

No personal media or devices of any type are allowed to be connected to a government computer – not even if the USB is used for charging the battery, items prohibited include:

iPads, mp3 players, PDAs, cell phones, Smartphones, Blackberrys, memory sticks, thumb drives, camera flash memory cards

To advertise in the High Mach call the Tullahoma News, 455-4545

Arnold Golf Course
454-GOLF 454-FOOD

Check us out on Facebook! Arnold AFB Services Golf Course

Winter Special will go through Feb. 28. Play all day for \$10 green fee. Regular cart fees apply.

Sausage and biscuits available in the Pro Shop Monday through Friday. If you have an early golf outing during the week grab a quick breakfast before you start. These sausage and biscuits are from the Mulligan's Coffee Bar & Grill menu prepared in advance and placed in the warmer in the Pro Shop for your convenience. The biscuits are \$2 each and coffee is also available. The grill opens at 10:30 a.m. during the week and serves a full breakfast on Saturday and Sunday starting at 8 a.m. The Pro Shop will have the sausage and biscuits available starting at 7 a.m. Monday through Friday but limited quantities will be available so get them while they last.

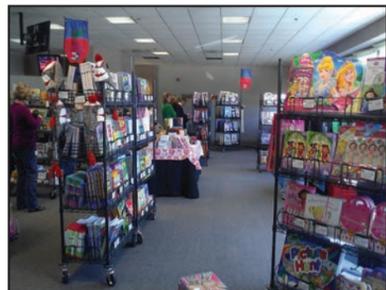
Mulligan's Coffee Bar & Grill is open 10:30 a.m. to 2 p.m., Monday through Friday and 8 a.m. to 2 p.m., Saturday and Sunday. Call ahead orders for dine in or carry out, 454-FOOD (3663).

Arnold Lakeside Center
454-3350

Check us out on Facebook! Arnold AFB Services Arnold Lakeside Center and Arnold AFB Services Information, Tickets and Travel

First Friday Jam will be Feb. 1 beginning at 6 p.m. Come to play, listen, dance and enjoy. Join in with the band to play an instrument or sing. Or take over and do your own performance. Dinner is available from 5-8 p.m.

Books Are Fun is back for a book fair from 9:30 a.m. – 3 p.m. Feb. 6 in the A&E Building's Café 100. Discounted selections include paperbacks, best sellers, educational, reference, cookbooks, children's items, gift selections and more. Save up to 70 percent off retail prices.



Last Friday Trivia Contest will be Feb. 22. Trivia starts at 6:30 p.m. with questions in random categories. Teams may have up to four people. No cell phones are permitted during the event. Anyone using a phone while a question is underway will be disqualified. There are eight rounds with three questions per round. Each round teams have two, four and six points to wager before the question. Only one point value may be used per question. For example, if you wager four points on the first question then you must choose either two or six points for the next question. Whichever value is left must be used for the final question in that round. After the eighth round, teams may wager up to their total points earned for the final question. Prizes are awarded for top finishers.

Barber Shop is located in the A&E Building in room A107 and is open Monday, Tuesday, Thursday and Friday from 8 a.m. to 4 p.m. Haircuts are \$8 and are by appointment. Call 454-6987.

Fitness Center
454-6440

Check us out on Facebook! Arnold AFB Services Fitness Center

The Fitness Center will hold a **3 Point Shoot Out** Jan. 23 at 5:15 p.m. Participants will shoot two shots from each of five locations earning one point for each shot made. Choose to use the "Money Ball" anytime and it is worth two points. Top three point earners will win prizes.

Push up, Pull up, Sit up Competition

See **BRIEFS**, page H2

Valentine's Day Date Night Dinner and Movie for Two at the ALC

Arnold Lakeside Center will host a Valentine's Day Date Night Dinner and Movie for Two Feb. 14.

Dinner for two includes choice of appetizer (spinach artichoke dip, cheese sticks, fried mushrooms or onion rings), choice of two dinners (grilled bacon wrapped sirloin steak, Monterrey chicken, blackened tilapia, ten spice vegetable pasta), choice of two sides per dinner (rice pilaf, mashed potatoes, baked potato, steamed broccoli, corn or fries), choice of dessert

served with two spoons (carrot cake, five layer chocolate cake, pecan pie or bacon ice cream sundae).

Cost is \$23 per couple for members and \$25 per couple for non members. Reservations are due Feb. 12. The pizza menu will also be available. As always, dinner is optional at movie nights.

The free movie will begin at 6:30 p.m. and will feature a special date night selection, "Cloud Atlas," rated R for violence, language, sexuality/nudity and some drug use.

This two hour and fifty-two minute movie stars Tom Hanks, Halle Berry, Susan Sarandon and Hugh Grant. "Cloud Atlas" is an exploration of how the actions of individual lives impact one another in the past, present and future, as one soul is shaped from a killer into a hero, and an act of kindness ripples across centuries to inspire a revolution.

Call 454-3350 for reservations or more information.



Sign up for club membership and get three months free dues plus instant win cash prizes

Everyone who joins any Air Force club between Feb. 1 and March 31 will automatically receive three months free dues, be enrolled in the free cash back rewards program, and will win \$5 - \$100 instantly upon application.

"We want all personnel to consider club membership and understand the benefits

of club membership, and our "Make the Right Choice – Get Rewarded" membership campaign gives them the opportunity to try their club free for the first three months," said Fred McKenney, Chief of Air Force Food and Beverage.

During the period everyone interested in AF Club membership should look for

the membership promotional materials in their local club and other Services activities, said McKenney. "Pick up an application, fill it out, and experience the benefits of membership!"

See **MEMBERSHIP**, page H2



Outdoor Rec offers Blue Moon Hiwassee Island Cruise Feb. 24

Hiwassee Island is one of the most important migrating areas in Southeast Tennessee. The Blue Moon cruise in the Hiwassee Wildlife Refuge is the only way to view the refuge from the water during February.

The Hiwassee Wildlife Refuge has more than 100 species of resident and migrating birds along with rich Native American and early history of the area.

An on-board naturalist and riverlorian will point out the sights, tell stories and

gladly answer questions.

The cruise will last three and one half hours and includes a barbecue buffet. The cost is \$60 per person and reservations are due by Feb. 8. Cancellations after Feb. 9 are nonrefundable. Meet at Outdoor Rec in time to depart by 8 a.m. and plan to return by 6 p.m.

Remember to bring your camera, binoculars and extra money for drinks not included in the buffet. Call 454-6084 to sign up or for more details.

Super Bowl Party at ALC

Arnold Lakeside Center will hold a Super Bowl Party Feb. 3 beginning at 4:30 p.m.

All attending are invited to wear their football attire and support their favorite team.

The game will be shown on all televisions and on the big screen in the ballroom. All over age 18 will be eligible to put their name on the square board and any Members First Plus members will get to put their name on two squares on the board.

The board will be filled in first come, first served until they are all gone. The winners for each quarter will receive prizes.

In the event a square is blank for any quarter a random drawing will be held of those in attendance. During halftime there will be a trivia contest where teams of four will compete to win prizes. The dining room will be open and there will be food and beverage specials throughout the night.

New Air Force Club membership card benefit

Air Force Clubs are pleased to announce cash back rewards earned by Air Force club members who have the Air Force Club MasterCard®, will no longer expire.

Air Force club members also now have more reward redemption options than ever before.

These new and improved benefits are

automatically and immediately available to Air Force Club MasterCard® members.

According to Emelie Smith Calbick, general manager for Chase Card Services the contractor for the Air Force club card, "Members told us that having points that never expire would provide greater peace of mind to them.

"Now, club members can get the most

out of their purchases made with the Air Force Club MasterCard® and enjoy even more reward redemption options," she said.

Reward redemption options have been enhanced to include cash back as a statement credit, check, or deposit directly into

See **BENEFIT**, page H4



Horizon is a Services Division publication designed to inform our customers of events and specials in Services Division activities. All program dates, times and prices are subject to change. Services Division mailing address is at 100 Kindel Drive, Suite C321, Arnold AFB, Tenn. 37389-3321

Services information written and provided by Tanya Bryan

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Services Division Phone Numbers

Area code 931 DSN 340
 Services Chief – 454-7779
 Services Deputy – 454-5915
 Community Services Flight Chief – 454-4062
 Complex Manager – 454-3367
 Arnold Lakeside Center (ALC) – 454-3350
 Arnold Lakeside Center catering – 454-3350
 Hap's Pizza – 454-5555

Café 100 – 454-5885
 Membership Information – 454-3367
 Information, Tickets & Travel – 454-3303
 Barber Shop – 454-6987
 Gossick Leadership Center – 454-4003
 Human Resources – 454-5481
 Marketing & Sponsorship – 454-3128
 Recycling – 454-6068

Wingo Inn – 454-3051
 Fitness Center (FC) – 454-6440
 Golf Course (GC) – 454-GOLF (4653)
 Mulligan's Coffee Bar and Grill - 454-FOOD (3663)
 Outdoor Recreation (ODR) – 454-6084
 includes Marina, FamCamp,
 Crockett Cove &
 Dogwood Ridge

February 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
 <p style="text-align: center;"><i>Golf Winter Special continues through Feb. 28</i></p>					1	2
					ALC Membership Drive begins FC Boot Camp 6 a.m. FC Yoga 11 a.m. ALC First Friday Jam 6 p.m.	ODR Paintball, 9:30 a.m., ages 10+, \$35, sign up 454-6084
3	4	5	6	7	8	9
ALC Super Bowl Party, 4:30 p.m., on the big screen, dining room open with food and beverage specials, square board quarterly prizes plus half time trivia contest	FC Boot Camp 6 a.m. FC Cycling Class 11 a.m. FC Yoga 11 a.m.	ALC AEDC Woman's Club 9:30 a.m. FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m.	FC Push Up, Pull Up, Sit Up Competition FC Boot Camp 6 a.m. ALC Book Fair, Café 100, 9:30 a.m. – 3 p.m. ALC Café 100 BBQ Special \$6 FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m. ALC Movie Night "Frankenweenie" PG 6:30 p.m. dinner available 5-8 p.m.	ODR Ski Trip, \$310 per person, Fri-Sun, sign up by Jan. 25, 454-6084 FC Boot Camp 6 a.m. FC Yoga 11 a.m.	ODR Paintball, 9:30 a.m., ages 10+, \$35, sign up 454-6084
10	11	12	13	14	15	16
	FC Boot Camp 6 a.m. FC Cycling Class 11 a.m. FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m.	FC Boot Camp 6 a.m. ALC Café 100 BBQ Special \$6 FC Blood Pressure Screening, Café 100, 11 a.m. – 12 p.m. FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m. ALC Date Night Dinner & Movie for Two \$23 per couple member, \$25 non "Cloud Atlas" R 2 hr. 52 min. 6:30 p.m. dinner 5-8 p.m.	FC Boot Camp 6 a.m. FC Yoga 11 a.m.	ODR Paintball Tournament, 10 a.m., ages 10+, \$55/team, sign up 454-6084 ODR Leave No Trace Hike, Crockett Cove, \$5, 10 a.m. – 1 p.m., sign up 454-6084
17	18	19	20	21	22	23
	ALC Café 100 Closed FC Open 5 a.m. – 6 p.m. FC Boot Camp 6 a.m. FC Cycling Class 11 a.m. FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m.	FC Boot Camp 6 a.m. ALC Café 100 BBQ Special \$6 FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m. ALC Movie Night "Chasing Mavericks" PG 6:30 p.m. dinner available 5-8 p.m.	FC Boot Camp 6 a.m. FC Yoga 11 a.m. ALC Last Friday Trivia, 6:30 p.m.	ODR Paintball, 9:30 a.m., ages 10+, \$35, sign up 454-6084
24	25	26	27	28		
ODR Blue Moon Hiwassee Island Cruise, \$60, includes BBQ buffet, sign up by Feb. 8, 454-6084	FC Boot Camp 6 a.m. FC Cycling Class 11 a.m. FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m.	FC Boot Camp 6 a.m. ALC Café 100 BBQ Special \$6 FC Yoga 11 a.m.	FC Cycling Class 11 a.m. FC Interval Class 3:30 p.m. ALC Movie Night "The Cold Light of Day" PG-13 6:30 p.m. dinner available 5-8 p.m.		

Hours of operation

Arnold Lakeside Center: Catering/Management offices by appointment. Cashier Monday through Friday, 9 a.m.-4 p.m. Dinner: full menu available Thursday, 5-8 p.m.; Friday and Saturday, 5-9 p.m. Main Bar: Thursday, 5-8 p.m.; Friday, 4-10 p.m. and Saturday, 5-10 p.m. Social Hour: Friday, 4-6 p.m. Movie Night: Thursday, 6:30 p.m.
Information, Tickets & Travel (ITT): Tuesday through Friday, 10 a.m. – 3 p.m.
Café 100: Monday through Friday, 6:30 a.m. – 1:30 p.m. **Closed Jan. 21 and Feb. 18**
Barber Shop: by appointment – Monday, Tuesday, Thursday & Friday, 8 a.m. – 4 p.m. **Closed Jan. 21 and Feb. 18**
GLC (office located at Arnold Lakeside Center): Monday through Friday, 7 a.m. – 3:30 p.m. May vary depending on bookings. **Closed Jan. 21 and Feb. 18**
Outdoor Rec: Tuesday through Saturday, 10 a.m. – 5 p.m.
Fitness Center: Monday-Friday, 5 a.m.-7:30p.m.; Saturday, 8 a.m.-1 p.m.; Sunday Closed. **Open 5 a.m. – 6 p.m. Jan. 21 and Feb. 18**
Arnold Golf Course: Pro Shop & Driving Range – 8 a.m. – dusk. Driving Range open 24 hours with pre-purchased key card. Mulligan's Coffee Bar & Grill – Monday through Friday, 10:30 a.m. – 2 p.m.; Saturday and Sunday, 8 a.m. – 2 p.m.
Recycling: Monday through Friday, 7 a.m. – 4 p.m. **Closed Jan. 21 and Feb. 18**
Wingo Inn: Monday through Friday, 7 a.m. – 6 p.m.; Saturday and Sunday, 8 a.m. – 4 p.m.
Nonappropriated Funds Human Resources: Monday through Friday, 7:30 a.m. – 4 p.m. **Closed Jan. 21 and Feb. 18**

BX/Commissary customer eligibility

AEDC government civilian and AEDC contractor employees have access to the following limited items at the base exchange (BX): consumable items including toiletries and over-the-counter pharmaceuticals, food items such as candy, chips, little meal items, hot dogs and soft drinks. Alcohol and cigarettes are not included as consumable items. However, only active duty and retired uniformed services personnel and their dependents are eligible to use the base commissary next to the BX. The commissary hours of operation: Tuesday, Wednesday and Friday 9 a.m.-5:30 p.m., Thursday 9 a.m.-6:30 p.m. and Saturday 8 a.m.-4:30 p.m. The BX hours of operation: Tuesday through Friday 9 a.m.-5:30 p.m., and Saturday 8 a.m.-4:30 p.m. For more information contact Christopher Floden, BX manager, at (931) 454-7153 or Jeff Lillard, Commissary manager, at (931) 454-3545.

AAFES Dividends

Dividends generated from the Army and Air Force Exchange Service (AAFES) overall earnings are a major contributor to Services nonappropriated fund (NAF) construction and renovation projects as well as equipment purchases. Services would like to thank all AAFES customers for their support. Dividends received for December 2012 totaled \$5,014.96.

MEMBERSHIP from page H1



The membership card provides numerous benefits. The Military Free Cash rewards program is an outstanding benefit to members. When you use your club member-

ship card in any Services activity, you earn two percent cash back on every eligible purchase including AAFES and Commissary. Additionally you earn one percent cash back on eligible purchases everywhere else including all off base purchases. In addition to being able to redeem points for cash back and gift cards, you now can also redeem for travel, to include airline tickets, hotel, and car rental – super flexibility – and it

is all free, as a benefit of club membership! Air Force Clubs offer members numerous free and inexpensive activities including discounts on every meal to include special functions, an annual \$25,000 scholarship program, and other member's only programs. Your Club is a great place for entertainment and meeting new friends in a fun and safe environment. Join now – the first three months are free on us – membership pays!

BRIEFS from page H1

is set for Feb. 6 and may be completed anytime during the day. The top finisher in each category will receive a reward for the highest number of reps performed in proper form.
Blood Pressure Screening will be held in Café 100 at 11 a.m. – 12 p.m., Feb. 13. Not sure what your blood pressure level is or why it matters? The Fitness Center staff will be providing free assessments and providing information. High blood pressure usually

has no symptoms but can lead to serious problems. You can control high blood pressure through healthy lifestyle habits and medication. Stop by and see where your numbers fall and learn more about heart health.
Dynamic vs. Static Stretching
 Flexibility is one of the major health-related components of physical fitness. It is defined as the degree to which the body can move through a range of motion about a joint. Stretching

enhances flexibility if performed on a regular basis. We are going to look at two types of stretching methods: dynamic and static stretching.
Dynamic Stretching (sometimes called warm-up/cool-down exercises or Active Stretching)
 ~The purpose of dynamic stretching is to warm up the body orthopedically, cardiovascularly, and thermally
 ~The movement should

BRIEFS from page H2

not be exhaustive or painful. Stay within the “easy stretch” zone of mild tension

~Perform 10 to 20 repetitions

~Avoid ballistic stretching which causes the stretch reflex.

~Use repeated fluid, gentle body movements that gradually increase reach and/or speed of movement

~Movements can be specific or sports-related such as swinging a bat or a low level activity such as walking

Static Stretching

~The purpose of static stretching is to stretch those areas which are typically tight and could lead to muscle imbalances

~Static stretching involves stretching to the point of mild tightness without discomfort and holding that point.

~Use slow, controlled movements with held positions; avoid bouncing or moving while the joint is fully extended

~Hold the stretch 15-60 seconds while breathing normally

~Perform each stretch 3 to 4 times

~Create an inverse stretch reflex which is responsible for relaxation

~Use a variety of static stretches

~Use Proprioceptive Neuromuscular Facilitation (PNF) as one type of static stretching

~Don't do static stretching before working-out because it can compromise muscle performance, which can lead to a decrease in force production, power performance, running speed, reaction and movement time, and strength endurance; do at the end of a work-out or at home to relax

Health Benefits from Stretching

~Increased muscular suppleness

~Possible decrease in soreness

~Increased range of motion

~Increased blood circulation

~Increased agility

~Improved functional flexibility

~Injury rehabilitation

~Improved posture

~Relaxation and stress management tool

Group Class Schedule:

Boot Camp Monday – Wednesday and Friday, 6-7 a.m.

Yoga Monday – Wednesday and Friday, 11a.m.-12p.m.

Cycling Monday – Tuesday and Thursday, 11a.m.-12p.m.

Interval Training – Tuesday and Thursday, 3:30-4:30p.m.

**Outdoor Rec (ODR)
454-6084**

Check us out on Facebook! Arnold AFB Services Outdoor Recreation

Outdoor Rec heads back to Gatlinburg for Ski Trip. Enjoy a relaxing weekend of skiing Feb. 8-10. Outdoor Rec will be heading to Ober Gatlinburg for three days and two nights of skiing and enjoying the winter snow. We will be departing the Outdoor Rec building on Friday at 8 a.m. going to Gatlinburg and check into our hotel. After everyone

has been settled into their rooms we will head to Ober Gatlinburg to hit the slopes. We head back out to the slopes on Saturday morning for full day of skiing and fun. We will leave Sunday morning at 8 a.m. to return to the Outdoor Rec building by around 1 p.m. Cost for the trip is \$310 per person and deadline to sign up is Jan. 25. This trip is limited to fourteen participants and there must be at least seven to make the trip. Remember to bring your camera and extra money for food, beverages and souvenirs. Call 454-6084 to sign up or for more details.

Leave No Trace Hike

is set for Feb. 16 at Crockett Cove from 10 a.m. – 1 p.m. for ages 10 and up. This class is \$5 per person and is a nationally recognized outdoor skills and ethics awareness program. Remember to wear warm clothes, gloves, and other necessary items to keep warm outdoors as this class will be in the natural elements to give hands on instruction on how to treat the environment. The seven principles are guidelines to follow at all times and are an awareness of and an attitude toward the land rather than a set of rules. These seven principles will teach how to plan ahead and prepare, camp on durable surfaces, dispose of waste, leave what you find, minimize campfire affects, and respect wildlife and other hikers. At the end of this session participants will be able to identify personal nature awareness and stewardship goals, learn simple, but effective, skills related to minimum impact outdoor activities, and develop an action plan for implementing Leave No Trace principles on future outdoor activities. Call to sign up for this class at least three days in advance.

Paintball continues with regular play every Saturday except third Saturday which is tournament day. Paintball is for ages 10 and older and ages 10-17 must have a parent permission form. Remember to wear appropriate clothing – long pants, a long-sleeved shirt and closed toe shoes.

Regular Saturday play is every weekend from 9:30 a.m. to 2:30 p.m. except third Saturday due to monthly tournaments. Those interested need to call and sign up at least a day ahead of time to ensure equipment availability. When the day arrives, simply meet at the paintball field and get play underway with the direction of an Outdoor Rec (ODR) staff member. Cost is \$35 per person with equipment provided and includes 500 paintballs and a tank of air. It is \$20 per person for those with their own equipment and that also comes with 500 paintballs. All paintballs used must be purchased from ODR for \$13 per bag of 500 or \$45 for a box of 2,000.

Monthly tournaments are on the third Saturday beginning at 10 a.m. Teams of four play double elimination to test your skills until the best team arises. Prior to the tournament there will be a 25-minute warm up field time with team on team play. There must be at least

one team member above age 18 and there must be at least eight teams to hold the tournament. ODR has 20 paintball guns available on a first come first served basis. Indicate at time of registration if you will be using your own equipment or need to reserve equipment. Cost to enter the tournament is \$55 per team and includes a bag of 500 balls and air for the day for each team member. The winning team will receive a free day of paintball (regular Saturday play) for all four team members valid for one year and includes equipment, field fee, air for the day and bag of 500 balls. Sign up deadline for the tournament will be the Tuesday prior and late registration/cancellation fees will be applied the Wednesday prior.

Call 454-6084 for more information about the paintball program or to sign up for these events.

Extended Stays available at FamCamp. The FamCamp is a wooded

area off of Northshore Road on the banks of Woods Reservoir with tent and RV camping. Amenities include bathhouse with shower, barbeque grills, fire rings, lantern hangers, boat launch pad, picnic and beach area, covered pavilion as well as washer/dryer service and boat docking service. There are 18 tent sites and 36 RV sites, 15 of which are pull-through. All RV sites are equipped with 30 and 50 amp 115V service. Daily rates for RV camping are \$20 during the summer and \$15 during the winter (Nov.-Apr.). Did you know that you can stay for up to three months at FamCamp? Monthly rates are \$450 during the summer and \$400 during the winter. Sites 27-36 are designated for extended stays. Extended stays are only allowed in three month increments and there must be a one month gap between stays. Reservations may be made up to 45 days in advance for active duty, National Guard

and Reserve military. Up to 40 days in advance for military retirees and up to 30 days for DoD employees. All others may make reservations up to 20 days in advance. Tent camping is available at \$7 daily. Washer/Dryer service is \$2 and boat docking is \$5. A convenience store is open 12-4 p.m. Friday through Sunday May through October and open Mondays if in conjunction with a holiday weekend. Other camping is available at Crockett Cove and Dogwood Ridge. Crockett Cove offers five rustic cabins with heat and air, mini fridge, microwave, front porch swing, grill and picnic table. There is no running water but a bathhouse is on site. The one or two room cabins rent for \$40/\$50 per day during the summer and \$30/\$40 during the winter. Dogwood Ridge consists of six travel trailers with water, sewer, electric and propane complete with deck, picnic table and chairs. The trailers rent for \$40

daily, \$75 for two days or \$200 per week. Extended three month stays are also available at these areas. Call Outdoor Recreation at 454-6084 for more details or to make reservations.

RV and Covered Boat Storage slots available.

Outdoor Rec has slots available in the RV storage yard. Each slot is 30 ft. long and 10 ft. wide and rents for \$25 per month or \$250 per year. The covered boat storage has nine slots open. The boat storage slots are 40 feet long and 12 feet wide and rents for \$45 per month or \$450 per year. Both storage yards require proof of registration and insurance of item placing in storage along with a signed contract based on length of stay. Access to the storage yard will be granted at the time the contract is signed. Call for more details or to reserve your slot.

Outdoor Rec inflatables! There is an assortment of inflatables.

See BRIEFS, page H4

February Movie Schedule

Movie nights are Thursdays with movie start time of 6:30 p.m. and dinner available from 5-8 p.m.



Feb. 7 – “Frankenweenie,” rated PG (1 hr. 27 min) starring voices of Winona Ryder, Catherine O’Hara and Martin Short. Young Victor conducts a science experiment to bring his beloved dog Sparky back to life, only to face unintended sometimes monstrous, consequences.

Feb. 14 – Special Valentine Date Night Dinner & Movie for Two (dinner optional; pizza menu also available) “Cloud Atlas,” rated R (2 hr. 52 min.) starring Tom Hanks, Halle Berry, Hugh Grant, and Susan Sarandon. An exploration of how the actions of individual lives impact one another in the past, present, and future, as one soul is shaped from a killer into a hero, and an act of kindness ripples across centuries to inspire a revolution. Dinner for Two includes choice of appetizer (spinach artichoke dip, cheese sticks, fried mushrooms or onion rings), choice of two dinners (grilled bacon wrapped sirloin steak, Monterrey chicken, blackened tilapia, ten spice vegetable pasta), choice of two sides per dinner (rice pilaf, mashed potatoes, baked potato, steamed broccoli, corn or fries), choice of dessert served with two spoons (carrot cake, five layer chocolate cake, pecan pie or bacon ice cream sundae) - \$23 per couple members, \$25 per couple non members. Reservations due Feb. 12.

Feb. 21 – “Chasing Mavericks,” PG (1 hr. 56 min.) starring Jonny Weston, Gerard Butler and Elisabeth Shue. When young Jay Moriarty discovers that the mythic Mavericks surf break, one of the biggest waves on Earth, exists just miles from his Santa Cruz home, he enlists the help of local legend Frosty Hesson to train him to survive it.

Feb. 28 – “The Cold Light of Day,” PG-13 (1 hr. 33 min.) starring Henry Cavill, Bruce Willis and Sigourney Weaver. After his family is kidnapped during their sailing trip in Spain, a young Wall Street trader is confronted by the people responsible: intelligence agents looking to recover a mysterious briefcase.



The Green Scene
brought to you by Services Recycling Program

Zero Waste and the 3 Cs

For years people have been rhyming off the three Rs of recycling:
Reduce, Reuse, Recycle

Recently, there has been an environmental sustainability shift. Instead of the traditional focus on recycling, the focus has shifted to zero waste.

Current programs are now concentrating on the three Cs:
Culture, Communication and Collection

At Arnold, we believe that being a partner is an integral part of the three Cs. Just as you cannot have a successful recycling program without the winning combination of all three Cs, if you lack the partner who is there to guide you through the process, you will not achieve your goals.



Thank You from *The Green Team*
Robbie Evans (manager), Doug Richards, Matt Gluck
931-454-6068



The Services insert to the High Mach is designed to inform our customers of events and specials in Services activities. All program dates, times and prices are subject to change.

BRIEFS from page H3

**Outdoor Rec (ODR)
454-6084**

ment of inflatables for almost everyone's needs. We have a huge backyard obstacle challenge measuring 40 feet long by 10 feet wide by 13 feet high, and a double lane jump slide for only \$150 per day. We also have a giant basketball hoop for \$30 per day and a Rocket Bounce House for \$75 per day. If you need a water slide then our 18 foot Double Drop Wet/Dry slide will be great for any event and is only \$150 per day. Please contact Outdoor Recreation at 454-6084 to make your reservation today!

Teambuilding Facilitation now available through Outdoor Rec. Book your team building event at least two weeks in advance and customize your activities to include leadership, communication, trust, conflict resolution and more. Our kit has 289 activities and can serve up to 120 participants. Large group challenges can accommodate up to 60 people. This equipment must be facilitated by an Outdoor Rec staff member and is not available for rent for private use. Department of Defense organizations may utilize the program for free. All others

have the option of half day (4 hours) for \$50 or full day (8 hours) for \$100. Call to find out more information or book your team building event.

Reservation Policy: FamCamp, Crockett Cove and Dogwood Ridge reservations may be made 45 days in advance for active duty and reserve military, 40 days for retired military, and 30 days for all other qualified personnel. Boat reservations may be made 15 days in advance for active duty and 10 days for other eligible individuals. All reservations are made through the Outdoor Recreation by stopping by or calling 454-6084.

**Wingo Inn
454-3051**

Check us out on Facebook! Arnold AFB Services Wingo Inn

Reservations for Wingo Inn can be made 120 days in advance. Room rates start at \$53.25 per night. Please call 454-3051 for reservations.

**Gossick Leadership Center
454-4003**

Check us out on Facebook! Arnold AFB Services Gossick Leadership Center

The Gossick Leadership Center (GLC) may be used for events such as meetings, conferences, luncheons, dinners, etc. and is booked through the Services Conference Center Manager (CCM) up to one year in advance. Requests must be made in writing by email to arnold.glc@arnold.af.mil. All event coordinators are required to sign an agreement. Official unit functions are authorized at no charge and are defined as bona fide official meetings or training held as part of the normal duty day. Unofficial and private functions may be held for authorized users at a fee. Community members may host events with the approval of the Services Director for a fee. Outside food and beverages are not allowed. First consideration must be given to Arnold Lakeside Center. In the event they cannot accommodate, an outside source may be utilized with CCM approval. For more information contact the CCM at 454-4003.

**AEDC Woman's Club
393-2552**

The AEDC Woman's Club will meet at 9:30 a.m. Feb. 5 at Arnold Lakeside Center beginning with

meeting, program and followed with lunch. The program will be "Coming to America" by Olga Brindley who lived in Russia.

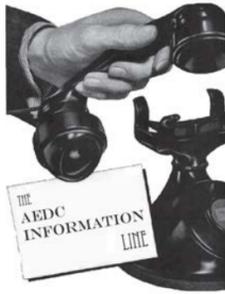
Reservations must be made in advance. Call or email Liz Jolliffe at 393-2552 or jajolliffe@aol.com.

This is a private or-

ganization which is not part of the Department of Defense or any of its components and it has no governmental status.

454-3600

The AEDC Information Line is available for ATA employees to get the latest information on a wide variety of emergency circumstances that could impact base operations or driving conditions.



BENEFIT from page H1

a Chase banking account in any denomination starting as low as \$20 and merchandise. The redesigned reward websites allow Air Force Club members (carrying the Club MasterCard®) to redeem rewards anytime, view all redemption options, even plan a vacation with Travel Rewards.

Club members already earn two percent cash back

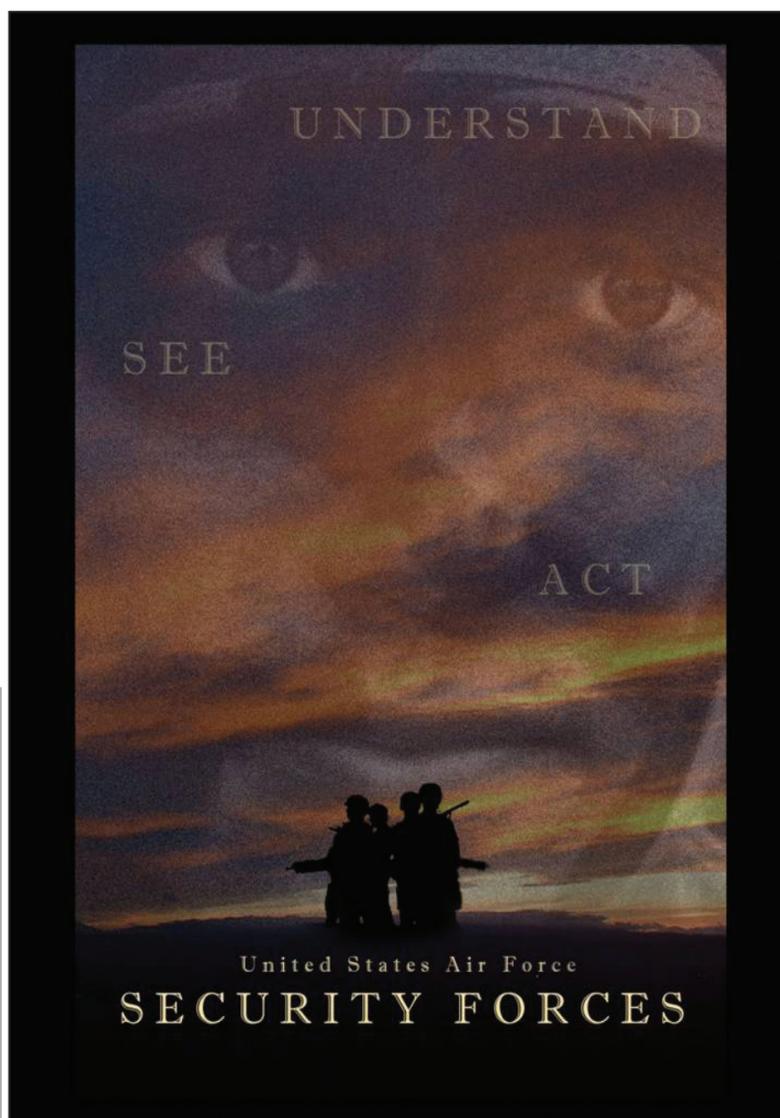
rewards at the Exchange (to include gas), Services, and the commissary, and one percent everywhere else.

In addition, with no foreign transaction fees, Air Force Club MasterCard® card members can save up to three percent in fees on all international purchases.

"We are working closely with Chase to bring Air Force club members the maximum number of ben-

efits possible," said Mr. Fred McKenney, Chief, AF Food and Beverage. "They understand how well providing club membership 'card value' fits into the total package of benefits designed for our members."

Air Force MasterCard® card members can view or redeem reward options by logging onto www.chase.com/militaryfreecash.



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