



HIGH MACH

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AEDC team implements significant software changes Improvements speed up data retrieval, analysis process

By Deidre Ortiz
AEDC Public Affairs

Members of the AEDC Instrumentation, Data and Controls team have implemented software changes that will benefit aeropropulsion test cells at the Complex by increasing the speed in which the Air Force and AEDC test customers receive dynamic data.

Mike Pepple, an ID&C supervisor, credits the team of software engineers for improving the Computer Assisted Dynamic Data Monitoring and Analysis System (CADDMAS) and Propulsion Data Processing and Analysis System (PDPAS) to assist AEDC analysts in their support of these test cells. Those leading the effort were Rusty Zarecor, Stephen Powell and Michael Walker.

"They made software changes to enable the transmittal of CADDMAS data to PDPAS and then obtained additional disk storage," Pepple said.

This capability enables test teams to access dynamic data for analysis in near real time. The new transmittal process only takes minutes, whereas it had previously taken up to a week for data availability.

"During a turbine engine test, you have high volumes of data," Steve Arnold, structural test analyst, stated. "A lot of time was spent moving this data over external hard drives, which can slow down the test and analysis process."

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A group of AEDC software engineers, pictured here, recently assisted in improving the Computer Assisted Dynamic Data Monitoring and Analysis System and Propulsion Data Processing and Analysis System to benefit operations of future turbine test projects. Some of the engineers involved in this effort were, left to right, Stephen Powell, Michael Walker, Nathan Harrison, Rusty Zarecor and Phil Voyles. (U.S. Air Force photo/Jacqueline Cowan)



Testing remembered, Oct. 4-10 World Space Week

An AEDC test team prepare to hoist the Geostationary Operational Environmental Satellite-M (GOES-M) weather satellite into the clean room at the Mark I Space Chamber at the Complex in 2000. The testing at AEDC helped confirm satellite operation under simulated space conditions before it was placed in orbit. (AEDC file photo)

See AEDC world space contributions on page 6

Every smoke alarm has an expiration date: What's yours?

By Arnold AFB Fire & Emergency Services

Does your home have a smoke alarm?

According to the National Fire Protection Association, the answer is likely "yes." NFPA research shows that most American homes have at least one. But do you know how old your smoke alarms are? If you're like most people, you're probably not so sure.

A recent survey conducted by NFPA revealed that only a small percentage of people know how old their smoke alarms are, or how often they need to be replaced. That lack of awareness is a concern for Arnold Air Force Base Fire and Emergency Services and NFPA, along with fire departments throughout the country, because smoke alarms don't last forever.

"Time and again, I've seen the life-saving impact smoke alarms can have in a home fire, but I've also



Jim Evans, assistant chief with Arnold AFB Fire and Emergency Services (U.S. Air Force photo/Rick Goodfriend)

seen the tragedy that can result when smoke alarms aren't working properly," said Jim Evans, assistant chief with the Arnold AFB Fire and Emergency Services. "That's why we're making a concerted effort to educate all personnel about the overall importance of smoke alarms, and that they do have a life limit."

NFPA 72, National Fire Alarm Code®, requires smoke alarms be

replaced at least every 10 years, but because the public is generally unaware of this requirement, many homes have smoke alarms past their expiration date, putting people at increased risk.

As the official sponsor of Fire Prevention Week for more than 90 years, NFPA is promoting this year's Fire Prevention Week campaign, "Don't Wait - Check the Date!"

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HIGH MACH



Arnold Engineering Development Complex
An Air Force Test Center
Test Complex

Col. Rodney Todaro
Commander

Jason Austin
Chief,
Public Affairs



Cynthia Rivera
General Manager,
National Aerospace
Solutions

High Mach Staff:

Kathy Gattis,
NAS Executive Editor

Raquel March,
NAS Editor

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Core Values

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



Vision

"NAS will be integral to the success of AEDC, the U. S. Air Force's premier aerospace testing facilities, while applying the highest standards of ethics, innovation, safety, security, and quality to daily operations."

Values

- Ethics. We are uncompromising in our integrity, honesty, and fairness.
- Safety & Health. We are relentless in keeping people safe from harm, and we provide a safe and healthy work environment.
- Excellence. We thrive on challenge, accomplishment, and mission success.
- Quality. We are passionate about doing our work right the first time.
- People. We have a mission-focused, inclusive workforce who have a diverse skill set, are committed to success, demonstrate innovation and have a can do attitude.
- Culture. Our team is proud of our diversity, inclusiveness, and collaborative work environment. We are proud of what we do and how we do it.
- Relationships. We build positive, long-term business relationships through trust, respect, and collaboration.
- Innovation. We overcome challenges through creativity, perseverance, technology, and flexibility. We actively seek to continually improve.
- Sustainability. We plan and act for the long term benefit of our communities and our environment.

AEDC team members celebrate Air Force birthday

Second Lt. Thomas Julian and the AEDC Commander Col. Rodney Todaro cut the birthday cake during the Air Force Birthday Fair Sept. 16 at the Arnold Lakeside Center. The Air Force 69th birthday was Sept. 18. (U.S. Air Force photo/Emily Howell)



Air Force birthday cake (U.S. Air Force photo/Emily Howell)



Right: The Clan Destiny Circus perform acrobatics at the Arnold Lakeside Club for the Air Force's 69th birthday celebration. (U.S. Air Force photos/Holly Peterson)



Bottom: AEDC team members cruise around Woods Reservoir on water tricycles during Air Force birthday fair. (U.S. Air Force photos/Holly Peterson)



Smoking Policy

1. The following revised Arnold AFB smoking policy is effective immediately and applies to all individuals on Arnold AFB.
2. Traditional Tobacco products (e.g. cigars and cigarettes):
 - a. Smoking is permitted solely in Designated Tobacco Areas (DTAs) shown in the attached map and identified by designated signage. If no signage exists, smoking is not permitted in that area. It is the responsibility of all smokers to keep DTAs clean of cigarette butts.
 - b. Tobacco use on the Arnold AFB Golf Course is permitted, but discouraged based on the health hazards of tobacco use and secondhand smoke. No smoking is permitted within 50 feet of golf course buildings except in the approved DTA.
 - c. Smoking in government-owned/leased vehicles is strictly prohibited. Personnel are allowed to smoke in their personal vehicles at any time; however, at no time will personnel discard cigarette butts outside their vehicle.
 - d. For government employees, the fact that a person smokes has no bearing on the number of breaks they may take. Breaks should be taken in accordance with the current supervisory and personnel policies that afford all employees the same break opportunities consistent with good work practices and accomplishment of the mission.
3. Smokeless Tobacco products (e.g. snuff and dip):

Smokeless tobacco products are not to be restricted to DTAs. Smokeless tobacco use will be permitted in all workplace areas (inside and out) subject to reasonable safety and sanitary conditions. Specifically, 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.
4. Electronic Cigarettes (also known as "e-cigs"):

Pursuant to Air Force Instruction (AFI) 40-102, Tobacco Free Living, e-cigs are considered to be equivalent to tobacco products; however, e-cigs are not restricted to DTAs and are allowed to be used outdoors at a minimum distance of 25 feet from building entry/egress points. (This policy is dated July 27, 2016)

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 via the AEDC intranet home page 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. Rodney Todaro
AEDC Commander

AEDC releases 2016 Interim Arnold AFB Water Quality Report



Arnold Engineering Development Complex (U.S. Air Force photo/David Housch)

By AEDC Civil Engineering Branch

IS THE WATER SAFE?

Yes, our water meets all of Environmental Protection Agency's (EPA) health standards. We have conducted numerous tests for over 80 contaminants that may be in drinking water. As you will see on the chart with this report, we only detected eight of these contaminants and found all of these contaminants at safe levels.

WHAT IS THE SOURCE OF THE WATER?

The water on Arnold's Main Base area comes from Woods Reservoir and is treated at the Base Water Treatment Plant (Building 1503).

The golf course is served by a well located at the golf course. The water is filtered through cartridge filters and disinfected with liquid calcium hypochlorite.

Arnold Village is served by the Estill Springs water system. They have conducted numerous tests for over 80 con-

taminants that may be in drinking water and only detected 12 of these contaminants. All of these contaminants are at safe levels.

WHY ARE THERE CONTAMINANTS IN THE DRINKING WATER?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants; however, this does not necessarily indicate that the water poses a health risk. Community water systems are required to disclose the detection of contaminants; however, bottled water companies are not required to comply with this regulation. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Some people may be more vulnerable

to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about not only their drinking water, but food preparation, personal hygiene, and precautions in handling infants and pets from their health care providers.

EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

WERE THERE ANY CONTAMINANTS DETECTED IN THE DRINKING WATER?

All sources of drinking water con-

tain some naturally occurring contaminants. In order to ensure that tap water is safe to drink, the USEPA prescribes regulations which limit the amount of contaminants allowed in water provided by public water systems. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

For more information about the drinking water on Arnold AFB and the AEDC Golf Course, call the Base bioenvironmental engineer at 931-454-5635

For more information about the drinking water in Arnold Village, call Estill Springs City Hall at (931) 649-5188.

Detailed Information on Contaminants

Chlorine Residual Disinfection is maintained throughout the distribution system. Chlorine is added to the drinking water supply at well sites to provide assurance that water delivered to customers will remain free of microbiological contamination. This also ensures that the water meets microbiological drinking water standards from the time it is pumped from the ground until it reaches the customer's tap.

Disinfection Byproducts are the unintended reactions of disinfectants with naturally occurring materials in the water (e.g., natural organic matter, bromide, or disinfection by-product precursors).

Nitrate is a form of nitrogen and an important plant nutrient. Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, ask advice from your health care provider.

Lead and Copper are naturally occurring metals which are generally found at very low levels in source waters. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.

* The Action Level for Naturally Occurring Metals (Lead and Copper) is calculated based on the 90th percentile of all the samples taken in the distribution system (e.g. of 10 samples collected, if two samples are above the Action Level, then the Action Level has been exceeded). The levels found in the AEDC drinking water system are below the Action Level, therefore, we are in compliance and the water is safe to drink.

Coliform Bacteria are commonly found in the environment and in the digestive tract of animals. While rarely harmful, coliform bacteria in drinking water are indicators that the water may also contain harmful microorganisms.

Arsenic is a naturally occurring substance commonly found in groundwater in the southwestern United States. While your drinking water meets USEPA's standard for arsenic, it does contain low levels of arsenic. USEPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. USEPA continues to research the health effect of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Barium occurs naturally at very low concentrations in our groundwater.

TTHMs (Total Trihalomethanes) are a group of four chemicals that are formed along with other disinfection by products when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water.

HAA5s (Haloacetic Acids) are chemicals that can form resulting from water treatment, when water acidity and temperature are slightly high and treatment chemicals react with organic particles or bromide.

Water Quality Data

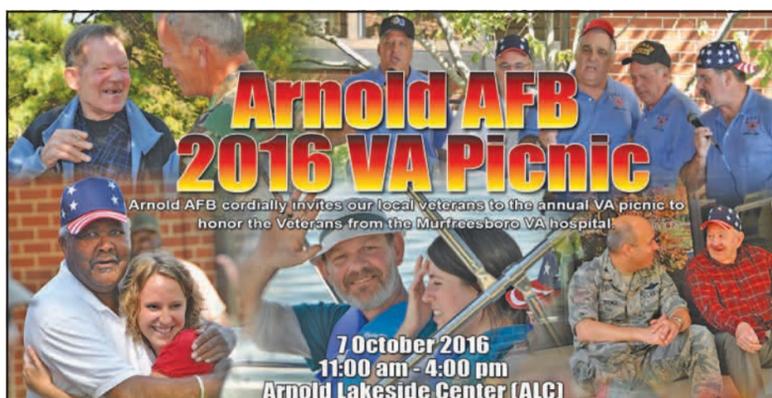
Disinfectants and Disinfection By-Products							
Contaminant	MRDLG	MRDL	RAA	Range	Sample Year	Violation	Typical Source
Golf Course							
Chlorine (ppm)	4	4	1.7	0.9 – 2.2	2016	0	Water additive used to control microbes.
Main Base							
Chlorine (ppm)	4	4	2.1	1.7 – 2.3	2016	0	Water additive used to control microbes.
Chlorite	MCLG 0.8	MCL 1.0	0.66	0.54 – 0.80	2016	0	Byproduct of disinfection
TTHMs	N/A	MCL 0.08	0.052	0.035 - 0.084	2016	0	Byproduct of disinfection
HAA5s	N/A	0.06	0.006	<0.003 - 0.011	2016	0	Byproduct of disinfection

Inorganic Contaminant							
Contaminant	MCLG	MCL	Highest Level Detected	Range	Sample Year	Violation	Typical Source
Barium (ppm)	2	2	0.01	N/A	2014	0	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Nitrate [measured as Nitrogen] (ppm)	10	10	0.79	N/A	2016	0	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Naturally Occurring Metals					
Contaminants	MCLG	AL	90 th percentile	Sample Date	Typical Source
Copper (ppm) - action level at consumer taps	1.3	1.3	0.59	8/4/2014	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead (ppb) - action level at consumer taps	0	15	11	8/4/2014	Corrosion of household plumbing systems; Erosion of natural deposits.

What does this chart mean?

- **MCLG - Maximum Contaminant Level Goal**, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MCL - Maximum Contaminant Level**, or the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.
- **AL - Action Level**, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.
- **Parts per million (ppm) or Milligrams per liter (mg/l)** - explained as a relation to money as one part per million corresponds to a single penny in \$10,000.
- **Parts per billion (ppb) or Micrograms per liter** - explained as a relation money as one part per billion corresponds to a single penny in \$10,000,000.
- **MRDL - Maximum Residential Disinfectant Level** -The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.
- **MRDLG - Maximum Residential Disinfectant Level Goal** -The level of drinking water disinfectant below which there is no known or expected risk to health.
- **RAA - Running Annual Average** of the Results.





Team AEDC Spotlight

Kovacs helping to maintain cybersecurity at AEDC

By Deidre Ortiz
AEDC Public Affairs

For the past year, Amanda Kovacs has been assigned as the AEDC TEMPEST, or Emissions Security, manager.

As TEMPEST manager she oversees the TEMPEST program, which identifies vulnerabilities in information systems processing classified information that could result in compromising emanations and the possible interception of these emanations.

Kovacs is the first government civilian to serve as AEDC TEMPEST manager, and Clark Brandon, deputy director of the AEDC Test Support Division, said though she's only been in her position about a year so far, she's already contributed a great deal.

"Her attention to detail, persistence and hard work have helped her to make a positive and immediate impact to the AEDC cybersecurity program," he said.

Brandon added he has

also shown adeptness and diversity in skill as alternate AEDC Communications Security (COMSEC) manager.

"She completed her training and prepared herself to take on all COMSEC manager responsibilities as they are required. Her abilities were displayed this past April when she was a key contributor in helping the AEDC cybersecurity team prepare for three major inspections. She consistently ensures that her work is complete down to the smallest details."

Brandon further commended Kovacs for consistently monitoring and updating changes that occur in the AEDC test facilities.

"Her assessments and documentation are critical to maintaining a proper cybersecurity posture and protecting critical information," he said. "She carries a mission first attitude and has unquestionably become a critical member of the AEDC and Air Force cybersecurity team."



Amanda Kovacs, pictured, is TEMPEST, or Emissions Security, manager at AEDC. In her position she oversees the TEMPEST program, which identifies vulnerabilities in information systems processing classified information. Kovacs is the first government civilian to serve as AEDC TEMPEST manager. (U.S. Air Force photo/Jacqueline Cowan)

According to Kovacs, some of the skills and experience gained through her past careers prepared her for her new position. "I was active duty

Air Force for around nine years, then I was a contractor at Creech Air Force Base, Nev., working Unmanned Aerial Vehicle system administration for four years," she said. "After that I was the site supervisor for Lockheed Martin, supporting Army Corp of Engineers in Seattle, Wash. Once that contract was over, I

had the chance to take a position on the Microsoft Campus in Redmond, Wash., supporting Windows Azure."

She said it was during this time when the opportunity at Arnold Air Force Base came open.

"I jumped at it, I am originally from Buchanan, Tenn., and had been looking for a way to get

home to Tennessee for years," she said.

Her long-term goal is to start working on her Master's degree in cybersecurity next spring.

"I really think I would eventually like to branch out a bit further in the cybersecurity team. But for now I'm really just enjoying my current program."

CHANGES from page 1

Another benefit is that data packages can be provided to test customers within hours of a test rather than days or weeks. In addition, once a test program is completed AEDC analysts still have access to the dynamic data points.

"It simplifies and speeds up test data analysis," Arnold said. "Data is critical to Air Force when making decisions because if testing twice a week, you're able to get data and see how you're going to run the next tests."

Phil Voyles, an ID&C supervisor, noted AEDC has always been ahead in terms of dynamic data processing and analysis software.

"AEDC led the revolution more than 20 years ago," he said.

He noted that in the past, this type of software was used only for structural testing, but more recently it is used during every engine test.

Pepple also added that for certain tests, dynamic data points could only be

viewed if you took down the real-time displays.

"The improvement above provides another stream so that analysts, located remotely, can view the dynamic data points," he said. "This is especially important for the projects that focus on data from strain gauges."

These software improvements have been utilized during F135 engine testing in C1 and J2, and they will benefit operations for many future turbine test projects.

ALARM from page 1

Replace Smoke Alarms Every 10 Years," to better educate the public about the critical importance of knowing how old their smoke alarms are and replacing them once they're 10 years old.

Fire Prevention Week is Oct. 9-15, 2016.

To find out how old

your smoke alarm is and its expiration date, simply look on the back of the alarm where the date of manufacture is marked. The smoke alarm should be replaced 10 years from that date (not the date of purchase). The Arnold AFB Fire and Emergency Services also says smoke

alarms should be tested monthly, and that batteries should be replaced once a year or when they begin to chirp, signaling that they're running low.

For more information on smoke alarms and this year's Fire Prevention Week campaign, visit www.firepreventionweek.org.

Don't Wait — Check the Date!

Replace Smoke Alarms Every 10 Years

Fire Prevention Week Oct. 9-15, 2016 Age matters when it comes to your smoke alarms. Check the manufacture dates on your smoke alarms today!

1 Remove the smoke alarm from the wall or ceiling.



2 Look at the back of the alarm for the date of manufacture.



3 Smoke alarms should be replaced 10 years from the date of manufacture.



4 Put the alarm back on the ceiling or wall if it is less than 10 years old.





A closed door may slow the spread of smoke, heat and fire.



Test smoke alarms at least once a month by pushing the test button.



If the smoke alarm sounds, get outside and stay outside. Go to your outside meeting place.



Install smoke alarms in every bedroom, outside each separate sleeping area, and on every level of the home, including the basement. Larger homes may need more alarms. For the best protection, make sure all smoke alarms are interconnected. When one sounds, they all sound.



Call the fire department from a cellphone or a neighbor's phone. Stay outside until the fire department says it's safe to go back inside.

For more information about smoke alarms, visit usfa.fema.gov and firepreventionweek.org.

U.S. Fire Administration FEMA NFPA is the official sponsor of Fire Prevention Week since 1952.

Hunting and firearm safety tips

By AEDC Safety

With the hunting season beginning, many more people will be carrying firearms than before. In order to ensure everyone stays safe, the Americans for Gun Safety Foundation offers some firearm safety tips to use before and during the hunt.

Before the Hunting Trip

Before leaving home, sight-in your firearm by practicing with the firearm and ammunition combination you intend to use during

the hunt. "Sighting in" a rifle means you know exactly where the bullet will land when your sights are properly aligned.

During the hunt, know how to carry a firearm safely. Here are common ways to do so.

Cradle Carry

Cradle the fore stock of the firearm in the crook of the non-trigger arm with the elbow bent. Take care to keep the trigger finger off the trigger and resting on the trigger guard. Be sure that hunting companions are not

in line with the muzzle, as the gun's barrel is pointed directly to the side.

Trail Carry

Grasp firearm with one hand at a balance point approximately over the action and trigger. The muzzle points ahead and down. Do not use this carry if companions are walking ahead of you.

Elbow or Side Carry

Carry the firearm by one hand with the stock tucked between the elbow and body. This carry is not advised when walking through dense

brush or when others are walking in front of you.

When walking side-by-side in a line across a field, hunters at either end of the line should use the cradle or side carry. Hunters in the middle should use either the side or two-handed rest carry.

When walking in single file the leader may choose any of the carries with the exception of the shoulder carry where the muzzle points up and toward the rear. Hunters in the center of the line should use the two-

handed or cradle carry. The last hunter may use the two-hand, cradle, sling or shoulder carry.

Establish Zones of Fire

When hunting with companions, determine ahead of time the "zone of fire" or area within which each hunter will track and fire should game appear. Other hunters must not encroach on the zone of another hunter.

Other important safety rules:

- Positively identify your target before shooting.
- When in doubt, don't

take the shot

- Never use a scoped firearm for binoculars
- During a fall, control the direction of a muzzle
- After a fall, check firearm for damage or barrel obstructions
- Know when to unload
 - During the hunt, unload before climbing a fence, a steep grade or a slippery slope. After the hunt, unload before returning to camp or your car.
 - Remember to always point the muzzle away from yourself and others.

B-21: Modernizing the bomber fleet

By Staff Sgt. Jette Carr
Air Force News Service

NATIONAL HARBOR, Md. (AFNS) – Following the Air Force secretary's announcement that the new long-range strike bomber would be called the B-21 Raider, Gen. Robin Rand, the Air Force Global Strike Command commander, said during a session at the Air Force Association Air, Space and Cyber Conference Sept. 19 the name brought the past and present Air Force full circle by linking a success from the past with modernization that is currently taking shape with the new bomber – and must continue to keep the Air Force ahead of its enemies.

"What I like about it so much is the 21st century B-21 and the name Raider connects us back to our rich heritage, and there's no richer heritage than what happened on April 18, 1942: 80 brave men in 16 B-25 Mitchells took off from the Hornet and showed the Japanese that we had will, we had fight, and changed, many would say, the course of that war," Rand said.

Rand stressed the aging bomber fleet was in need of an upgrade to combat future threats. In an ever increasing anti-access/area denial environment, the Air Force's systems need to be survivable, reliable and efficient.

"We've got to modernize," Rand said. "The B-21 is going to be a big part of modernization for our Air Force, so that we can continue to do the long-range strike mission."

As America's adversaries continue to update their systems, the U.S. needs to be ready to face them in order to maintain aerial dominance. Consequently, developing new technologies to meet threats is an increasingly relevant endeavor.

"We set priorities on some systems, and you'll hear our senior leaders this week say 'Hey, our three top (modernization) priorities are the F-35 (Lightning II), the KC-46 (Pegasus) and the B-21,' said Lt. Gen. Mike Holmes, the deputy chief of staff for strategic plans and requirements and another B-21 panelist. "You know what that priority means is that we're going to find a way to pay for those and we're going to make those a priority in our budget ... because we need to ensure we'll be able to penetrate the enemy airspace and hold the targets at risk so the president of the United States has options."

Capabilities

B-21 capabilities discussed during the panel ranged from whether the bomber would be manned or unmanned, to what kind of munitions it would carry, as well as the number of aircraft



Gen. Robin Rand, the Air Force Global Strike Command commander, speaks during a B-21 panel at the Air Force Association's Air, Space and Cyber Conference in National Harbor, Md., Sept. 19. Randall G. Walden, the director and program executive officer of the Air Force Rapid Capabilities Office, and Lt. Gen. James Holmes, the deputy chief of staff, strategic plans and requirements, were also members of the panel. (U.S. Air Force photo/Staff Sgt. Whitney Stanfield)

being acquisitioned.

While Rand stated the number of aircraft to be purchased hasn't been officially decided, he does have a number in mind. "I've been on record saying we need to start with a minimum of a hundred B-21s and my premise for that is looking at combatant commander requirements we currently have," Rand said, adding Air Force officials are also projecting what the next 50 years of combat requirements will be when deciding how many of the new bombers are needed.

"You have to have a starting point," Rand continued. "You have to look at the total existing bomber fleet we have now. We have 158 total bombers, B-52s, B-1s and B-2s and I just, again, for the life of me can't imagine our United States Air Force and our nation can have one less bomber than it currently has today. So, we start with 100, and as we manage the fleet and we manage retiring some aspects of the fleet and bringing the B-21 in, we need to really dig our heels in on what that ceiling should be."

The specific competencies the newest bomber will possess are still in discussion, but Randall Walden, the third panelist and the director and program executive officer for the Air Force Rapid Capabili-

ties Office, stated that as of now, one decision – whether the B-21 will be manned or unmanned – has been roughly decided.

"Right now it's manned, with the option to do unmanned in the future," he elaborated. "But, recall this platform is a part of a much larger family of systems, and in that family it's going to bring to bear probably some of the best capabilities in the nation. ... From an unmanned point of view, it's got a basic requirement stated. (The) question is, 'What's the right timing to bring that level of capability together with this type of platform?'"

Budget

"All three of our bomber fleets are gainfully employed every single day," Rand said. "I sometimes think people need to realize you get a lot of bang for your buck with the bombers. ... Conventionally we're in every combatant commander's (operational) plan."

A priority for Air Force leadership, especially with recent year's tightening budgets, is finding ways to maintain a strong national defense, while also remaining cost-effective.

"There are certainly things we need to do to reduce costs on these systems

AEDC Fitness Trail closes for weekend, holiday hunting

By AEDC Natural Resources

The AEDC Fitness Trail will be closed for deer hunting Saturday – Sunday, now through Jan. 15, 2017.

The trail will also be closed during the holidays which dates include Oct. 10, Nov. 11, Nov. 24, Dec. 26 and Jan 2, 2017.

Small game, waterfowl, turkey and deer hunting will also take place on AEDC Wildlife Management Area (WMA), which is on much of the remaining 32,000 acres of Arnold AFB, through Jan. 15, 2017. The WMA is managed by Tennessee Wildlife Resources Agency and more information about hunting opportunities, hunting regulations and bag limits can be found at <https://www.tn.gov/twra/article/region-2-wmas>.

AEDC tests contribute to world space advancement

By Raquel March
AEDC Public Affairs

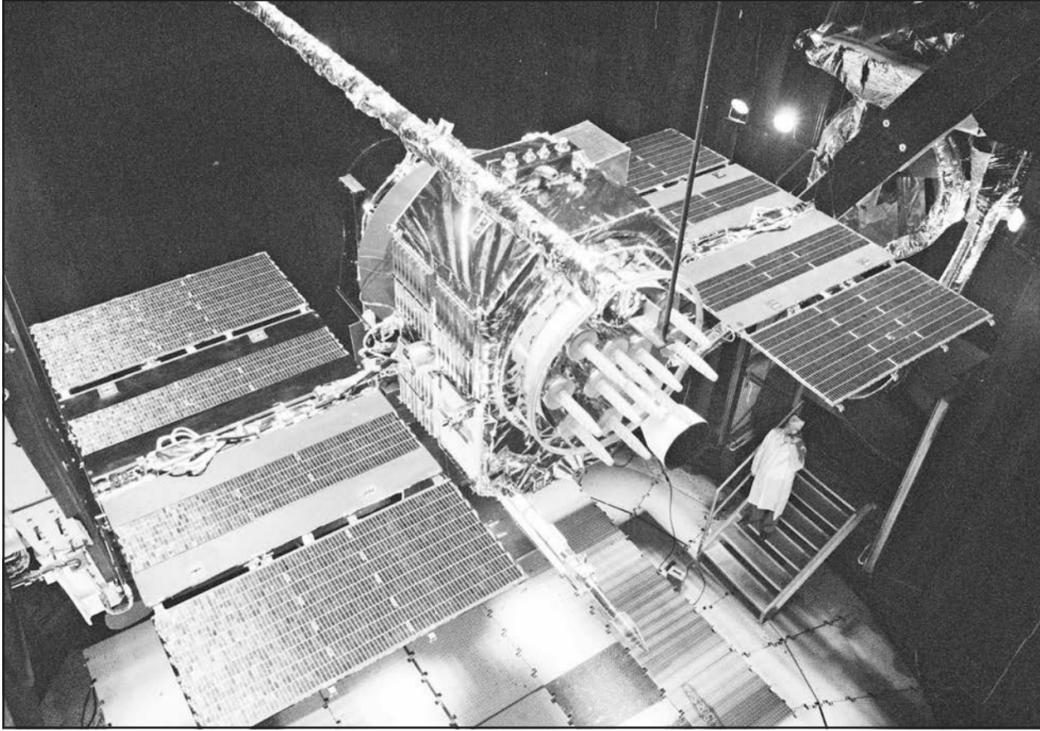
During World Space Week, Oct. 4-10, AEDC testing of the Global Positioning System satellite and

the Geostationary Operational Environmental Satellite-M (GOES-M) weather satellite can be remembered as an essential contributor to advancing the observation of earth from space.

The 2016 theme of the WSW is “Remote sensing: Enabling Our Future,” and concentrates on celebrating earth observation from space for the betterment of the human race. Some applications that are recog-

nized in the theme emphasize environment and agriculture monitoring, land use mapping and location based services.

For more information on WSW, visit www.worldspaceweek.org.



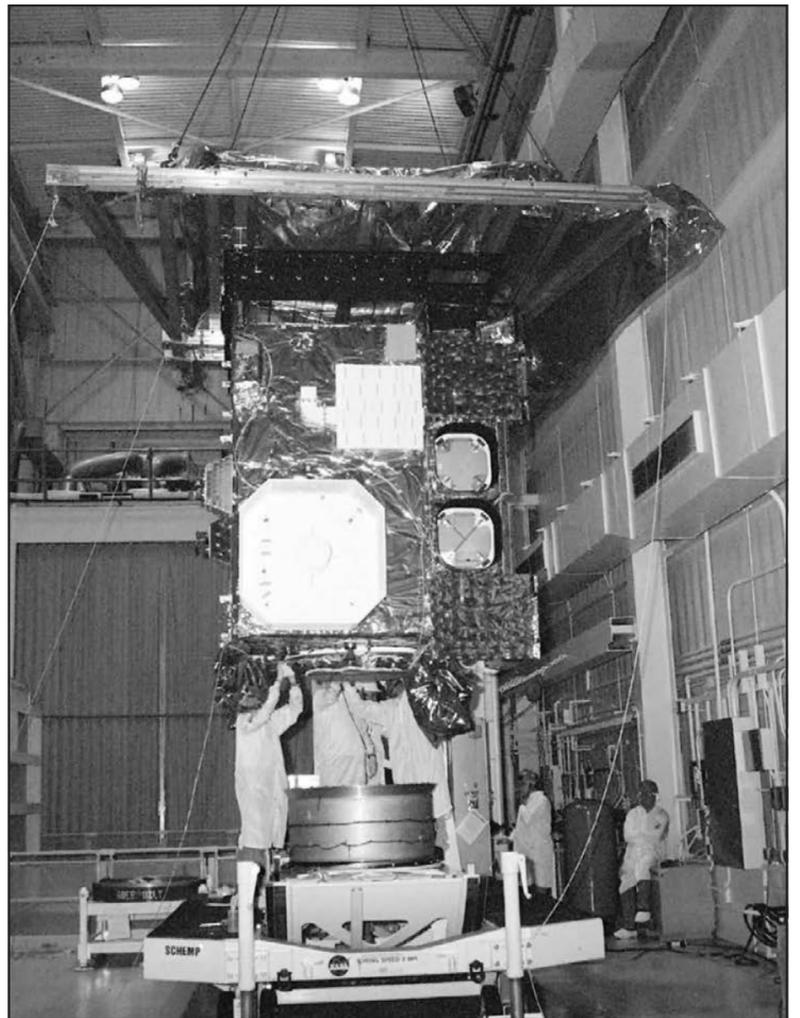
The Global Positioning System Block II satellite pictured here in 1985 underwent a four-month series of qualification tests in the AEDC Mark I Space Chamber to determine whether the satellite could withstand extreme heat and cold in space. The first GPS Block I satellite was also tested at AEDC in 1977 the same year of the first operational launch. The GPS is a U.S.-owned utility that provides users with positioning, navigation and timing services. The system consists of three segments: the space segment, the control segment and the user segment. The U.S. Air Force develops, maintains and operates the space and control segments. There are currently 31 GPS satellites in operation and the latest version in use are 12 GPS Block IIF. (AEDC file photo)



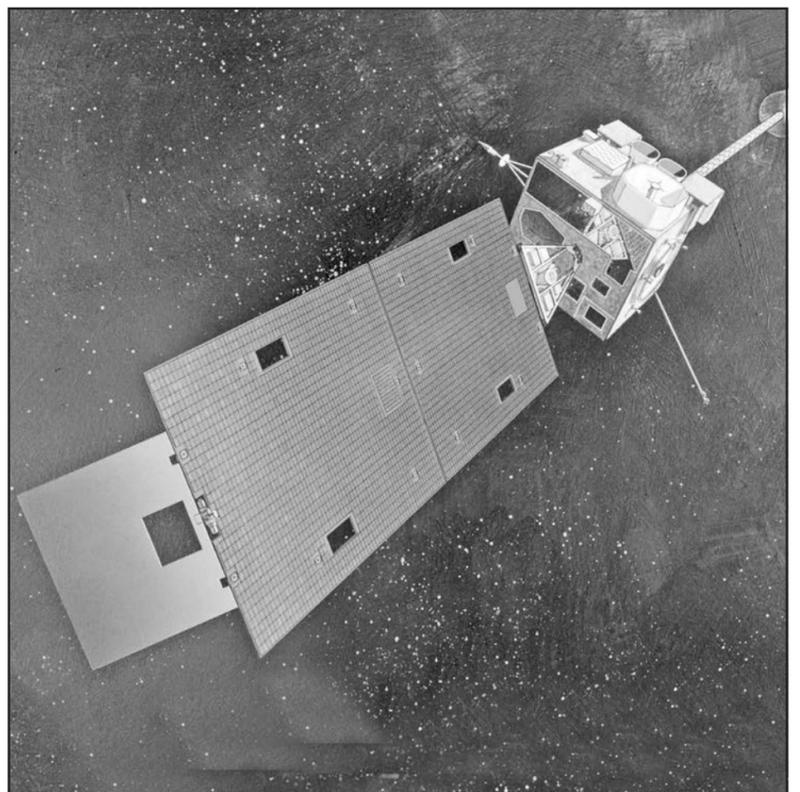
In 1977, an AEDC test engineer and a test director take a close look at the stowed solar array panels that provide electricity for the Global Positioning System NAVSTAR satellite before testing in the Complex Mark I Space Chamber. (AEDC file photo)



Global Positioning System Block IIF satellite (United States Government photo)



Pictured here is the Geostationary Operational Environmental Satellite-M (GOES-M) weather satellite in 2000 after testing in the AEDC Mark 1 Space Chamber. (AEDC file photo)



Geostationary Operational Environmental Satellite-M (GOES-M) weather satellite. (NASA image)

20th Air Force Marathon a huge success



Rachel Harley from Birmingham, Ala., crosses the finish line to become the winner of the 20th U.S. Air Force Marathon women's full marathon division at Wright-Patterson Air Force Base, Ohio, with a time of 2:58:34. (U.S. Air Force courtesy photo)

By Stacey Geiger
88th Air Base Wing
Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio (AFNS) – After a 30-minute weather delay,

over 15,000 runners, walkers and spectators from all 50 states and many foreign countries gathered Sept. 17 to take part in the 20th annual U.S. Air Force Marathon at the National Museum of the U.S. Air Force at

Wright-Patterson Air Force Base.

Col. Bradley McDonald, the 88th Air Base Wing and installation commander, said he was impressed by all the people responsible for organizing the mara-

thon. "In my first year here, I have been amazed by the outstanding Airmen of team (Wright-Patterson) and the great support we've received from the Miami Valley who helped make

this such a phenomenal event," McDonald said. "It takes an enormous amount of planning, hard work and more than 2,400 volunteers to make this a world class event and I sincerely thank each and every one of them for a job well done."

The three-day event kicked off Sept. 15 with a free sports and fitness expo. Along with participant's bib pick up, the expo offered more than 100 exhibitors featuring the latest in sports, fitness, health and nutrition.

Pre-race activities included the Breakfast of Champions on Sept. 16, featuring guest speaker, four-time Olympian Meb Keflezighi at the Fairborn followed by the annual Gourmet Pasta Dinner at the Air Force museum.

"We are always excited about the Air Force Marathon," said Rob Aguiar, the Air Force Marathon race director. "But this year is super special because we're celebrating our 20th anniversary and we've added a lot of new pieces that we think people will enjoy."

New to the marathon this year was the introduction of the official Air Force Marathon mascot, Tailwind. Also new was the Air Force Marathon mobile race app where participants and spectators could stay abreast of the latest marathon information including tracking runner location.

Runners had the option of competing in the full marathon, a half-marathon, and 10K, as well as a wheeled division. The Air Force Marathon is sanctioned by the USA Track & Field Association and is a qualifier for the Boston Marathon.

In conjunction with the marathon, in its eighth year, the U.S. Air Force sanctioned deployed location races overseas. These races offer deployed military members the opportunity to share the marathon experience while deployed.

This year's men's full marathon winner was Zebulon Hanley, of San Antonio with a time of 2:47:04.

"This was the first Air Force Marathon I ran in so I was just trying to hit my paces and keep up with the leaders and the cards just fell right," Hanley said. "Some of the leaders

slowed down toward the end and I felt good enough to keep going and it worked out."

Due to the weather, Hanley said he was not able to make his goal time but winning the marathon has given him a great sense of accomplishment. "I am also very grateful for the volunteers. They spent a lot of time to get ready for the marathon and then again on race day," Hanley said.

This year's women's full marathon winner was Rachel Harley, of Birmingham, Alabama, with a time of 2:58:34.

"I feel awesome, this was my first marathon so I didn't know how I would do," Harley said. "My dad and grandfather were both in the Air Force so this marathon was very special for me and I am thankful for everyone who serves their country."

"This event was excellent right off the bat; it was well organized and everyone did an amazing job," Harley said. "I am glad to have experienced this marathon and will definitely be back for sure next year."

Winners are listed below. All times are unofficial at the time of this release:

- Men's full marathon: Zebulon Hanley, San Antonio – 2:47:04
- Women's full marathon: Rachel Harley, Birmingham, Alabama – 2:58:34
- Men's full marathon, handcranked wheelchair division: David Berling, Avondale, Arizona – 1:14:27
- Women's full marathon, handcranked wheelchair division: Holly Koester, Walton Hills, Ohio -- 2:12:21
- Men's half-marathon: Sean O'Hollearn, Joint Base Langley-Eustis, Virginia – 1:14:37
- Women's half-marathon: Emily Shertzer, Jonestown, Pennsylvania – 1:22:40
- Men's 10K: Steve Chu, Colorado Springs, Colorado – 35:37
- Women's 10K: Courtney Stroble, Yellow Springs – 42:45
- Men's 5K: Steve Chu, Colorado Springs – 15:55
- Women's 5K: Anne Pennington, Kleine Brogel Air Base, Belgium – 2:06

The B-21 has a name: Raider

By Mike Martin

Secretary of the Air Force Public Affairs

NATIONAL HARBOR, Md. (AFNS) – The Air Force’s long-range strike bomber has officially been named the B-21 Raider.

Air Force Secretary Deborah Lee James announced the results of the Air Force Global Strike Command led naming contest alongside selected members during her remarks at the Air Force Association’s Air, Space and Cyber Conference here Sept. 19, 2016.

“Today I want to recognize three Airmen who answered the call to be a part of a new Air Force legacy and name our new bomber,” James said. “The first two ... submitted proposals that captured the essence of the bomber force and they are the winners of our contest.”

The third Airmen James recognized, calling him one of the greatest men of his generation, was Doolittle Raider retired Lt. Col. Richard E. Cole.

The Doolittle Raiders are known for their surprise attack against Japan during World War II on April 18, 1942, which forced the Japanese to recall combat forces for home defense, and boosted morale among Americans and U.S. allies abroad.

The name was ultimately selected by James and Air Force Chief of Staff Gen. Dave Goldfein after a panel composed of staff from AFGSC and Headquarters Air Force determined the top-ranked selections from more than 2,100 unique naming submissions.

While there were multiple entries advocating for the B-21 to be dubbed Raider, Air Force officials said the members were selected based on the overall quality of their justification.

James has often highlighted the important role the B-21 Raider will play in allowing the Air Force to operate in tomorrow’s high end threat environment, and in providing the Air Force the flexibility and capability to launch from the continental United States and deliver air strikes on any location in the world. She has also cautioned of the delays the program could face under a continuing resolution.

“A short-term (continuing resolution) is manageable ... but, let me tell you, a long-term continuing resolution would be very damaging for the Air Force,” James said. “(It would) cap the production of the KC-46, prevent us from devoting more funds to developing the B-21 next year, and delay about 50 construction projects.”

The service’s ability to divest old capabilities and build new is paramount, and modernization remains a priority for the Air Force as it continues to play a major role defending against current and emerging threats.

“We have the oldest aircraft fleet we have ever had, 27 years old on average,” James said. “This absolutely needs to be a focus for us.”

The B-21 Raider, designed based on a set of requirements that allow the use of existing and mature technology, is currently in the Engineering and Manufacturing Development phase and the Air Force plans to field the initial capability of the aircraft in mid-2020s.

B-21 naming contest selected members:

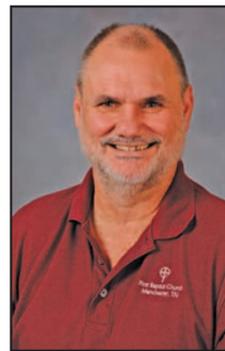
- Lt. Col. Jaime I. Hernandez, 337th Test and Evaluation Squadron commander, Dyess Air Force Base, Texas
- Tech. Sgt. Derek D. White, emergency management craftsman, 175th Civil Engineering Squadron, Maryland Air National Guard



AEDC Milestones



Ted Boswell
NAS – 40 Years



Greg Holcomb
nLogic – 30 Years



Thomas Fetterhoff
AF – 30 Years



Omra Schultz
NAS – 30 Years



William Shapple
nLogic – 30 Years

35 YEARS

Gina Bragg, FSS
Richard Franks, nLogic
David Harrison, NAS

30 YEARS

Joseph Burns, NAS

25 YEARS

Tracy McDonald, NAS

20 YEARS

John Lamb, FSS
Lewis McInnis, nLogic

15 YEARS

Jackie Hensley, FSS

10 YEARS

Richter Goodfriend, NAS
Taurean Gray, AF
Michael Magistro, NAS

NEW HIRES

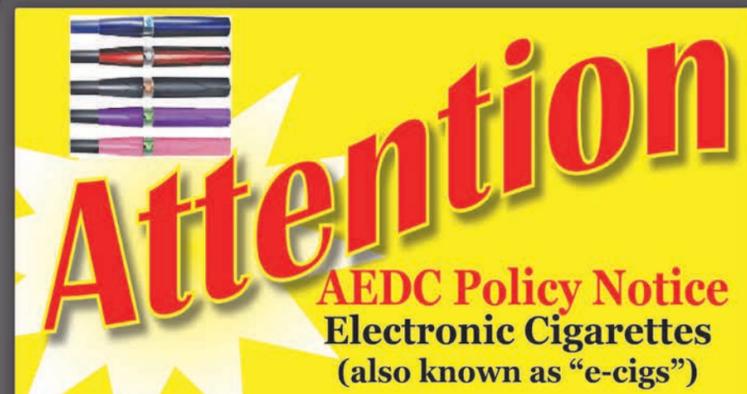
Ryan Cunningham, FSS
Nicholas Dahl, NAS
Charli Dean, NAS
John Leonard, AF
Kelly Martin, NAS
Julie Mixer, NAS
Stevia Morawski, FSS
Wanda Nugent, NAS
Clayton Plemmons, NAS
LaLonnie Saltzman, AF
Kent Standley, NAS
Matthew Szendre, NAS
Whitlow Woodrow, NAS

PROMOTIONS

Rodney Clemmons promoted to master sergeant

CERTIFICATES

Anthony Jimcoily received his bachelor’s degree in business management.



Attention

AEDC Policy Notice Electronic Cigarettes (also known as “e-cigs”)

*applies to ALL base personnel
(Military, DoD Civilians, Contractors, Visitors)*

Pursuant to Air Force Instruction (AFI) 40-102, Tobacco Free Living, e-cigs are considered to be equivalent to tobacco products; however, e-cigs are not restricted to DTAs and are allowed to be used outdoors at a minimum distance of 25 feet from building entry/egress points.




Standing vigilant from the top of the world

By **Dave Smith**
 21st Space Wing
 Public Affairs

THULE AIR BASE, Greenland (AFNS) -- Stretching from the con-

finer of Thule Air Base, the northernmost U.S. military installation hundreds of miles above the Arctic Circle, a dirt road trails steadily upward and to the northwest.

Following the road for about a dozen miles across sparse, barren tundra resembling a moonscape more than any earthly land, a form comes into view in stark contrast to the pro-

file of the hillside. Drawing nearer, an 11-story tall, phased-array radar system and its attendant structures reveal themselves. The place is Ballistic Missile Early Warning Site - I.

BMEWS is operated by the 12th Space Warning Squadron, a geographically separated unit of the 21st Space Wing at Peterson Air Force Base, Colorado. The site is part of Thule AB.

ture and weather, it is not unusual for the road leading to the BMEWS site to be closed. Phone, internet and mail service are cut off at times too.

"With 91 knot winds and extreme weather, we have to shut down the road," Ransom said. "If we get good enough forecasts we can augment the crews. Basically we ask the next crew to come up early. When the road is closed (crews) have to stay there."

The remote location is home to many types of interesting wildlife around the Thule AB area, including musk oxen, arctic foxes and arctic hares. One type of local fauna can even change the security conditions at the base.

"One time we went into lockdown because of a polar bear sighting," Ransom said. "It lasted for about three hours."

Working in close proximity for long periods of time, whether at the BMEWS site or on Thule AB, can bring Airmen closer together.

"Our squadron is our family," Ransom said. "We don't get to go home at the end of the day to our families, friends and lives. It can be a challenge."

One way the 12th SWS tries to create a family atmosphere is eating lunch together. Ransom said even deployment doesn't forge bonds as close as those formed at the top of the world. The group plays games, takes hikes and goes to the base gym together.

"One of the tightest units I have been part of is at Thule," Ransom said. "You get that family feeling."

The 12th SWS's mission is to provide missile warning and missile defense, both priority I missions, said Lt. Col. David Ransom, the 12th SWS commander. A secondary mission is bringing space situational awareness to the fight, monitoring man-made objects in low-Earth and polar orbit.

"Day to day we stand on alert to detect any possible missile attacks," Ransom said. "While we monitor for possible threatening missile attacks, we can also track space objects the size of a softball about 3,500 miles up from Earth's surface. This critical information is up-channeled to Joint Space Operations Center ... (and) is important if the object is starting to decay back into the atmosphere and impact the Earth or collide (with) another space object."

The BMEWS radar operates around the clock, day and night every day of the year. A staff of about 70, consisting of officers, enlisted, and contract personnel operate the facility.

"During times of extremely harsh weather, common in the Arctic, crews may work extra shifts back to back," Ransom said. "Shifts at 12th SWS can be very busy at times because of the strategic importance of our mission and location."

At Thule AB, storm season lasts from mid-September to mid-May. During that time of severe tempera-

SAFETY

OBSERVATION REPORTS

YOU ARE WORKING AT AEDC AND SEE AN UNSAFE CONDITION, WHAT DO YOU DO?

- 1 If you can, correct the issue
- 2 If not easily correctable, make the area safe by marking/barricading if possible
- 3 Inform area manager (or your manager if you don't know who to contact)
- 4 Supervisors and employees can also report to the NAS safety office
- 5 All employees can report their observations on the [online Safety Observation Reporting tool](#), which will automatically notify the Safety, Health & Environmental section.

EXAMPLES



Easy fix



Not easily correctable



MAKE AREA SAFE BY MARKING/BARRICADING IF POSSIBLE

SMC to procure two additional GPS III satellites

By Space and Missile Systems Center Public Affairs

LOS ANGELES AIR FORCE BASE, Calif. (AFNS) – The Space and Missile Systems Center awarded a contract option to Lockheed Martin Space Systems Company to procure two additional Global Positioning System III satellites today.

The contract option procures long lead and production hardware to produce

space vehicles 9 and 10 for the next generation of GPS satellites being built by Lockheed Martin.

“The GPS III SV 9 and 10 satellites are expected to be ready for launch in 2022, thus sustaining the GPS constellation and the global utility the world has come to expect,” said Lt. Gen. Samuel Greaves, the Space and Missile Systems Center’s commander and Air Force program executive officer for space.

The government expects to compete

future purchases of GPS III satellites, beginning with GPS III SV 11. This competition will maintain the current technical baseline of GPS III and will add additional hosted payloads to increase system accuracy, search and rescue capability, and

universal S-band compatibility.

Operated by U.S. Air Force Space Command, the GPS constellation provides precise positioning, navigation and timing services worldwide seven days a week, 24-hours a day.

ARNOLD AFB COMMISSARY

OOOOPS, WE MESSED UP!
FIRST COME FIRST SERVE

We meant to order 8 cases of Tyson Pre-Cooked Bacon and accidentally ordered 80! We are offering each unit at \$1.00 off while supplies last, so don't be late! Again it's,

WHILE SUPPLIES LAST

RESIDUAL CASE LOT SALES SPECIALS

While the Case Lot Sale has come and gone, we still have product left over at

GREAT PRICES!

NEW: MEAT MANAGER SPECIAL

The Defense Commissary Agency is now allowing its Meat Managers to select the specials we will be running every month from now on. WITH THAT BEING SAID, WE WANT TO KNOW WHAT YOU WANT ON SPECIAL.

Vote for your September Special in the Meat Department!

TOP MEAT ITEMS IN SEPTEMBER

1. CHOICE RIBEYE STEAKS
2. SELECT RIBEYE STEAKS
3. B/I PORK CHOPS
4. CHUCK ROASTS
5. BNLS PORK CHOPS

Patrick S. Jourdan | STORE DIRECTOR | Patrick.Jourdan@deca.mil | 931.454.3546 | DSN: 340.3546

STORE HOURS: SUN & MON Closed | TUE & WED 9am-5:30pm | THU 9am-6:30pm | FRI 9am-5:30pm | SAT 8am-4:30pm

OTHER IMPORTANT NUMBERS: (931) 454- PLUS EXT. | {DSN: 340- PLUS EXT.} | {GROCERY x5921} | {CUSTOMER SERVICE x5921} | {SECRETARY x7710} | {PRODUCE/MEAT x5923} | {ASST. STORE DIR. x3546}

Follow Us

October

2016

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Information subject to change. Please call to verify.

ALC – Arnold Lakeside Center, 454-3350
Café – Café 100, A&E, 454-5885
ODR/ITT – Outdoor Recreation, 454-6084
RRRP – Recycling, 454-6068
Marketing/Sponsorship – 454-3128
Barber Shop – 454-6987

GC – Arnold Golf Course, 454-GOLF
MG – Mulligan’s Grill, GC, 454-FOOD
FC – Fitness Center, 454-6440
WI – Wingo Inn, lodging, 454-3051
Resource Management – 454-7425
Admin – 454-7779

Arnold AFB SERVICES

Combat Support & Community Service

f

LIKE US

Arnold AFB Services

Membership has its privileges! Every Friday at Arnold Lakeside Center...

Members enjoy free social hour food 3:30-5:30pm (non members \$5) AND...
Members could win Services gift card 4:30pm – starts at \$20 goes up \$5 weekly if no winner (max \$500)

2	3	4	5	6	7	8
<p style="font-weight: bold; font-size: 1.1em;">ODR Winter Hours begin Oct 1</p> <p style="font-weight: bold;">Tue, Thu, Fri, Sat, & Sun 10am-5pm</p> <p style="font-weight: bold;">Closed Mon & Wed</p>				<p style="font-size: 0.7em;">Movie: Captain America: Civil War PG13</p>	<p style="font-size: 0.7em;">Café 100 Sausage Pizza Day Sausage Pizza \$1.50 per slice</p>	<div style="background-color: yellow; border-radius: 50%; padding: 10px; text-align: center; font-size: 0.8em;"> <p style="color: red; font-weight: bold;">ALC Dining Room Hours</p> <p>Thu 5-8pm Fri 5-9pm</p> <p>Sat NO open dining</p> <p>Sat available for special functions only</p> </div>
9	10	11	12	13	14	15
	<p style="font-size: 0.7em;">Columbus Day</p> <p style="background-color: #d9e1f2; padding: 2px;">Café 100 Closed</p> <p style="background-color: #d9e1f2; padding: 2px;">Fitness Center 8am-4pm</p>	<p style="font-size: 0.7em;">Café 100 National Frappe Day Any flavor Frappuccino \$3</p>	<p style="font-size: 0.7em;">Fitness Center</p> <p style="font-weight: bold; font-size: 1.2em;">5-Card Draw Run/Walk</p> <p style="color: red; font-weight: bold; font-size: 1.5em;">Oct 12</p> <p style="font-weight: bold;">complete trail anytime 8am-4pm and pick up five sealed cards</p> <p style="color: red; font-weight: bold; font-size: 0.8em;">Top three hands of the day win prizes</p>	<p style="font-size: 0.7em;">Movie: The Secret Life of Pets PG</p>	<p style="font-weight: bold; font-size: 1.1em;">ALC Jam Night</p> <p style="font-weight: bold;">6pm</p>	<p style="font-weight: bold; font-size: 1.1em;">Arnold Golf Course Club Championship</p> <p style="font-weight: bold;">2-day Stroke Play</p> <p style="font-weight: bold;">8am \$40 Sign up by Oct 14</p>
16	17	18	19	20	21	22
<p style="font-weight: bold; color: green;">Day 2</p>				<p style="font-size: 0.7em;">ALC Brushes & Bottles \$25 GLC 6pm Sign up by Oct 14</p>		
23	24	25	26	27	28	29
30	31			<p style="font-size: 0.7em;">Movie: Ghostbusters, PG13</p>	<p style="font-weight: bold; font-size: 1.1em;">ALC Trivia</p> <p style="font-weight: bold;">6:30pm</p>	<p style="font-weight: bold; color: green; font-size: 1.5em;">Fright Fest</p> <p style="font-weight: bold;">Arnold Golf Course 6-10pm</p> <p style="font-weight: bold;">Open to Public</p> <p style="font-size: 0.8em;">Spooky trail, kids’ games, costume contest, food, and outdoor movie (Goosebumps, PG)</p> <p style="font-weight: bold;">Watch for more details!</p> <p style="color: green; font-weight: bold; font-size: 1.2em;">#bravethetrail</p>

Fitness Center Kettlebell Class

Tuesdays and Thursdays 11-11:45am for eligible users

New Prices and Policies at ODR

Be sure to get the latest Outdoor Rec brochure (dated 6 Sep 2016) with updated prices and policies. Call 454-6084 to ask about specifics and make reservations.

