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# AEDC supporting Ground Based Strategic Deterrent program across the complex

**By Jill Pickett**
*AEDC Public Affairs*

Arnold Engineering Development Complex has supported the land-based leg of the nation's nuclear triad, the Minuteman Intercontinental Ballistic Missile, since 1958 when the first iteration was still in development.

As the complex continues to support the Minuteman III program with aging and surveillance testing of stage II and III motors, Team AEDC has begun providing test and evaluation support for the next-generation nuclear deterrent, the Ground Based Strategic Deterrent.

"The Ground Based Strategic Deterrent ICBM is a total weapon system replacement of the Minuteman III weapon system," said Rick Gamble, a subject matter expert with AEDC.

The Air Force Test Center is the Minuteman III and GBSD lead developmental test and evaluation organization, and

See **DETERRENT**, page 3

**Lt. Col. Jeremey Thomas, director of the Ground Based Strategic Deterrent Combined Test Force, looks down one of the barrels of the Hyperballistic Range G gun during a tour of Arnold Engineering Development Complex test facilities at Arnold Air Force Base, April 29, 2021. Air Force and defense industry members involved in the Ground Based Strategic Deterrent program toured facilities that may be used for testing of the GBSD. *(U.S. Air Force photo by Jill Pickett)***

**Jeff Fulks, right, a machinist for the Test Operations and Sustainment contractor for Arnold Engineering Development Complex, machines a part as visitors watch during a tour of facilities at Arnold Air Force Base, Feb. 23. Also pictured are, from left, Derek Swiger, machine shop teacher for Tullahoma High School, and Derek Rowe, aerospace and flight teacher with Tullahoma High School. The educators were being shown the trade job opportunities available at the base to be able to share the information with their students. *(U.S. Air Force photo by Jill Pickett) (This image has been altered by obscuring a badge for security purposes.)***

# Arnold AFB teams with area school systems to boost craft internship program

**By Bradley Hicks**
**AEDC Public Affairs**

The craft internship program in place at Arnold Air Force Base has already exhibited some success.

Over the past six years, several interns were brought onboard through the initiative. All of these individuals are still currently employed at Arnold AFB, headquarters of the Arnold Engineering Development Complex.

Those tasked with ensuring the continued success of the program are now looking to take it to the next level with the help of the Tennessee College of Applied Technology, or TCAT, and local schools.

The effort, being referred to as the Craft Internship Revitalization, could provide Arnold with a larger pool of potential interns to work in a variety of craft positions across the installation.

Aside from the extra manpower, the program has the added benefit of introducing the interns to Arnold and familiarizing them with job processes and expectations and enable them to capture the knowledge of the existing long-term craft employees for the future of Arnold AFB.

"With the increasing need for skilled craft resources, this is an excellent opportunity to tap into local resources and grow the AEDC workforce," said Michelle Hicks, Design Engineering functional manager for National Aerospace Solutions, LLC, the Test Operations and Sustainment contractor for AEDC.

Craft jobs at Arnold cover many different disciplines. These include electricians, instrument technicians, aerospace precision machinists and mobile crane operators, among many others.

"Discussion of the craft internship program gives students an opportunity to understand what opportunities may be available to them if they meet the training and educational requirements," Hicks said. "Understanding what opportunities are available to students and what it takes to prepare for those opportunities helps students plan and be set up for success."

The craft internship program was already part of the existing Collective Bargaining Agreement between National Aerospace Solutions, LLC, or NAS, and the Air Engineering Metal Trades Council.

"The craft intern program outreach to local high schools provides information to the students of opportunities for future employment at AEDC which does not require formal college education," said Randy Long, NAS labor relations manager. "This opportunity has the added benefit of the students not incurring debt associated with traditional college education."

See **INTERNSHIP**, page 4

# Decommissioned Mach 8 tunnel removed to make room for future test opportunities

**By Deidre Moon**
*AEDC Public Affairs*

The hardware making up the Arnold Engineering Development Complex Tunnel E facility has been scrapped, leaving behind a mostly empty room in the building that also houses Tunnel D at the von Kármán Gas Dynamics Facility at Arnold Air Force Base.

It hasn't been an active wind tunnel in years, so the very existence of Tunnel E is not known by many current AEDC employees.

Before the Tunnels B and C were up and running, Tunnel E, first named Tunnel E-2, was used as a pilot facility. It originally operated in 1959, six years after neighboring Tunnel D, previously Tunnel E-1, first ran as a pilot facility for VKF Tunnel A.

"Like Tunnel D, Tunnel E operated as a pressure-vacuum blowdown wind tunnel using high pressure air and the VKF 72-foot vacuum sphere to supply the required pressure ratios across the nozzle and test section," said Dr. Jerrod Hofferth, a research aerospace engineer with the Air Force Research Laboratory at Arnold. "Heating of the air supply, up to 1,000 degrees Fahrenheit, was provided by a 4.5 megawatt inline electric-resistance heater."

Initially, Tunnel E was equipped with a 12-inch by 12-inch flexible-wall nozzle providing test section Mach numbers of 5 to 8. The flexible plate was made from a beryllium-copper alloy and water-cooled. The typical run times were 5 to 10 minutes in this configuration.

In 1967, the facility was reconfigured with a fixed-geometry, axisymmetric 13.25 inch-di-

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## In This Issue....

HIGH MACH
Arnold Air Force Base

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## Core Values

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- *Excellence in all we do*

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## 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.
- Security. We are disciplined and vigilant in protecting sensitive AEDC information and ensuring system integrity to support national security and our customers.
- 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 announces winners of 2021 Science, Engineering and Technical Management Awards

**By Jill Pickett**
*AEDC Public Affairs*

Arnold Engineering Development Complex senior leadership announced the complex-level winners for the Air Force Materiel Command Science, Engineering and Technical Management Awards on April 5.

Nomination packages are evaluated in three areas: operational impact, innovative improvements and customer focus.

- **Junior Military Scientist/Engineer**: 1st Lt. Mark E. Vlassakis – 746th Test Squadron
- **Mid-Career Military Scientist/Engineer**: Lt. Col. Bradley A. Breaux – Propulsion Test Branch
- **Senior Military Scientist/Engineer**: Lt. Col. Paul F. Dolce – 846th Test Squadron
- **Reservist-Individual Mobilization Augmentee**: Lt. Col. Jonathon I. Henry – Operating Location AC, 704th Test Group
- **Junior Civilian Scientist/Engineer**: Sami I. Labban – Operating Location AC, 704th Test Group
- **Mid-Career Civilian Scientist/Engineer**: Kody L. Sparks – 846th Test Squadron
- **Senior Civilian Scientist/Engineer**: Patrick J. O'Connell – 746th Test Squadron
- **Technical Management**: 1st Lt. Adam R. Doyle – Propulsion Test Branch
- **Technical Management – Team**: Combat Air Force Engine Modernization Test Team – Propulsion Test Branch
- **Engineering Technician**: Jonathan L. Young – Operating Location AC, 704th Test Group
- **Career Achievement**: Dennis A. Turnbull – 846th Test Squadron
- **Support**: Tiffany M. Miller – Financial Analysis Operating Location
- **Gen. James Ferguson Engineering Award**: Nissa Schuman – Aerodynamics Test Branch
- **Gen. Lester L. Lyles Award**: Capt. Brian M. Gatzke – Propulsion Test Branch
- **Gen. Bernard P. Randolph Engineering Team Award**: Wind Tunnel 16S High Mach Test and Evaluation Team – Aerodynamics Test Branch
- **Capt. Roland R. Obenland Engineering Award**: 1st Lt. Nicholas A. O'Gorman – 746th Test Squadron
- **Outstanding Scientist Team Award**: Space Test Branch

**TUNNEL** *from page 1*

ameter Mach 8 nozzle in part to accommodate a novel traversing magnetic model support system, or MMSS.

"The MMSS system allowed a test article to magnetically levitate in the center of the test section and be moved forward up to 40 inches during a run in order to eliminate support interference while performing wake surveys behind re-entry vehicle geometries," Hofferth said. "With this system, a single probe rake or schlieren optical setup could measure the wake several body diameters downstream of the test article in a single run.

"The electric current required to maintain position in the wind tunnel was monitored and calibrated to provide measurements of lift, drag and yaw forces, as well as pitching and yawing moments. Angles of attack and sideslip were measured with X-ray imaging of the iron-core test articles through aluminum test-section walls."

Like Tunnel D, the Tunnel E facility was decommissioned sometime in the late 1970s.

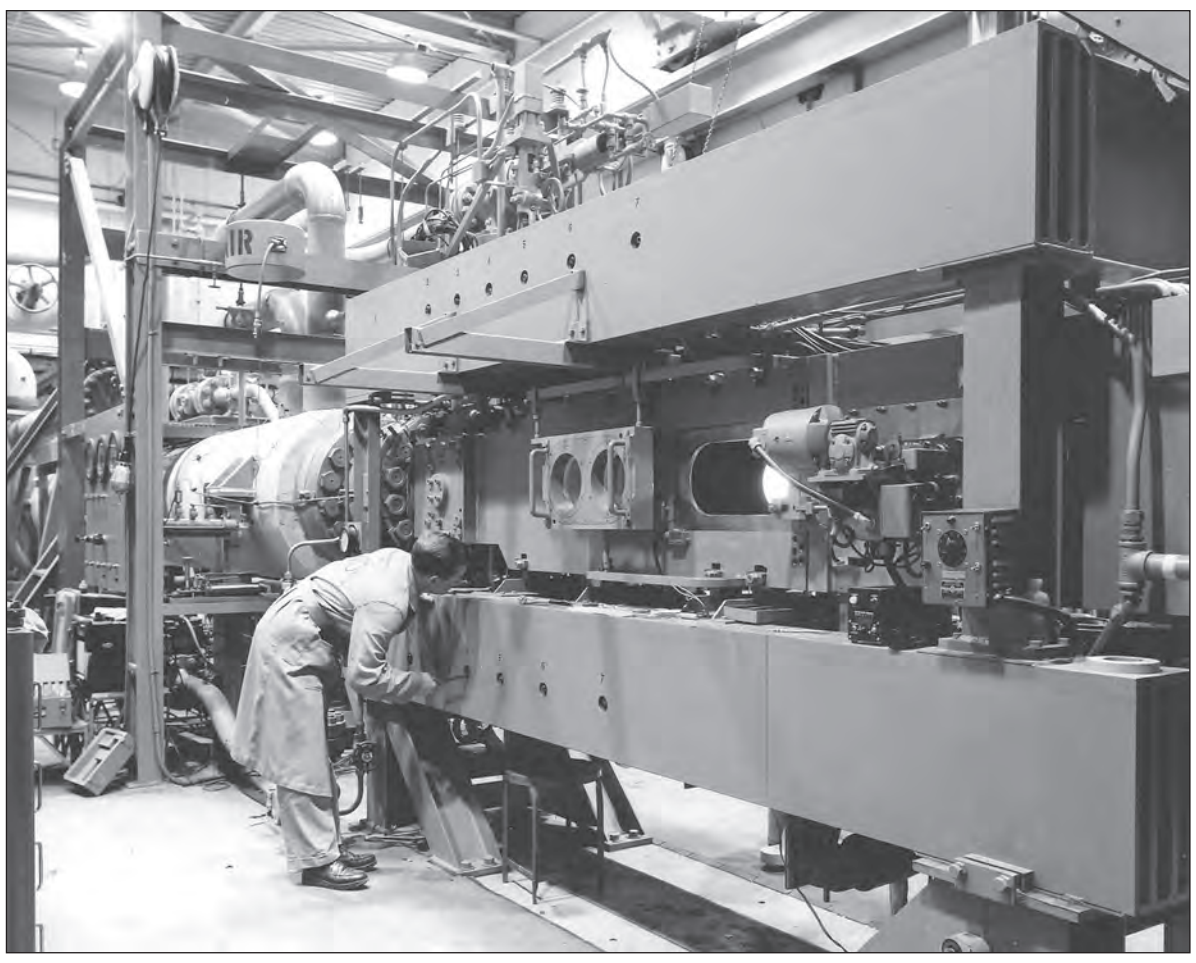
Hofferth explained that by the time the AFRL team arrived at Arnold AFB in 2015, all that was left of Tunnel E was the 4.5 megawatt electric heater and legacy process air control valves.

"The key parts of the high-speed wind tunnel architecture, such as the nozzle, test section and magnetic model support system, had all long-since been excessed," he said. "The magnetic model support system had gone to NASA Langley in 1979 and was used for some time in a subsonic facility, but no longer exists today."

After a joint AFRL and AEDC technical assessment, it was determined that the heater, process air controls and related support systems were likely not viable as components of any future facility development to be undertaken by AFRL, so a demolition project was begun to reclaim the 25-foot by 50-foot space to support AFRL research activities.

In the near future, the resulting increase in space will be utilized in support of ongoing AFRL research operations in Tunnel D, which is the 1-foot supersonic research platform made fully operational by an AFRL reactivation and modernization project between 2016 and 2018. AFRL researchers and support contractors will use the additional space for model build up and prep, light shop work, diagnostics development and other work.

"Looking out further, however, AFRL does envision an opportunity to again use the test bay for a modern aerodynamic research facility with capabilities complementary to those afforded by Tunnel D," Hofferth said. "A new facility designed to suit research needs could leverage the existing high-pressure air, vacuum, and data systems put in place for Tunnel D during its reactivation."



**A technician inspects the adjustment mechanism for the original two-dimensional flexible wall variable Mach-number nozzle of the original configuration of Tunnel E, prior to the major revisions in 1967 to support a magnetic model support system. *(U.S. Air Force photo)***

**Prior to their removal, disassembled pieces of Tunnel E sit in a building that housed the old wind tunnel at the von Kármán Gas Dynamics Facility on Arnold Air Force Base, March 4. *(U.S. Air Force photos by Jill Pickett)***

## 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) 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.**

**The Action Line has been expanded to include an option for your ideas, comments, or suggestions on the AcqDemo personnel system. Simply call the normal x6000 commander's action line. You will then be prompted to select option 1 for the Commander's Action Line or Option 2 for the AcqDemo line. They can access the Action Line via the AEDC intranet home page and by calling 931-454-6000.**

**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. Jeffrey Geraghty**
**AEDC Commander**

**DETERRENT** *from page 1*

**Air Force and defense industry representatives involved in the Ground Based Strategic Deterrent program walk through the test cell of the Large Rocket Motor Test Facility J-6 at Arnold Air Force Base, April 29, 2021. The J-6 facility currently supports aging and surveillance testing of the Minuteman III Intercontinental Ballistic Missile, slated to be replaced by the GBSD ICBM.** ***(U.S. Air Force photo by Jill Pickett) (This image has been altered by obscuring badges for security purposes.)***

**Air Force and defense industry representatives involved in the Ground Based Strategic Deterrent program tour one of the arc jet test cells at Arnold Air Force Base, April 29, 2021. Arnold Engineering Development Complex, headquartered at Arnold AFB, is preparing to support the GBSD program across the complex. The arc heater facilities will be used to study thermal protection systems.** ***(U.S. Air Force photo by Jill Pickett) (This image has been altered by obscuring badges for security purposes.)***

AEDC, a wing-equivalent organization within AFTC, is the executing test organization. The ICBM Test Branch of AEDC's Test Division and the GBSD Combined Test Force provide personnel to support ICBM developmental test and evaluation. Other branches within the Test Division and the 704th Test Group of AEDC provide the facilities and personnel to perform ground testing.

"The one-of-a-kind national assets and people of AEDC, to include those capabilities and teams at Holloman Air Force Base, Eglin Air Force Base and Tunnel 9 in Maryland, are absolutely critical to the timely fielding of this 'once-every-other-generation' weapon system," said Lt. Col. Jeremey Thomas, director of the GBSD CTF. "It's not just a place to check final assembly and systems, but we will be doing risk reduction throughout the program across the entire complex. This is vital to ensuring no surprises as we move through the next 10 years of the program and start test for score. It allows us to work issues early while we can still fix them.

"In most instances, there is nowhere else in the U.S., and even the world, we could do these things. This program is extremely dependent on the people and resources of AEDC, and that includes all the people and locations under the AEDC umbrella. The handprints of the great people and capabilities of AEDC are all over the weapon system that will ensure nuclear deterrence and peace for the next 50-plus years, and so many folks will never really know it. So, for the current and future generations depending on Team AEDC, thank you for what you do. It truly will make a difference in our future."

Each element of the new weapon system must be tested thoroughly, to include the missile; the communication, command and launch systems; ground support systems; and physical protection systems as missiles transition to and from the silos and when placed on alert. Testing will include physical test articles and extensive use of digital twins of the complete weapon system to expand the scope of test and evaluation, and shorten the acquisition timelines.

Ground testing at AEDC facilities is a key component of the testing necessary to successfully field the weapons system. Through ground testing in facilities that can simulate operationally-relevant environments, programs decrease risk before moving to flight testing, which can save both time and money.

"AEDC testing is primarily focused on the aerovehicle equipment, or missile, components, although climatic testing will include other elements," Gamble said. "Without the AEDC facilities, the prime [contractor] and the government would not be able to adequately anchor the digital models with physical data, thus increasing the risk the weapon system might not meet the specifications, or that an undiscovered design flaw might not be detected early enough to avoid schedule delays."

Northrop Grumman, engineering and manufacturing development phase contractor for the GBSD program, successfully completed the integrated baseline review for the program in 2021 and is moving into the engineering and manufacturing development phase. They are leading a nationwide team of several various-sized companies. AEDC has begun providing test and evaluation support for the EMD phase.

The GBSD program is scheduled for initial operational capability by 2029, with plans to replace Minuteman III ICBMs and upgrade silos and alert centers.

In 2021, representatives from Northrop Grumman and the Air Force Nuclear Weapons Center visited Arnold Air Force Base, headquarters of AEDC, to tour some of the test facilities and learn about the T&E capabilities relevant to the GBSD program.

Test entries are being planned and executed using several of the T&E capabilities offered by AEDC, including the following areas:

### Rocket Propulsion Ground T&E

The Space Test Branch will evaluate rocket motor ballistic and sub-system performance at simulated high-altitude flight conditions using the Large Rocket Motor Test Facility J-6 at Arnold AFB. The facility has been regularly employed to support the aging and surveillance testing of Stage II and III motors for the Minuteman III. J-6 is capable of simulating high-altitude static fire test conditions for large rocket motors. Static firing enables the assessment and validation of the rocket motor performance and structural integrity. Planning for rocket motor testing is underway.

### High-Temperature Material Characterization & Evaluation

The Space Test Branch will collect data on thermal protection materials using the arc jet test cells at Arnold AFB. The arc heaters can simulate the aerodynamic heating and mid-to-high shear pressures experienced by weapon systems in flight.

### Hypervelocity Flyout, Impact and Lethality Ground T&E

The Space Test Branch will use the ballistic ranges at Arnold AFB to collect data of scale models and provide scaled hypervelocity flyout data to support validation of models. AEDC ballistic ranges enable free-flight testing on the ground at simulated altitude conditions. Planning for flyout testing in support of the GBSD program is underway.

### High-Altitude/Space Environmental Effects and Sensors Ground T&E

The Space Test Branch will evaluate the performance of GBSD systems in the high-altitude/space environmental chambers at Arnold AFB under select environmental conditions to verify the design and validate performance. The team is exploring methodologies to ensure they can provide the system program office with the best information for making key decisions.

### von Kármán Gas Dynamics Facility

The Aerodynamics Test Branch will perform force and moment, pressure and heat transfer, and stage separation testing of GBSD ICBM models in Tunnels A, B and C in the von Kármán Gas Dynamics Facility at Arnold AFB. Each tunnel is able to run continuously at hypersonic conditions with data collections systems that enable the simultaneous characterization of the aerodynamics and the aerothermodynamics of a test article. The branch is restoring a capability unique to AEDC to support stage separation testing for the GBSD program – the hypersonic captive trajectory support system. The first round of testing has begun, while work with the customer to finalize the complex stage separation test plan continues.

### Hypervelocity Wind Tunnel 9

The Aerodynamics Test Branch will use the Hypervelocity Wind Tunnel 9 located at White Oak, Maryland. The tunnel is a high Reynolds number, large-scale ground-test facility that provides calibrated test conditions at multiple discrete hypersonic Mach numbers.

### Holloman High Speed Test Track

The 846th Test Squadron has and will subject GBSD components to rocket sled testing at the Holloman High Speed Test Track. Rocket sled testing simulates selected portions of the flight environment and allows the program to identify the effects of acceleration and associated factors on systems, subsystems, components and even manufacturing techniques and materials. The sled will also be used heavily to collect data to refine various models which will be key parts of risk reduction and operation testing.

The 746th Test Squadron is scheduled to execute a variety of testing on the communications and navigations systems. In addition, they will be supporting test at the sled track by providing and operating equipment that provides the reference position of the sled during launches. The position reference provided by the squadron allows for intricate analysis of the accuracy of the guidance system of the GBSD. Some of the onboard instrumentation is also provided by the 746th TS.

### McKinley Climatic Laboratory

The Propulsion Test Branch Operating Location will conduct testing in support of the GBSD program using the test chambers of the McKinley Climatic Laboratory at Eglin Air Force Base, Florida. At the laboratory, systems can be subjected to the extremes of the various climates found around the world in order to prove operational reliability.

## INTERNSHIP *from page 1*

The push to further advance the effort began a couple of years ago.

In 2020, the Air Force looked to broaden its recruiting efforts for scientists and engineers. At that time, the recruiting function for scientists and engineers at Arnold AFB was assigned to the AEDC Air Force Personnel Office. When AEDC was subsequently reorganized to mirror an Air Force wing structure, the AEDC Technical Management Branch was created. One of the responsibilities of this branch is workforce career development.

"Recruiting is part of that," said Mike Dent, chief of AEDC Technical Management. "Retention of skilled personnel is always a concern. Why not promote the benefits and rewards of working at AEDC to local talent? This will enhance the likelihood of a lifelong career."

To bolster career recruiting at the base, Air Force personnel at Arnold initiated an outreach effort with the local high schools to get students interested in pursuing trade careers and equipping them to potentially get an internship after enrollment in a trade or technical school. The Air Force invited NAS to participate.

"It was an excellent opportunity for NAS to promote the craft internship program, among other opportunities at NAS and AEDC," Hicks said.

Discussions focused on the craft internship program started with Tullahoma City Schools in 2020, followed by talks with Coffee County and Franklin County schools officials in late 2021.

Dent said the response from administrators in the local schools systems was "very positive." More information on the intern program was provided to Tullahoma and Franklin County schools officials during presentations conducted by Dent and Hicks earlier this year.

Much like the initial discussions, these presentations were positively received, so much so that teachers and administrators from Tullahoma High School and Franklin County Schools were excited to get an up-close look at several Arnold AFB craft areas and facilities during tours in late February and early March. During these visits, the educators learned more about the roles craft personnel play across Arnold and how vital their work is to the operations of test facilities and execution of the AEDC mission. The groups toured the craft shops in the von Kármán Gas Dynamics Facility and the High-Enthalpy Arc Heated Facility, the AEDC Model and Machine Shop, and the Model Installation Building of the Propulsion Wind Tunnel Facility.

Derek Swiger, machine shop instructor at Tullahoma High School, was among those who visited Arnold. He said the prospect of some of his current students eventually landing an internship at Arnold after acquiring the required education or experience is exciting.

"I love machining, and I try to convey that to my students," Swiger said. "I have several students right now that are doing really well in machine shop class, but I think if we can get them a better knowledge of what actually goes on out in real machine shops, it'd give them a good expectation of what they're going to have to do in the future."

Suzanne Mitchell, Franklin County Schools Career Technical Education director who visited the base, said informing students interested in craft careers about what types of jobs are out there, furnishing them with knowledge on the training and education needed for particular fields, and providing them information on their options will only serve to grow the number of those interested in pursuing an internship at Arnold.

**Shannon Tibbals, right, deputy branch manager for Flight Branch with the Test Operations and Sustainment contractor for Arnold Engineering Development Complex, speaks about one of the test carts used in the 16-foot supersonic wind tunnel during a tour of facilities at Arnold Air Force Base, March 2, for local teachers and administrators. *(U.S. Air Force photo by Jill Pickett) (This image has been altered by obscuring a badge for security purposes.)***

And Mitchell added she was impressed by the options available at Arnold.

"There's so many specialties," she said. "You look at welding, you have the pipefitters, you have the boilermakers so, as a student, you can come see what you're interested in and then go from there."

Jessie Kinsey, Tullahoma High School assistant principal and Career Technical Education director who toured the base, is gratified to see AEDC and area schools systems working in tandem.

"I think it's exciting," Kinsey said. "I saw a lot of similar equipment … I'm excited for the opportunity for the partnership because we share the same basic skillsets."

Kinsey added teachers and administrators in the local schools systems will play an important role in accomplishing these goals going forward, and she is excited about student opportunities and their prospects of a career at Arnold.

Additional outreach is planned for Grundy County Schools. Administrators from the Coffee County Schools system have also expressed interest in the program.

NAS is also in the planning stages for outreach activities with TCAT.

There is the possibility program outreach could be expanded beyond the initial group of schools to widen the pool of potential interns.

"Once the craft intern program is engaged, the NAS management team will always be evaluating the needs of NAS and AEDC," Hicks said. "This could lead to further expansion of participating and partnering schools."

The number of initial craft internship positions has not yet been determined. This, along with the work locations, will be determined by manpower needs when the positions are posted.

Craft internship candidates will need to possess the required experience and/or education and meet all of the requirements for full-time employment at AEDC, such as passing a medical screening and obtaining a security clearance. The internships will be paid full-time positions and offer full-time employee benefits.

"The type of work is determined by the craft position they are hired for," Long said. "How long an intern position lasts is based on and determined by the Collective Bargaining Agreement language."

Hiring for the craft internship positions is projected to begin this fall. The internships will be posted under the job postings section of the NAS external website, and candidates will be required to apply and interview for the positions.

With the support of the local schools systems, those involved in the craft internship program are hoping to see the same level of success as the NAS and Air Force engineer intern programs, which bring a collection of collegiate engineering students from across the country to Arnold each year.

"The craft internship program is structured differently than the engineering internship programs in that candidates are brought on as full-time employees and have the opportunity to continue their employment directly into a journeyman position," Hicks said, "but the benefit of gaining experience on the job, capturing knowledge of the experienced craft workforce for the future of AEDC and contributing to the AEDC mission is the same."

# Around Arnold

## Cop Corner: Arnold Security Forces and civilian law enforcement partnerships strengthened through joint training exercises

**Coffee County Sheriff's Deputy Hassan Peterson covers a doorway while moving toward a threat during a joint training exercise with Department of the Air Force Police at Arnold Air Force Base, Feb. 24. *(Courtesy photo)***

**Department of the Air Force Police officers Todd Malone and Antonio Irizarry Lopez, look around a corner before entering a hallway in Mark 1 at Arnold Air Force Base, Tenn., during a joint training exercise Feb. 24 with the Coffee County Sheriff's Department. *(Courtesy photo)***

**By Charles Cook**
*Arnold Security Forces Training Officer*

Arnold Air Force Base Security Forces teamed up with law enforcement officials from the Coffee County Sheriff's Department Feb. 24 and 25 to conduct joint training and exercises on base.

The training combined instruction with hands-on, reality-based training exercises that included the use of non-lethal training ammunition to add to the realistic nature of scenarios.

Training personnel guided participants through what was deemed the "crawl" phase of the exercise, utilizing the Mark 1 Space Chamber facility to provide step-by-step response protocols to a number of situations that could be encountered by patrolmen, including conducting searches and active shooter situations.

Trainees were divided into groups with each group assisted by a special weapons and tactics, or SWAT, team member who offered techniques and tips as members walked through each scenario, pausing along the way for questions and discussions on the best approach to a situation.

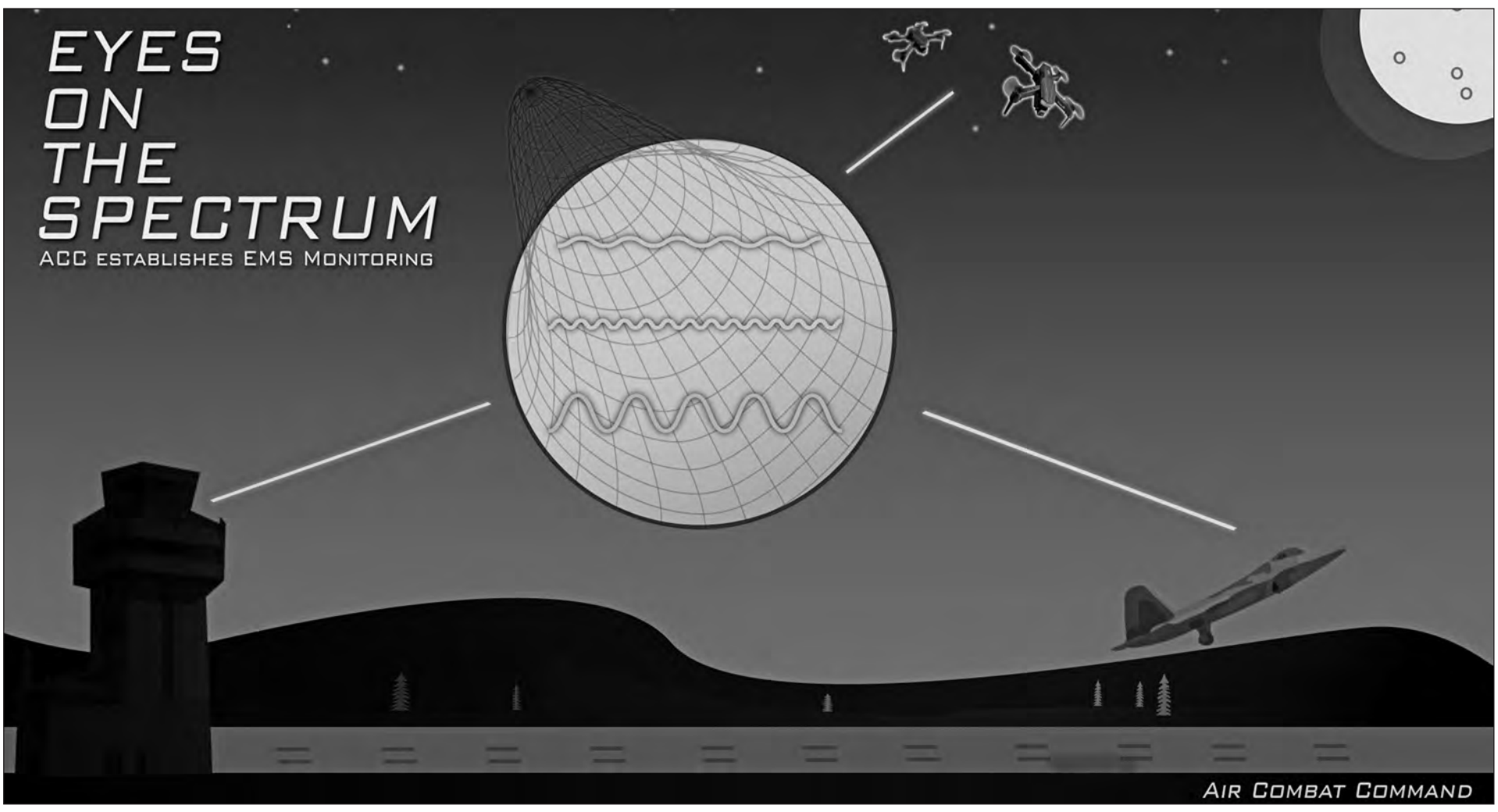
This critical training brings integrated defense forces together with their civilian counterparts in a training environment where they can practice coordinated responses to a number of situations. It builds relationships and familiarizes everyone with what each agency can offer in a particular situation not if, but when, a real world incident arises.

It's valuable for the Air Force, DOD civilian and contractor, to have an understanding of the Coffee County Sheriff's Department's techniques. There are numerous agencies out there that can be called upon to assist in an emergency, but whenever you can bring these primary agencies together in this type of training environment the results are immeasurable.

The training was a great opportunity to put faces to names between civilian responders and their Air Force counterparts. This training truly helps improve the working relationships that are held and build valuable skills for all.

"I'm proud of the relationship we have built with our local law enforcement partners," said Ray Kelly, chief, Arnold Security Forces. "Joint training is a big part of ensuring our tactics, techniques and procedures are current and in line with our local first responders."

Please direct any questions or suggestions for future articles to our distribution group: ***AEDC.Arnold.Cop-Corner@us.af.mil***.




**Air Combat Command's Cyberspace and Information Dominance directorate conducted a successful pilot test of spectrum monitoring kits in 2021 at Joint Base Langley-Eustis, Va. These kits give installations the capability to analyze and protect the electromagnetic environment inside their gates. Shaw Air Force Base, South Carolina, and Seymour Johnson Air Force Base, North Carolina, are scheduled to receive their kits this spring. ACC plans to provide all its bases this capability as funding allows. *(U.S. Air Force graphic by Staff Sgt. River Bruce)***

# ACC begins fielding tools to analyze, protect base EMS

**By Staff Sgt. River Bruce**
*Air Combat Command Public Affairs*

**JOINT BASE LANGLEY-EUSTIS, Va. (AFNS)** – Electromagnetic radiation is constantly traveling at the speed of light with most of it being invisible to the naked eye. Now, with the use of new spectrum monitoring tools, Air Combat Command can track EM radiation from sources like radio and aircraft communication.

A spectrum monitoring system was installed and piloted in Joint Base Langley-Eustis in 2021. This system provides ACC's spectrum professionals the capability to monitor the electromagnetic environment within their bases, opening a new way to visualize EM energy.

ACC's radio frequency spectrum monitoring system can assist in detecting, identifying, classifying, and locating radio frequency signals of interest in complex spectrum environments, then process that information into actionable intelligence.

Shaw Air Force Base, South Carolina, and Seymour Johnson AFB, North Carolina, will be the first two ACC bases to field spectrum monitoring tools this spring, after the success of the pilot program. ACC plans to provide all its bases this capability as funding allows.

NASA defines the EMS as the range of all types of EM radiation, like aircraft and radio communication. Once installed, these strategically placed inward-facing nodes can collect data from EM radiation and communicate the electromagnetic environment of a base's perimeter to computers so the signals can be displayed on monitors for analysis. From here, ACC headquarters can analyze the EM environment within any ACC base that has spectrum monitoring tools installed.

"Our bases had no way to proactively analyze and protect the electromagnetic environment," said Laurence Triggs, ACC's EMS Operations branch chief. "We've addressed this problem; now we can visualize our spectrum output and also alert base defense if abnormalities are detected."

For example, previously, if an unauthorized drone entered an installation's airspace, its detection relied on line-of-sight reporting by base Airmen, Triggs explained. Now, ACC can track the base's consistent electromagnetic output and be alerted by spikes in the spectrum, such as the energy transmitted by this hypothetical drone.

In the future, this monitoring system could be interoperable with counter-UAS technology like the Air Force Research Laboratory's NINJA (Negation of Improvised Non-State Joint Aerial System) to help defend an installation's area of operation.

Advancing awareness and superiority within the EMS better postures combat air forces to compete in wars of the future, offering key data to ACC operators on the electromagnetic environment in which they operate.

# High Mach Readership Survey

AEDC Public Affairs is conducting a High Mach Readership Survey. The intent of the survey is to ensure the High Mach content meets expectations. Additionally, the PA staff welcomes suggestions and comments regarding any aspect of the paper. Please complete the survey below and return it to the NAS Public Affairs office by Friday, May 20. If sending through mail on base at Arnold AFB, send to: NAS Public Affairs, Mail Stop 1236. If sending from outside of Arnold AFB, send to: NAS Public Affairs, 100 Kindel Drive, Mail Stop 1236, Arnold AFB, TN 37389.

**1) What is your age?**

- ☐ Under 18
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

**2) What is your affiliation to AEDC?**

- ☐ Active Duty Military/Family Member – Assigned to AEDC
- ☐ Active Duty Military – Visitor to AEDC location
- ☐ Retired Military – Visitor to AEDC location
- ☐ Contractor – NES/Salary
- ☐ Contractor – Wage
- ☐ Customer
- ☐ DOD Civilian – Assigned to AEDC
- ☐ DOD Civilian – Visitor to AEDC location
- ☐ Other

**3) At what AEDC location do you work or visit?**

- ☐ Arnold AFB
- ☐ Edwards AFB
- ☐ Eglin AFB
- ☐ Hill AFB
- ☐ Holloman AFB
- ☐ Kirtland AFB
- ☐ NFAC
- ☐ Peterson AFB
- ☐ Tunnel 9
- ☐ White Sands Missile Range

**4) If you work for AEDC, on average how often have you teleworked in the past year?**

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Never

**5) Which of the following do you own? (Check all that apply.)**

- ☐ Personal Computer
- ☐ Smartphone
- ☐ Tablet

**6) What is your primary means of obtaining news (internal and external) about AEDC?**

- ☐ www.arnold.af.mil
- ☐ Word of Mouth/Co-Workers
- ☐ Supervisor/Staff Meetings
- ☐ Team AEDC SharePoint
- ☐ High Mach
- ☐ E-Mail
- ☐ Contractor Employer SharePoint
- ☐ AEDC Facebook Page
- ☐ AEDC Twitter

**7) What is your primary method to obtain non-AEDC news and information?**

- ☐ Print versions of newspapers/magazines
- ☐ Social Media
- ☐ Websites
- ☐ Broadcast - Radio/Television

**8) How do you obtain High Mach?**

- ☐ Hard copy from racks/mail on base
- ☐ Mailed to your home/office
- ☐ Through the arnold.af.mil website
- ☐ I didn't know AEDC/Arnold AFB has a base newspaper.

**9) How often do you read High Mach?**

- ☐ Every issue
- ☐ 1 issue a month
- ☐ 1-2 issues a quarter
- ☐ Never

**10) How often do you visit www.arnold.af.mil?**

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Never
- ☐ I didn't know AEDC/Arnold AFB has a website.

**11) What content is your primary reason for reading High Mach?**

- ☐ Test Stories
- ☐ Milestones
- ☐ Services Calendar
- ☐ Air Force/DOD News
- ☐ Other AEDC News
- ☐ People/Feature Stories

**12) What can we do to improve High Mach?**

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**13) Would you prefer to read High Mach electronically or in hard copy?**

- ☐ Electronically
- ☐ Hard copy

**14) Comments:**

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**The Department of the Air Force-Massachusetts Institute of Technology Artificial Intelligence Accelerator hosted a four-month long Artificial Intelligence Ideation workshop spanning from November 2021 to February 2022. The intent of the beta version of the AI ideation program was to empower Test Airmen and Guardians to identify data problems that machine learning and AI may help solve.** ***(U.S. Air Force photo by Staff Sgt. Sara Voigt)***

# Test professionals pitch for AI solutions at DAF-MIT ideation workshop

**By Staff Sgt. Kristen Pittman**
*403rd Wing Public Affairs*

**CAMBRIDGE, Mass.** – The Department of the Air Force-Massachusetts Institute of Technology Artificial Intelligence Accelerator hosted a four-month long AI Ideation workshop spanning from November 2021 to February 2022.

The workshop stemmed from a need members of the AIA recognized as a lack of foundation for recognition of problems that could be solved using machine learning and the ability to implement AI in areas that have problems that could benefit from a better understanding of AI and machine learning capabilities.

"The intent of this ideation program is to empower Airmen and Guardians and help them along in identifying problems they have that machine learning can help solve," said Col. Tucker Hamilton DAF-MIT Director. "We want to give them the tools and references and networking they need to help them actually solve those problems using machine learning."

Nineteen Airmen and Guardians from the flight test and evaluation career-field participated in the mostly virtual workshop spending around three hours a week receiving instruction from various entities including MIT's Lincoln Lab and the Air Force Academy's CyberWorx as well as completing lessons on Digital U revolving around human-centered design and development and AI education.

"For this beta iteration, we went with the flight test and engineering career-field because we recognized they work with and have a lot of knowledge regarding data," said U.S. Air Force Col. Tucker Hamilton, DAF-MIT director. "We knew they would be most receptive to this program and would be good candidates for feedback."

Hamilton said they plan to involve other career-fields like operations analysts in the future.

"For this ideation cohort, we focused on three pillars," said U.S. Air Force Capt. Victor Lopez, chief of Air Force artificial intelligence for persistent attack and reconnaissance with the MIT AIA Program. "Problem decomposition, artificial intelligence – the basics, and contracting."

Space Force 1st Lt. Sean Haliyur, division engineering manager at the Air Force's SEEK EAGLE office with the 96th Test Wing at Eglin Air Force Base, Fla., said prior to the course, his background in AI was minimal, and that the coursework was a beneficial in-depth look at all of the factors that come with problem decomposition and user experience.

"I was able to work alongside a cohort from Lincoln Lab who is working to predict when there will be (foreign object debris) on flight lines and it allowed me to see an in-depth look at how people are able to work through the process of problem solving to acquire data needed," said Haliyur. "I wouldn't have known where to start. To me it seemed like an extremely hard problem to tackle considering the data you would need and the lack of it, so it was beneficial to see and walk through that process with them."

In early January, 12 problem challenges were presented ranging from using natural language processing solutions for unmanned aircraft teaming to airspace scheduling to space surveillance, and five projects were voted on to move forward in the development process. "We put people in teams with these five ideas to enable them to work together and dig deeper to understand more in depth the data and software required to bring these solutions to fruition," said Lopez.

The course culminated in an on-site capstone at MIT where Hamilton said students were able to sit down with contracting officers, acquisition professionals, and machine learning subject matter experts to polish their ideas and develop a vetted business plan to present to their respective leadership.

As far as impact, Lopez said that at a minimum, he hopes that through the help of the resources from the workshop and the capstone, the participants will have a solid roadmap with which to tackle problems with machine learning solutions and be able to share that knowledge with others. But he hopes that some of the ideas presented can actually be implemented and make an impact on operations whether base-or branch-wide.

Long-term, he said he can see this basic ideation education being implemented in a more widespread way whether it's through professional military education courses or certain technical school courses.

"I think this type of education and support is extremely important for the entire Department of the Air Force to empower individuals," said Hamilton. "For our 21st Century battle space--dealing with emerging technologies and the digitally empowered individual and force, we need to give Airmen and Guardians the tools they need to be successful in identifying how they can solve their own problems using technology."

# Building healthy relationships

**By Greg Chadwick**
*Air Force Materiel Command Health & Wellness Team*


**Relationships impact all aspects of our lives, including home, work, and leisure activities.** ***(Courtesy graphic)***

**WRIGHT-PATTERSON AIR FORCE BASE, Ohio** – Relationships impact all aspects of our lives, including home, work, and leisure activities.

Friends and family are important for your health and overall well-being. They can help you celebrate good times and provide support during challenges. Many adults find it hard to develop new friendships or keep up existing ones. Relationships may take a back seat to other priorities, such as work or caring for children or aging parents. Or, maybe you've moved to a new community and haven't found a new way to meet people yet.

Developing and maintaining good relationships takes effort – they aren't static- they are living, dynamic aspects of our lives that require attention and care. The first and most important factor to building and maintaining healthy relationships is communication. Make time to connect with those that matter the most to you. Spend time together, let little grievances go, and express love and compassion to one another.

If you have grown disconnected from an old friend, think of a memory that makes you laugh, and text or email it to your friend. A quick message that brings nostalgia and connection about the good old days will let your friend know that you are thinking of them, even when you haven't been in touch in a while. Without strong relationships, it is possible to feel as if you are alone.

The National Institutes of Health offers the following tips on how to nurture your relationships:

- Be kind. This most basic behavior remains the core of successful relationships. Expect others to treat you with respect and honesty.

- Be a good listener. Ask what's going on in your family and friends' lives. Let the other person know that you are paying close attention through eye contact and body language. Listen to others without judgement or blame. Be caring and empathetic.

- Disagree with others respectfully. Misunderstandings can happen, and that can lead to people being upset, hurt or confused. Conflicts should not turn into personal attacks.

- Show that you can be trusted. Being responsible, reliable and dependable is key to forming strong relationships. Follow through on commitments you've made to family and friends.

- Protect yourself from violent and abusive people. Set boundaries with others. Decide what you are and aren't willing to do. It's okay to say no.

The workplace has its own uniqueness in how we build relationships and relate to each other. Building healthy workplace relationships is important for career success, and the key to a positive work environment. Many full-time employees spend more of their waking hours with fellow staff than they do with their families or friends. Co-workers rely on each other to contribute support, expertise and other resources to fulfill the Air Force mission. Benefits of establishing positive workplace relationships include enhanced teamwork, improved morale, increased productivity and higher employee retention rates.

To encourage positive workplace relationships:

- Be friendly and approachable to co-workers.

- Communicate effectively – without proper communication, things fall through the cracks, people work in silos, and it can feel like everyone is working for themselves instead of working as a cohesive unit.

- Be accountable – deliver on your responsibilities and commitments. Team members will be more engaged if they feel you are pulling your own weight.

- Clarify roles – knowing everyone's role and being familiar with the responsibility of those roles creates efficiency and flexibility. Review responsibilities when action planning.

- Recognize contributions – sometimes a simple "thank you" can go a long way in building any relationship. A culture of appreciation from both the leader and the team will make people want to put in discretionary effort since they know it is recognized.

- Wait before you push send – be professional and don't let a careless email ruin a workplace relationship.

- Respect others – treat others as you wish to be treated. Be courteous, use non-offensive language, and respect people's time.

Positive workplace relationships equal increased employee engagement. Engaged employees are more productive, take fewer sick days, and less likely to leave the organization.

It's never too late to reconnect with family, old friends, or develop new friendships. Investing time in strengthening your relationships can pay off in better health and a brighter outlook for years to come.

Relationships are not always easy. Sometimes they can be difficult and stressful. If you think you are in an unhealthy relationship and would like to talk with someone, support services are available for the Air Force military and civilian members and their families.

For work-life support resources, webinars and information as well as non-clinical, confidential counseling, check out the following:

Military and families: Military OneSource 800-342-9647 or visit ***militaryonesource.mil***.

Civilian employees and families: Employee Assistance Program 866-580-9078 or visit ***AFPC.af.mil/EAP***.

For more information on building healthy relationships education materials, visit ***USAFwellness.com*** or contact your local Civilian Health Promotion Services team. Comprehensive information on how to build healthy relationships can be found at ***nih.gov/wellnesstoolkits***.

# AFMC leaders to host virtual town hall

**By Marisa Alia-Novobilski**
*Air Force Materiel Command*


*(U.S. Air Force graphic by Michele Ruff)*

**WRIGHT-PATTERSON AIR FORCE BASE, Ohio** – Air Force Materiel Command leadership will host a command-wide virtual town hall May 3 at 2 p.m. ET.

Gen. Arnold W. Bunch, Jr., Commander, Air Force Materiel Command; Patricia M. Young, AFMC Executive Director; and Chief Master Sgt. David A. Flosi, AFMC Command Chief, will discuss current topics and address questions from personnel across the command.

"There is a lot happening across the command and the Air Force as we head into the summer season. We hope that you can take time to join us at this town hall event," said Bunch. "We are looking forward to speaking with you and answering your questions."

The live event will be broadcast via Microsoft TEAMS Live and is open to AFMC personnel. The session link will be sent through internal email channels prior to the event. Individuals are encouraged to sign into the event early in order to ensure a live viewing opportunity.

AFMC personnel can submit questions prior to the town hall on the event page on the AFMC Facebook or by email at ***afmc.pa.workflow@us.af.mil***. Pre-event submissions will be accepted until April 22. Any questions submitted during the event will be answered subject to time limitations.

The full video will be released after the event along with a transcript.

Questions regarding the event can be sent to the AFMC public affairs office at ***afmc.pa.workflow@us.af.mil***.

# Electric rotary aircraft completes first Eglin flight

**By Samuel King Jr.**
*96th Test Wing Public Affairs*

**EGLIN AIR FORCE BASE, Fla.** – The Lift Hexa, an electric, vertical takeoff and landing aircraft, completed its first test flight here April 4.

The unmanned aircraft, piloted via remote control, used 18 motors and propellers to fly for approximately 10 minutes and reach a height of about 50 feet.

The aircraft resides with Eglin's rotary wing test squadron, the 413th Flight Test Squadron, who manages the program under its Agility Prime flight. The unit provides the coordination, logistics and support for the Lift team's developmental ground and flight testing operations.

"This is an opportunity to leverage some of the unit's expertise with rotary aircraft and apply it to this new field of electric propulsion aircraft," said Maj. Riley Livermore, 413th FLTS futures flight commander.


**The Hexa, an electric, vertical takeoff and landing aircraft, hovers in the air during its first test flight April 4 at Eglin Air Force Base, Fla. The Hexa team completed the aircraft's first unmanned flight test via remote control. The aircraft, which used 18 motors and propellors, flew for approximately 10 minutes and reached a height of about 50 feet.** ***(U.S. Air Force photo by Samuel King Jr.)***

**A LIFT team member secures a battery to one of the Hexa's motors before its first flight April 4 at Eglin Air Force Base, Fla. The Hexa team completed the aircraft's first unmanned flight test via remote control. The aircraft, which used 18 motors and propellors, flew for approximately 10 minutes and reached a height of about 50 feet.** ***(U.S. Air Force photo by Samuel King Jr.)***

# Lethal means safety is key to suicide prevention

**By Karin A. Orvis**
*Defense Suicide Prevention Office*

**WASHINGTON** – Every death by suicide is an unnerving tragedy, and the Defense Department is taking a comprehensive public health approach to save lives through widespread education and evidence-based prevention practices in the face of one of the military's – and the nation's – most vexing public health crises.

There is no simple reason why anyone, including a service member, takes his or her life. As with civilians, military personnel and their families are not immune from life's daily challenges, and there's no single solution to preventing suicide.

DOD recognizes the complex interplay of risk and protective factors and take a bundled approach to prevention that focuses on reducing suicide risk for service members and their families. Service-related challenges can play a role in service members' and their families' circumstances – exposure to the battlefield may result in traumatic injuries or compounding stressors, for example.

But this doesn't tell the whole story. The complexity extends to social and environmental factors: relationship and financial challenges, substance abuse, or legal issues, can also contribute to a downward spiral and suicidal thoughts.

A focus on lethal means safety is one centerpiece in the DOD's suicide prevention efforts. Lethal means are objects (e.g., firearms, medications, sharp objects) that can be used to engage in suicidal behavior. Safety measures that secure lethal means include safe storage options such as cable locks, locked safes and medication lock boxes. Safe storage of lethal means is an evidence-based part of a comprehensive suicide prevention strategy; it also includes safe prescribing practices of medications and safety counseling to reduce the risk of suicide by limiting access to all lethal means.

DOD's "Annual Suicide Report" for 2020 showed that firearms were the primary method of suicide for service members (approximately 70% across DOD) and for more than half of our military family members.

Research tells us that while owning a firearm does not cause someone to be suicidal, storing a loaded firearm at home increases risk suicide for everyone in that household. Likewise, our data show us that medications are the leading method for suicide attempts. This is a primary reason DOD's education and communications put a spotlight on safe storage, personally-owned firearms and medications.

Prolonged stress and the stigma of seeking help and support can also characterize aspects of military family life. At the same time, DOD and national research indicate that protective factors – such as social connectedness and feelings of belonging – are buffers against suicide risk.

Traditional military culture and the premium it places on self-reliance also plays a role; prevailing attitudes often work against service members and their families getting help for mental health conditions or other life challenges. Although receding, stigmas can still reinforce a service member's tendency to handle challenges internally; fear of negative career impacts is a concern.

Consider these statistics:

- Suicide was among the top 10 leading causes of death among Americans ages 10-64.
- It's the second leading cause of death for people ages 10-34, according to the Centers for Disease Control and Prevention.
- According to DOD's 2020 "Annual Suicide Report," the suicide rate statistically increased from calendar years 2015 to 2020 – from 20.3 to 28.7 suicides per 100,000 among active-component service members.

Research also confirms the potent and mitigating effects of lethal means safety. Adding safe storage practices to lethal means, such as firearms and medications, are effective ways to reduce suicide and protect people.

Research also shows it can take less than 10 minutes between thinking about suicide to acting on it. For many people, thoughts of suicide and the desire to end one's life come quickly and intensely. But these thoughts also tend to subside and reduce in intensity just as quickly. Safe storage practices increase the time it takes for a person experiencing suicidal thoughts to access a lethal item.

**It can be overwhelming to face problems alone. The military community offers a variety of resources to help individuals. Supervisors, first sergeants, commanders, airman and family readiness centers, chaplains and mental health professionals are available and equipped to assist individuals in need. *(U.S. Air Force photo by Joshua Seybert)***

During this critical time, the desire to die may wane. The person may be reminded of reasons to live, or someone else may be able to intervene, resulting in a life saved. Nonetheless, DOD's aim is to add measures that build in additional safeguards between someone who may be at risk for suicide and a method for suicide.

Safe storage for firearms requires:

- A locking device that creates a barrier to unauthorized access or use.
- Separation of firearms and ammunition when not in use.
- Storage in a secure, locked box.

Cable locks, for instance, prevent a firearm from being loaded and fired; a gun case enables secure and concealed firearm storage. Equally useful are full-size gun safes for reliable protection.

To prevent an overdose, medications such as opioids should be stored under lock and key; medication lockboxes are available at most pharmacies. Every second counts in suicide prevention, giving someone an extra moment to have a change of heart.

To prevent firearm-related suicide, DOD takes a multi-pronged approach, working with military leaders at all levels, military communities, military/veteran service organizations and firearm retailers to raise awareness about safe storage options in the home. DOD's efforts also align with the Department of Veterans Affairs on lethal means safety for veterans and service members.

Safe storage options are effective in preventing suicides and protecting others from accidents in the home. If not for yourself, practice safe storage so others cannot readily access your firearm without your knowledge. Unload it, lock it, and/or store it away. Bottom line: Stop, lock and live.

Individual can also assist, especially during a crisis. If someone you know is feeling overwhelmed or having thoughts of suicide, check on them, and don't be afraid to ask if he or she has access to lethal means. If the answer is yes, ask if you can safely store those lethal means during a challenging time. Putting time and distance between someone who's feeling overwhelmed and a method of suicide can save a life.

Someone at risk may not ask for help, but reaching out to offer support can make a difference. Service members and veterans who are in crisis or having thoughts of suicide or those who know a service member or veteran in crisis, can call the Veterans/Military Crisis Line for confidential support 24/7, 365 days a year. Call 1-800-273-8255, and press 1; text to 838255; or chat online at ***VeteransCrisisLine.net/Chat***.

Suicide is a public health issue, and scientific research indicates that certain types of reporting can negatively impact vulnerable individuals. Reporters covering this topic can visit ReportingOnSuicide.org for resources on communicating about suicide.

# Estep selected as executive director of AFMC

**By Marisa Alia-Novobilski**
*Air Force Materiel Command*

**WRIGHT-PATTERSON AIR FORCE BASE, Ohio** – The Air Force has selected Lorna B. Estep for the position of Executive Director, Air Force Materiel Command.

As the senior command civilian, Estep will advise the AFMC commander on all aspects of the command's mission. She will oversee the management of labor union relations and the development of the AFMC civilian work force, which comprises more than 70% of command personnel.

"I'm humbled to continue to serve our great Air Force and excited to return to AFMC headquarters for this new challenge," said Estep. "Our command truly powers the world's greatest Air Force. For each of you I have served with, thank you for being my wingman and imparting your knowledge and wisdom to prepare me for this moment. I look forward to building on Ms. Young's outstanding accomplishments, and I can't wait to get to work in support of our mission and in service to our incredibly talented and professional Airmen and Guardians."

Estep, a member of the Senior Executive Service, currently serves as the Executive Director at the Air Force Installation and Mission Support Center where she leads over 3,000 geographically-dispersed individuals executing a $6 billion budget to provide installation and mission support capabilities to 78 installations, 10 major commands and two direct reporting units.

**Lorna Estep**

Prior to her role as the AFIMSC Executive Director, Estep served as the Director of Resource Integration at the Air Force. In this role she represented the logistics, and installation and mission support resource requirements within the Air Force Corporate Structure and oversaw more than 300 logistics information technology systems.

A career civilian, Estep started her career as a Navy logistics management intern. She directed the Joint Center for Flexible Computer Integrated Manufacturing, was the first program manager for Rapid Acquisition of Manufactured Parts, and has also served as Technical Director of Information Technology Initiatives at the Naval Supply Systems Command.

Estep will replace Patricia M. Young, the current AFMC Executive Director, who is set to retire this summer.

Biography: ***www.af.mil/About-Us/Biographies/Display/Article/104786/lorna-b-estep/***