



# TECFT Starts

By Becki Bryant  
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The Technology Experimentation and Characterization Field Trials (TECFT) is underway at West Desert Test Center (WDTC). The two-week event includes testing at WDTC's Joint Ambient Breeze Tunnel (JABT), the Active Standoff Chamber (ASC) and Target S.

Built on the success of previous S/K Challenge events conducted at Dugway Proving Ground, TECFT allows cost-effective testing of detection technologies with chemical and biological simulants, as well as a number of interferents.

"Sometimes the cost of testing can be prohibitive and stall the advancement of new technologies," said WDTC Test

Officer Adam Drochner, who is the DPG lead for TECFT. "Our outdoor chamber and field testing allows participants to demonstrate, evaluate and collect data on their detection systems in a controlled environment that is representative of a real-world threat."

TECFT was originally scheduled to take place in June, but was pushed to October because of travel restrictions imposed by the coronavirus. Even with a postponed start, COVID-19 forced several participants to cancel. A total of seven teams, including six government agencies and one private industry, are participating through Oct. 9, with strict COVID-19 rules and regulations in place.

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The West Desert Test Center's new Real-Time Aerosol Test Lidar (RATLR) uses 4 wavelengths to profile a simulated plume of chemical or biological aerosol warfare agent and allows TECFT participants to test the accuracy of their detection system. Photo by Mario Sandoval, Dugway Scientific & Technical Photographer



Dugway Proving Ground team members gathered at the Joint Ambient Breeze Tunnel prior to the start of the Technology Experimentation and Characterization Field Trials (TECFT) to ensure everyone was ready for the two week event, which is currently underway at the West Desert Test Center. Photo by Becki Bryant, Dugway Public Affairs

## Command Perspective



By Kenneth S. Gritton, PhD  
Technical Director, West Desert Test Center

Selfless Service, Honor, Integrity, Personal Courage. Of the 7 values, I would like to share a few thoughts on integrity.

Integrity is demonstrated by matching our actions to our beliefs, regardless of situation or setting. This was demonstrated in the 1925 U.S. Open Golf Championship by professional golfer Bobby Jones, when during a playoff round, following a shot into deep grass in a wooded area, while setting up for his next shot, he accidentally bumped his ball with his club just barely enough for the ball to move. No one but Bobby saw the ball move just a miniscule amount in the tall grass,

but he saw it. He reported the unseen, accidental ball contact, took a 1-stroke charge, and that one stroke was the margin by which he lost the national title that year.

We demonstrate our own integrity and adherence to that important Army Value in a thousand ways every day; many demonstrations are seen, and many are unseen. Often, integrity is demonstrated by how we communicate because demonstrating integrity also means the absence of deception. If we use words that are technically and semantically true, but convey an idea or meaning that is different from reality or truth, then integrity has been lost.

At Dugway Proving Ground,

our mission is to support combatant commanders by executing efficient testing of materiel and procedures to counter chemical and biological threats. Commanders, warfighters and first responders must have absolute trust in the evaluations of their protective measures that are predicated on the information we provide – with absolute integrity.

Across the full spectrum of activities that support the DPG mission, we all must continue to demonstrate integrity even to the absolute degree shown by Bobby Jones. As a result, our ultimate customers, warfighters and first responders, will trust our absolute support of them as they stand between us and harm's way.

### Integrity - An Army Value

We all are members of the Army family, whether uniformed or civilians, whether government or contract employees, and we have pledged to uphold the 7 Army values; Loyalty, Duty,

## INSIDE YOUR DISPATCH

### S/K IS NOW TECFT



7 teams converge on Dugway for reborn field trials.

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A few thoughts on integrity.

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Today, image is everything, but at what cost?

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New test fixture can create solid particles or liquid droplets.

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### HAPPY CUSTOMERS



43 trials over 15 nights deliver the data and a satisfied customer.

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AND MUCH MORE

## TECFT Starts ...

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Each evening TECFT participants gather at dusk for a safety briefing before testing activities start. Photo by Mario Sandoval, Dugway Scientific & Technical Photographer



James Berry, DPG Lead Physical Scientist, adjusts the Infrared Hyperspectral Imaging System, a versatile system that enables detection and characterization of simulant chemical vapors (chemical plumes) in an operational, threat-realistic environment. The Hyperspectral Imaging System is a key TECFT test fixture. Photo by Mario Sandoval, Dugway Scientific & Technical Photographer

# Aerial MUM-T reaches new heights at DPG

By Becki Bryant

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A historic milestone in manned-unmanned teaming (MUM-T) was reached at Dugway Proving Ground when three separate aircraft worked together and successfully executed a live missile fire. The three-way cooperative engagement included an Apache AH-64E helicopter, a Shadow RQ-7BV2 Block 3 tactical unmanned aircraft system (TUAS) and a MQ-1C Gray Eagle-Extended Range (GE-ER) UAS.

**"This is the first accomplishment of its kind for the U.S. Army with this trio of aircraft,"** noted Aaron Adam, test engineer with General Atomics, manufacturer of the

Gray Eagle.

Manned-unmanned teaming combines Soldiers with machines to produce greater lethality and improved survivability.

**"Demonstrating this level of interoperability is a big step forward for MUM-T possibilities,"** said Doug McDaniel, a senior engineer with the Rapid Integration and Acceptance Center (RIAC), a tenant organization at DPG who helped orchestrate the flight tests. **"At some point, these kind of cooperative engagements will be used in combat. This is a big first step."**

During the engagement, the Apache pilot took level of

interoperability (LOI) 3 control of the Shadow's payload for reconnaissance and lasing of the target, while Gray Eagle fired a laser-guided Hellfire missile, successfully hitting the ground target more than 15,000 feet below.

The successful demonstration was part of regression testing and interoperability demonstrations of the three aircraft. Jon Jenkins, an engineer with Textron Systems, manufacturer of the Shadow, relished the opportunity to see the technology move from concept to reality.

**"We're not just checking the box. We're using this opportunity to show that new technology is**

**feasible and it can be done,"** Jenkins said.

And to prove his point, the aircraft successfully completed a second three-way engagement just a few days later, this time striking the ground target with a Small Glide Munition.

The test flights conducted at Dugway's West Desert Test Center (WDTC) also revealed another technological advancement: the data link range between the Apache and the Gray Eagle operated at a much farther distance than before, providing the opportunity for over-the-horizon reconnaissance. Proof that as technology advances, so does MUM-T sophistication.

What does this mean for U.S. ground forces and aircrews? They can remain outside the enemy's "kill zone" and engage faster because of the shared situational awareness.

**"I appreciate the standoff distance MUM-T provides and the ability to stay out of harm's way, but it's my wife that really loves it,"** shared U.S. Army Apache pilot CW4 Michael Fresenburg, who participated in the three-way cooperative engagement and can now tell the Mrs., with confidence, that MUM-T is changing the way America's forces fight and survive combat.



An Apache AH-64E helicopter, a Shadow RQ-7BV2 Block 3 tactical unmanned aircraft system (TUAS), and a MQ-1C Gray Eagle-Extended Range (GE-ER) UAS recently completed a successful level of interoperability (LOI) 3 during a live fire missile event Dugway Proving Ground. Photo by Porter Hansen, Dugway Public Affairs

## A Win Win

The MUM-T three-way cooperative engagement required a high level of collaboration between U.S. Army Dugway Proving Ground and the U.S. Air Force Utah Test and Training Range (UTTR). Adjacent to one another, DPG and UTTR share a total footprint of land and airspace that totals nearly 17,000 square miles.

**"This effort spanned over 30 miles, with half taking place on DPG property and the other half on UTTR property,"** shared Kerry Barraclough, WDTC RIAC Liaison, who worked closely with Roger Cannon, Chief, Flight Operations, UTTR.

**"It took a huge amount of effort of cooperation and communication between both sides to make this happen, and its successful execution is a big win for our continued partnership."**

# Fungus Test Emphasizes Extent of Testing

By Al Vogel  
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Because chemical and biological detectors may be used throughout the world, in some of the worst environments, they must be rigorously tested to ensure they can endure. The recent test of the Aerosol and Vapor Chemical Agent Detector (AVCAD) in a chamber that encourages the growth of fungus may seem odd to those unfamiliar with testing at Dugway Proving Ground, but it's one of many challenges required by MIL-STD-810H.

Military Standard 810 was first published by the Department of Defense in 1961, designating how an item will be tested to ensure it can endure a variety of climates and conditions. All military services, and many civilian labs, adhere to this standard for military specifications.

AVCAD is the next step in miniaturized chemical detection, intended as the next generation chemical detector. It's designed to detect, identify, alarm and report the presence of traditional and advanced vapors and aerosols. If adopted by the Department of Defense, AVCAD will be used by all services. Consequently, it must be reliable under many conditions, even in jungles where fungus appears on equipment almost overnight.

AVCAD has already been subjected to hot and dry conditions that replicate Sahara-like conditions, and will soon be subjected to extreme cold, heat and humidity that duplicates exposure to the ocean near the equator, cold and hot storage, freezing rain, blowing rain, blowing dust, solar radiation, altitude rapid decompression, and



The Agent and Vapor Chemical Agent Detector (AVCAD) sits in the fungus chamber at Dugway Proving Ground, after the spores and growth medium are added to the Petri dish (below photo). A growth medium is also sprayed on the AVCAD, to help fungus get a start. Photos by Al Vogel, Dugway Public Affairs

vibrations typical of transport by ship or truck.

No single AVCAD faces all these environments; rather, the challenges are divided into three similar groups: hot, cold and specialized environments, and one or more AVCAD face these challenges.

James Sorenson, a microbiologist with the Special Programs Division, applied a fungus cultivated in a lab to Petri dishes in the chamber where AVCAD will spend 28 days. A medium to encourage growth was lightly sprayed on AVCAD. After one week, the chamber is inspected to ensure the fungus is

growing.

"Some fungus can interfere with electronics, so we make sure that growth doesn't interfere with it," Sorenson said.

The fungus chamber, the size of a large camping trailer, is used only for fungus tests, nothing else.

"That way, we don't cross-contaminate other chambers," said Military Standard Engineering Technician A. J. Line.

If for some reason the growth never takes, or stops within the required 28 days, the test begins anew, Line said.



James Sorenson, a microbiologist at Dugway Proving Ground, applies fungus spores and a growth medium to the Aerosol and Vapor Chemical Agent Detector (AVCAD), where it will spend 28 days in warm, humid darkness. The test determines if AVCAD's electronics are affected by fungus.

## CHAPLAIN'S CORNER

By Chaplain  
(MAJ) Wesley A. Gornall

A well-known public figure discovered that her great-great uncle, Remus, was hanged for horse stealing and train robbery in Montana in 1889. The only known photograph of Remus shows him standing on the gallows.

On the back of the picture is this inscription:

"Remus ---; horse thief, sent to Montana Territorial Prison 1885, escaped 1887, robbed the Montana Flyer six times. Caught by Pinkerton detectives, convicted and hanged in 1889."

For her Family History profile, a staff of professional image consultants scanned Remus's picture, cropped it, enlarged the image, and edited it so that all that is seen is a head shot. The accompanying biographical sketch is as follows:

"Remus --- was a famous cowboy in the Montana Territory. His business empire grew to include acquisition of valuable equestrian assets and intimate dealings with the Montana

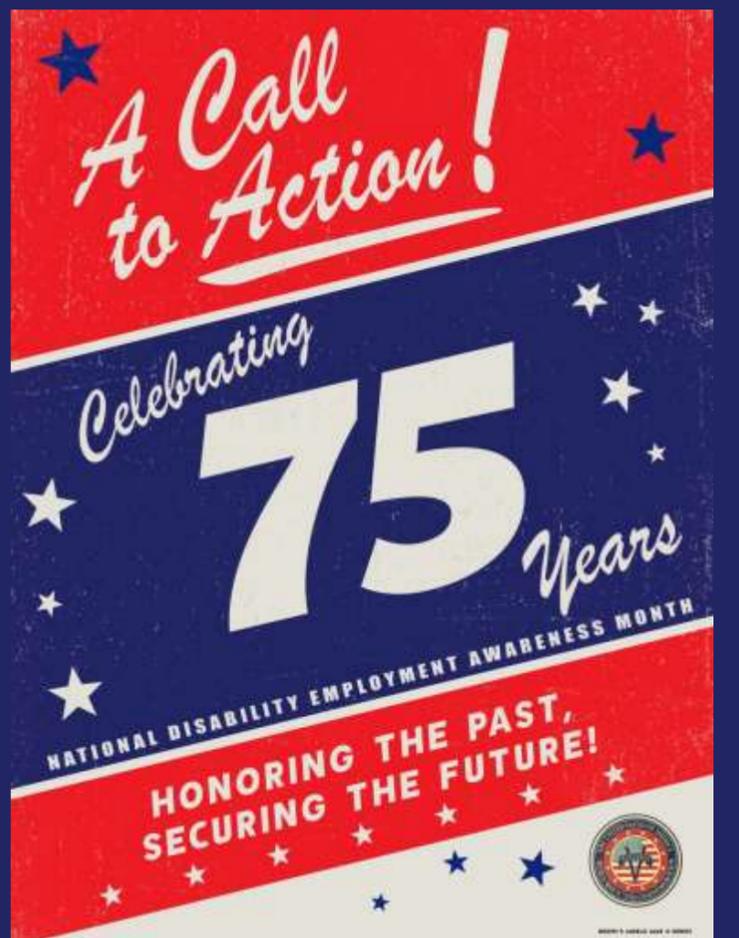
railroad. Beginning in 1883, he devoted several years of his life to service at a government facility, finally taking leave to resume his dealings with the railroad. In 1887, he was a key player in a vital investigation run by the renowned Pinkerton Detective Agency. In 1889, Remus passed away during an important civic function held in his honor when the platform upon which he was standing collapsed."

Today, image is everything. Character and integrity are often compromised for a less truthful image. Sometimes we try to grab hold of a mirage that will provide us with a better image. Money, leisure, sex, power, fashion, promotions and fame all promise fulfillment. But this illusion fails and we are unsatisfied and begin to look again.

Human beings reflect the image of God. It is in God through Jesus Christ that each of us has a true image that will be meaningful, purposeful and provide hope for this life.

## NATIONAL DISABILITY EMPLOYMENT AWARENESS MONTH

1 TO 31 OCTOBER



# New Chamber to Test for Particle Threat



The Particulate Aerosol Detector Fixture (PADF) is under construction at DPG in the glovebox behind part of the engineering group pictured (from left): C. B. Wang, Project Scientist; Ross Lang, Electronics Technician; and Liliana Mada, Test Officer. Photo by Al Vogel, Dugway Public Affairs

By Al Vogel  
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A new chamber is under construction at Dugway Proving Ground, to test chemical agent detectors with the growing threat of airborne solid particles or liquid droplets. For more than 100 years, chemical weapons have most often been used as vapor or gas. More recently, their use as solid particles or liquid droplets has emerged as a new threat, according to Test Officer Matt McCarty of the Chemical Test Division of DPG's West Desert Test Center.

Test Officer Liliana Mada noted that DPG can currently do vapor and liquid chemical agent testing, but there is a need for chemical particle testing to support the Next Generation of Chemical Detectors (NGCD) program already underway.

As the Army works to develop chemical agent detectors with the capability to accurately detect and identify this newer threat, DPG also requires a test fixture to create particles and droplets. Hence, the Particulate Aerosol Detector Fixture (PADF) in a glovebox, developed at DPG

to not only create solid particles or liquid droplets, but to challenge chemical detectors in varying humidity and agent concentrations.

**"We want to provide the most accurate data possible to help the Army ensure that these new detectors can warn warfighters and keep them safe," McCarty said.**

Placing the PADF in a glovebox makes the system more portable if needed, and may later allow the addition of other capabilities, such as temperature control.

Installing the PADF within the glovebox is expected to be completed by the end of October, but the wiring and other connections may take the rest of the year.

Design and development by the test center's engineering group began more than a year ago. Lead engineer for PADF is Sipex Sun. Other engineers are Greg Dahlstrom and Robert Trevino. Engineering Branch Chief is Cristian Tabara. Project Scientists are C.B. Wang and Wes Ercanbrack. Test Instrumentation is by Branch Chief Ross Lang, along with Bryan Warr and Wayne Taylor.

## CENTAUR Test Customers Left Happy

By Al Vogel  
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Over two weeks in August and September, more than 40 trials of the CENTAUR chemical and biological detection and warning system were conducted, gathering valuable data to improve the system.

Testing of the Capabilities to Enhance Threat Awareness, Understanding and Response (CENTAUR) system will resume next summer, and go through 2026. CENTAUR is a collection of detection, monitoring and communication equipment, working together to warn of impending chemical, biological or radiological threats. Much of the testing builds analytics within CENTAUR - data that leads to the most likely outcome, based on previous test scenarios. These informed outcomes can guide leaders to make the best decisions during an attack or incident.

Unlike past years, there was no User Feedback Event because of the coronavirus pandemic.

**"We weren't sure how we could pull it off,"** said Jeff Poor, Test Officer and

microbiologist with the Combat Capabilities Development Command, a tenant unit on DPG. "Accommodating travel time and an additional two weeks for quarantine before the User Feedback Event required too much time to make it possible."

The weather this summer gave a few problems, Poor noted. **"Not a lot of rain, but winds didn't set up as well as they could."**

Some nights the testers got as many as seven or eight trials per night, with biological or chemical simulants that replicate actual agent. In a real attack, it's likely chemical or biological agent would be released at night, when winds are calmer and the weather is more predictable, Poor said. For the same reason, and for authenticity, all CENTAUR releases were at night.

**"Doing it at night is representative, because the bad guys know the same things about weather that we do,"** Poor said.

**"We got everything done that the customer wanted, and the customer is very happy,"** he said.



Part of the CENTAUR system, the Expeditionary Point Sensor Enclosure is solar powered, and easier to transport and set up than the stouter standard, electrical Point Sensor Enclosure. Both have communication software, day and night vision cameras that also see movement, and meteorological instruments. Photos by Al Vogel, Dugway Public Affairs

## Joe Pelican Visits Dugway

An American White Pelican landed at Dugway Proving Ground Sept. 9, strolling around the Command building and making no effort to resume migrating south.

Keeli Marvel, a Natural Resource Specialist at DPG, estimated that it was a juvenile, hatched and raised on the pelican's colony on Gunnison Island in the Great Salt Lake.

**"When they're young like this, they may have difficulty taking off once they've landed,"** Marvel said. She guessed the large bird may have been forced down by high winds during the night.

The bird was taken to the Wildlife Rehabilitation Center of Northern Utah, in Ogden, for assessment and was later released.

Photos by Al Vogel, Dugway Public Affairs



During the last week of CENTAUR testing, cameras such as this pan-tilt-zoom, long-range thermal imaging camera and other instruments of each Point Sensor Enclosure were evaluated and fine-tuned. CENTAUR will return each summer up to 2026, testing each year's improved version. Photos by Al Vogel, Dugway Public Affairs





# IN A NUTSHELL

## STARRS - Longitudinal Study

What is it?

The Study to Assess Risk and Resilience in Service members - Longitudinal Study (STARRS-LS) continues the Army's research efforts toward suicide prevention with partner agencies. Beginning with Army STARRS (2009-2015) and extending into the longitudinal effort of STARRS-LS (2015-2020), STARRS-LS (2020-2025) will utilize the STARRS platform, systems and data to improve understanding of predictive factors for suicide and psychological health of Soldiers, including those who have separated from the service

What are the current and past efforts of the Army?

A new STARRS-LS Memorandum of Agreement (MOA) was signed by the Under Secretary of the Army on July 27, 2020 in coordination with the Assistant Secretary of Defense for Health Affairs, the Department of Veterans Affairs, and the National Institute of Mental Health to continue the STARRS-LS effort.

STARRS-LS has partnered with the Department of Veterans Affairs (VA). With the close coordination and improved data sharing, STARRS-LS will facilitate the research team's ability to follow service members after they separate from active military service.

What continued efforts does the Army have planned?

During the next phase of STARRS-LS, the research team, including the Uniformed Services University of the Health Sciences,

Harvard Medical School, University of Michigan, and the University of California, San Diego, will continue their analysis efforts to better understand suicide, suicide-related behavior, and other mental and behavioral health issues. These efforts will include:

- Current issues of interest to the DoD and Army - how pre-separation characteristics predict post-separation risk of various adverse outcomes, and the importance of access to lethal means.
- Capability for the researchers - to explore the feasibility of new or emerging types of predictive models.
- Collection of new information - by administering the third wave of the STARRS-LS survey (slated to begin in late 2020) of Soldiers who previously participated in Army STARRS and the first wave of the STARRS-LS survey.
- Analysis of the Army STARRS data (from ~72,000 Soldiers), the STARRS-LS data (from 14,500 Soldiers), and Army/DoD administrative data (from over 50 sources for more than three million Soldiers), all Components, serving since 2004.

Why is this important to the Army?

The STARRS-LS provides the Army a means to better understand risk and protective factors for suicide and related behavioral health problems. This capability rapidly translates findings into action, and results that may inform the development of more effective interventions and facilitate evidence-based decision making.

(Source - Army STAND-TO)

The Dugway Fall Festival was enjoyed by many who came for the live band, barbecue, and opportunity to meet others and watch the Iron Chef Cook-off. The Fall Festival was sponsored by MWR and Jacobs. The Iron Chef Cook-off was sponsored by MWR and ACS.

Jim Dekanich won Best Overall, and best in the Dutch Oven categories. Elsbeth Kruse won best in grilling, while Dylan

Metcalf took best smoking.

Live music was from "Article 15," a Utah National Guard Band - excellent, as always.

Horseshoes, rock climbing wall, Ladder Golf, hatchet throw and the occasional Frisbee kept people active and happy.

Later in the evening, a movie was shown against the south side of the Youth Services Building. Whether sitting in a car or chair, the movie displayed well.



# THE DISPATCH

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