

Secretary of the Army visits CRTC



It's a balmy summer in Alaska, but Secretary of the Army Mark T. Esper still got a first-hand feel of the impact of extreme cold on common components like engine oil inside a -53° F cold chamber at U.S. Army Cold Regions Test Center during a visit to the installation in early August. After 20 seconds of cranking an oil pump, the congealed oil wasn't able to clear a short-length of tube and lubricate a beaker that stood in for a vehicle engine. "That's what you're talking about with cold vehicles that are not set up for operations in the cold," said Jeff Lipscomb, CRTC Technical Director, at the conclusion of the impromptu experiment. Esper saw a variety of CRTC-related equipment and capabilities while being escorted with CRTC Commander Lt. Col. Loren Todd during his visit to the post. (Photo by Sebastian Saarloos)

YPG kicks-off Anti-terrorism Awareness month

By Mark Schauer

A common theme in successful counterterrorism operations is people reporting and following up on suspicious activity.

This is the primary message of the Army's annual anti-terrorism month, held every August, and for the past four years YPG mission and garrison personnel, with an assist from the Military Freefall School (MFFS), have gone the extra mile to raise awareness as creatively as possible.

To kick off the month, Military Freefall School instructor Jose Reyes jumped into a YPG drop zone with the YPG-designed antiterrorism flag billowing behind him as members of the workforce watched. The flag, which sports the griffin-in-a-shield logo of the Army's antiterrorism effort, was also used by every other command within the Army Test and Evaluation Command as part of their awareness activities.

SEE ANTI-TERRORISM page 7

JPEO-CBRND directorate to test capabilities at YPG /Page 5



Love of location leads Yuma native to YPG /Page 6



Swim for survivors of sexual assault /Page 8



Water management is vital to wildlife conservation

By Daniel Steward, YPG Wildlife Biologist

Water is a vital component to wildlife management on YPG.

It not only supports large mammals like these Bighorn Sheep, but also birds like this Golden Eagle. Monitoring and maintaining these waters is an arduous task during our hot and dry summer months, especially since most of these waters are in rugged mountainous terrain. Our wildlife water tanks are designed to catch rainwater during our precious few rain events and store it throughout the year.

We continually work to improve the collection and storage for the tanks. However, during extremely dry periods, the tanks can still be depleted. If a water source goes dry, wildlife may die if they cannot reach water elsewhere.

The Arizona Game and Fish De-



THEOUTPOST

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Commander: Col. Ross Poppenberger Public Affairs Officer: Chuck Wullenjohn Public Affairs Specialist/Editor: Mark Schauer Technical Editor, Cold Regions Test Center: Clara Zachgo Marketing Specialist: Teri Womack Visual Information Manager: Riley Williams



As a natural laboratory for testing virtually every piece of equipment in the ground combat arsenal, YPG has a vested interest in responsible stewardship of the environment. Though located in one of the nation's most extreme climates, the proving ground is home to a wide variety of creatures, including the Golden Eagle (above) and Bighorn Sheep (left photo). The wildlife water tanks that help slake their thirst in the summer heat are supplied by water captured from each year's few rain events. (US Army photos)

partment (AZGFD) conducts routine monitoring of our water sources monthly during the summer to assess the water levels and the usage rates for each tank. AZGFD hauls water to these tanks if needed, sometimes by truck and sometimes by helicopter. The logistics of hauling water can be daunting from both a cost and timing perspective. For this reason we recently tagged several bighorn sheep on our range to better understand their movement patterns and which waterholes they visit in order to determine which waters are most critical.

Managing wildlife water on military installations presents unique challenges and opportunities. YPG manages airspace for military testing activity, so water flights have to be carefully scheduled. In order to alleviate some of the scheduling hassle and cost for monitoring, the YPG Meteorology team is testing a new system to remotely monitor the water levels in some of these tanks. This will save money and provide realtime data on water usage at the tanks.

Next Outpost deadline is noon, August 23rd Sexual Assault Hotline: 920-3104 Report Domestic Violence: 287-3361

Shootin' the Breeze Lasting impressions

By David J. Horn

(This is part two of a story about a 1983 visit to YPG.)

After breakfast, we walked out to the gravel parking lot, where my friend admitted he had to change the tail light bulb on his old 1953 Chevy pickup before we drove onto YPG. As I watched him back out the screws to remove the lens, I thought back to my car up in north, where the tail light lenses were glued in place with RTV because the screws and such rusted out years before. This guy just changed out the bulb on a 1953 Chevy, where the light socket still looked new. Wow...I couldn't believe my eyes. As we were getting ready to leave, he said, "By the way, take that tie off." With that, off we drove up to YPG.

Back in 1983, there were few fences around what was then known as the Mobility Test Directorate (MTD) compound. I followed my friend to a trailer that the tank tech reps were based out of.

The first thing I noticed when we opened the door to the trailer, was the cloud of cigarette smoke bellowing out the door. As I entered, I was greeted by the site manager. His pants were held up by the biggest belt and belt buckle I had ever seen. About the size of a car hub cap, the belt buckle had a big star in the center, surrounded by the words "The Great State of Texas." I'm still not sure how he was able to sit down. Anyway, it was then that I realized why my friend asked me to get rid of my tie. On the opposite wall of the trailer, was "The Wall of Ties." All over the wall, were the remnants of dozens of ties that appeared to have been clipped off their owners over the years, tacked up for display.

Nearby was a table with what looked to be two large, empty, aquariums sitting on it. Looking closer, I noticed inside the first one were some rocks and sticks, along with a tarantula eating crickets. The second one held the biggest honeycolored scorpion I had ever seen in my life.

Getting down to business, my company had some prototype equipment on the M-60, where among other things, a circuit board had to be replaced. They took me out to the tank, and I spent the next couple of hours replacing components. Mission Successfully Accomplished. We then drove over to Main Post to take a quick look at the building where the YPG Commander's office was, and have lunch in the Bowling Alley, which was across the street from the Post Office.

On the way back to the motel, I remember driving around town, past Mervyn's and LaBelle's, then spent a little time walking around the Southgate Mall, including the Babbitt's Dept. store. Later, I got back together with the tank guys to have dinner at a place called Beto's. Great Mexican food.

I was happy that there weren't any cancelled flights on the way back to Phoenix. When I got back to my office, everyone wanted to hear about my trip out to Yuma. For weeks, I told wide-eyed listeners about rattle snakes, tarantulas and scorpions, the best Mexican food I had ever tasted, and that old 1953 Chevy pickup with no rust.

I also told them that because of the harsh conditions and all the dangerous critters running around, that I could take one for the team and be the guy the company sends back to Yuma should the need arise again. With hazard pay, of course. They also asked, "Did you bring back any souvenirs?" I don't know why, but even today, I still have that Sun Aire Airlines Wyatt Earp barf bag.

Chaplain's Corner -The dog days of summer

By Maj. Ronald Beltz

places in our great country,

summer is one of the best times of the vear. Schools are out for teachers and kids, its vacation time for many people, baseball season is in full swing, and family reunions are occurring, to name just a few great things about summer.

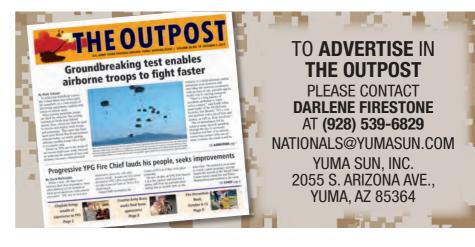
Summer also brings to mind for me the phrase "dog days of summer," the hot, sultry days of summer that historically followed the rising of the star Sirius. Ancient Greek and Roman astrology connected this with a time of heat, drought, sudden thunderstorms, lethargy, fever, mad dogs, and bad luck. Sounds like a horrible time of the year to me!

Astrology also played an important role in the Bible as well. The

Old Testament Book Isaiah 40:26 Beautiful summertime! In lots of says this: "Lift your eyes and look to the heavens; Who cre-

ated all these? God who brings out the starry host one by one, and calls them each by name. Because of his great power and mighty strength, not one of them is missing." And, of course, the most wellknown star to many is the Star of Bethlehem, which guided the wise men to

One of the great things about living in Yuma is that the night sky is clear most of the time, so star watching is pretty easy to do! Enjoy these dog days of summer! Remember what Isaiah 42:10 tells us: "So do not fear, for I am with you, do not be dismayed, for I am your God. I will strengthen you and help you; I will uphold you with my righteous right hand."



Jesus.

Where does our drinking water come from?

By: Sergio Obregón

Before you take another drink of water, stop and think where your supplied water comes from? Most cities get their water from open bodies of water such as rivers, lakes, or reservoirs, also known as surface water sources. For example, the City of Yuma draws its water from the Colorado River. Towns and other small rural communities generally get there water from below the ground, also known as ground water sources. Ground water is found below the ground surface and resides in between the soil and rocks and can be found at various depths ranging from a few feet to thousands of feet below the surface.

At YPG the supplied water is drawn from ground water. The ground water is pumped from wells, then it is treated to federal and state required purity levels before being pumped and piped to our houses or buildings as safe drinking water.

Surface water sources are continually exposed to the open atmosphere. This exposure makes it susceptible to pollution. While our tap water is generally safe to drink, threats to rivers and drinking water are increasing. There are two main sources of pollution for surface water. One is from natural sources, such as microorganisms from wildlife, as well as contaminates leaching from soils and rocks. The second is from human activities, which includes human and animal wastes (waste water), industrial and agricultural products/wastes, and stormwater runoff all of which normally end up in our rivers. Unfortunately, surface water sources are progressively becoming more polluted with time and thus making the water treatment more difficult and costly.

Ground water can also be polluted or affected by above ground water sources. This happens when ground water is close enough to a surface water source and recharges the ground water. So why is it better that our water comes from the ground? In many cases, ground water sources are largely unaffected by human made sources of pollution. At YPG ground water is pumped from a deep water table that is not as affected or influenced as surface water sources. Depending on the depth of the ground water, stormwater can also leach into the ground and the reach ground water, potentially bring pollutants along with it. For this reason, we continuously seek to protect our surface soils from contamination such as from spills and other industrial releases.

Unlike water from rivers or lakes, drawing water from the ground means reduced treatment process and less regulatory requirements to ensure supplied water is safe to drink. The ground water source we draw our water from is not immune to natural pollutants however. The only issue



YPG Commander Col. Ross Poppenberger takes a hydration break at a water fountain in one of YPG's maintenance shops. The quality of YPG's drinking water, ground-sourced and treated at state of the art facilities, is of a quality that far exceeds the Environmental Protection Agency's minimum standards. (US Army photo)

with our ground water is the existing levels of natural occurring inorganic arsenic. The arsenic levels found in our ground water source are slightly above the EPAs maximum allowable level. However, our treatment facilities effectively remove most of the arsenic to well below the allowable level.

Safe drinking water is a commodity we often take for granted. We are lucky we don't pull our water from a surface water source. The water provided to consumers at YPG already is from a good clean protected source. We then treat the water at our state of the art treatment facilities. The result is fresh clean water that far exceeds EPA's minimum standards for water quality.

If you have any questions, or require any clarification on the information contained in this article please feel free to contact Sergio Obregon, Safe Drinking Water Program Manager at 928-328-2015 or by email at sergio.obregon.civ@mail.mil. Our continuing commitment is to keep you informed and to respond to any questions you may have regarding the drinking water supplied by YPG. We will continue to provide future articles that will provide additional information about our water resources. For a comprehensive overview on information related to safe drinking water, including information on applicable federal rules, please visit the EPA webpage at: https://www.epa.gov/ sdwa





JPEO-CBRND directorate to test joint capabilities at YPG

By Richard Newton

In an unpredicatable location, a chemical, biological, radiological, or nuclear (CBRN) event could happen again. Such an event could mean devastating losses for U.S. forces if they have no warning or protection from weapons of mass destruction (WMD).

That is why the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND) established an Experimentation Directorate in 2017to improve the acquisition cycle and free DOD to counter threats, quickly.

The new directorate is managing an enhanced capability demonstration as part of the JPEO's larger integrated situational-understanding campaign. The objective of the campaign is to develop an integrated chemical and biological early warning capability using mostly nonmateriel and a few materiel solutions. These solutions combine existing sensor technologies, information threads and advanced algorithms from multiple battlefield domains into a novel decision management framework for operational use. Never before have disparate information threads come together to provide courses of action to joint forces confronting WMD threats.

The enhanced capability demonstration, led by Experimentation Director George "Ed" Lawson, includes two experiments in FY18, with the objective to reduce risk and enable commanders to survive an event involving WMD. One experiment, which is exclusive to the demonstration, will analyze the value of realtime, radar-based information threads. In the other, the demonstration will enlist the Defense Threat Reduction Agency to study the connectivity and continuity of the common operating environment and its interfaces.

The experiment examining realtime information threads will look for CBRN information of value in existing radar-based data, such as that gathered using the fielded AN/ TPQ-50 and AN/TPQ-53 counterbattery radar systems. This experiment is designed to determine if the systems can detect ordnance filled with chemical or biological weapons or material in flight or upon detonation. For joint forces, this capability could mean



The AN/TPQ-50 counterbattery radar plays a key part in a JPEO-CBRND experiment at Yuma Proving Ground, providing radar data in which the experiment will look for information on CBRN threats. The experiment's aim is to determine whether radar systems like the AN/TPQ-50 and AN/TPQ-53 can detect ordnance filled with chemical or biological weapons or materiel, either in flight or upon detonation. (U.S. Army photo)

more warning time.

Additionally, chemical sensors deployed right of boom--just after detonation of the chemical-biological round--could be directed by radar data to stare at the point of impact to detect chemical-biological threats, rather than scanning the entire battlefield. This could also yield additional warning time.

This experiment, to be performed at Yuma Proving Ground, will use 155 mm rounds, some with conventional solid fills and some with liquid fills that simulate chemical or biological munitions. The 155 mm rounds will be detonated in ground and air bursts to replicate possible scenarios. Among the differences to be captured from the variously filled rounds are their trajectory, wobble and post-detonation fragmentation patterns.

Contrasting the rounds' radar signatures could identify the fill as chemical-biological (liquid) or non-chemical-biological (solid). An analysis of differences in the data should illuminate the possibilities of using radar-based information threads for early warning of a chemical-biological attack.

In the other FY18 experiment, the JPEO will join the Defense Threat Reduction Agency in Perceptive Dragon II at Marine Corps Base Quantico, Virginia, and will examine the connectivity and continuity of interfaces in the common operating environments of the Army and Marine Corps.

This fall, the Experimentation Directorate will analyze the data inputs, outputs and joint force evaluations. If the experiments prove successful in harvesting real-time CBRN-related information threads and distributing them among the joint forces' common operating environment, then the enhanced capability demonstration will have contributed substantially toward early warning. A successful demonstration will bring about the combina-



The Joint Service General Purpose Mask is one element of Soldiers' training for integrated CBRN readiness. Experimentation will provide the early warning that Soldiers need to don personal protective equipment. (Photo by Spc. Torrance Saunders)

tion of awareness, understanding and confidence that facilitates effective, timely decision-making so the joint force can continue military operations in a CBRN environment.

Conducting experiments to establish information threads and connectivity to and from the joint forces' operating environments is a start. Additional experiments are planned for each year in FY19-21 on the decision-support tool that produces courses of action for joint forces commanders. Once the experiments have established the utility of data from counterbattery radar and radiological detectors, along with connectivity among commanders, those information threads can feed into the decision-support tool.

Future experiments will incorporate additional threads, and the decisionsupport tool will continue weaving the threads into an informative fabric to increase awareness and understanding and provide commanders with courses of action. Other future experiments will examine the operational relevance of these courses of action to the joint forces.

Ruben's Geodesy: Love of location leads Yuma native to YPG

By Mark Schauer

If anyone knows every square inch of YPG, it is Ruben Hernandez.

For 35 years, the Yuma native has worked at YPG as a geodetic surveyor, a computer and information technology specialist, and now in the Engineering Support Branch of the Instrumentation Division.

Aside from his decades of experience here, Hernandez's job requires him to understand the totality of YPG: Geodetics, or geodesy, is the earth science of accurately measuring and understanding Earth's geometric shape, orientation in space, and gravitational field. Hernandez studies and speaks of the field of study with great reverence.

"Everything that we do is tied into geodesy. Understanding where we are, what's below us, and the things that might affect us celestially-- the stars, the moon, and the sun."

YPG's Engineering Support Branch needs this understanding to characterize every centimeter of YPG's vast range.

"Our role and responsibility is dealing with all the geospatial data for everything that goes on downrange, and how it gets related to supporting the test mission and customers." YPG often boasts of its large land area, capable of testing scores of different items every day without a conflict for space. Yet most of these tests require the most accurate measurements possible.

"We have to locate calibration targets, cameras, radars, optical tracking systems, transponders: anything that needs to be located as part of a test. We measure very precisely the elevation, angle, and distance to that point."

A geodesist uses a variety of tools to accomplish this, including the global positioning satellite (GPS) system that underwent developmental testing at YPG from the mid-1970s until the early-1990s.

"GPS is a mainstay to our technology as far as doing geodetic surveying at amazing accuracies. We can locate virtually anything at YPG relative to our network of geodetic reference station within plus or minus a centimeter in real-time."

The advent of GPS resulted in enormous efficiency gains in society, not least to geodesists. Hernandez recalls the early days of his tenure here when GPS was not commonly available.

"It took days to collect data and post-process the data to generate cen-



Acting Engineering Support Branch Chief Reuben Hernandez (right) briefs Maj. Gen. Joel Tyler, Army Test and Evaluation Command Commanding General, about YPG's geodetic capabilities during a recent visit. Hernandez has worked at YPG for over 35 years, and his been familiar with the post since childhood when his father worked here. "I knew this was where I wanted to work, mostly through my dad. I was always intrigued when he talked about work." (Photos by Mark Schauer)



YPG often boasts of its large land area, capable of testing scores of different items every day without a conflict for space. Yet most of these tests require the most accurate measurements possible, such as the landing point of a precision-guided munition. The Engineering Support Branch uses a variety of tools to accomplish this, including the global positioning satellite (GPS) system that underwent developmental testing at YPG from the mid-1970s until the early-1990s.

timeter or higher accuracies relative to control anywhere on the range."

As a Yuma native whose father worked for the proving ground, Hernandez was familiar with YPG for most of his life. Ruben Hernandez, Senior, a former Marine who also spent over 27 years as a Military Policeman in the National Guard, was for years a weapons operator here before becoming a range scheduler. As a child, young Ruben saw public static displays at Cox Field and was captivated by the occasional public equipment demonstrations downrange that YPG held in those years.

"I knew this was where I wanted to work, mostly through my dad. I was always intrigued when he talked about work."

It eventually came to pass, but not immediately. He graduated from Kofa High School and attended Arizona Western College and Arizona State University with the idea of pursuing civil engineering. He worked for private sector firms and then for MCAS-Yuma and the Bureau of Reclamation before coming to YPG in 1983.

"I had some surveying experience coming into this job, both in school and working with the Bureau of Reclamation. I was interested in that, but when I was exposed to geodetics here, I became very, very interested in that-- I couldn't get enough of it."

The practical applications of geodetics are still growing, particularly as things like autonomous vehicles leave the realm of science fiction and enter into daily life. Hernandez believes that this technology will also be used in future military vehicles that will likely undergo test across YPG's 200 miles of road courses.

"To support autonomous testing we need to know within these corridors where everything is precisely."

After 35 years on the job here, Hernandez sometimes contemplates retirement, but has no intention of leaving in the near future. He says working with YPG's other professionals toward a great purpose is his biggest joy here.

"I still enjoy what I'm doing. I always ask people who are considering retiring, 'are you still having fun?' After all, the work we do is important—it's all about supporting the Soldiers, Marines, Seamen, and Air Men."

ANTI-TERRORISM

"I think it is important to bring awareness and remind people to always say something when they see something that isn't right," said Col. Ross Poppenberger, YPG Commander. "We want to take any



To kick off the awareness month, MFFS instructor Jose Reyes jumped into a drop zone with the YPG-designed anti-terrorism flag billowing behind him as members of the workforce watched. YPG received the 2016 best unit nod in the Army's annual Aniterrorism Awards, and the 2017 award for best small installation. (Photos by Mark Schauer)

opportunity to reinforce that message and keep the workforce engaged in vigilance."

Poppenberger and other YPG officials stressed that the 'see something, say something' mantra should be taken to heart by all, noting that over the past 15 years more than 50 potentially major terrorist incidents, including ones against domestic military installations, have been prevented by law enforcement, oftentimes thanks to a tip from a concerned citizen.

"Antiterrorism Awareness Month is an annual occurrence, but antiterrorism awareness is a daily event," said Ronald Rodriguez, Director of Operations. "People can stop terrorist attacks by sharing something they have seen that isn't right. They may feel embarrassed sometimes, but they shouldn't: they should step forward and tell somebody."

Poppenberger also referenced the fact that YPG received the 2016 best unit nod in the Army's annual Antiterrorism Awards, and the 2017 award for best small installation.

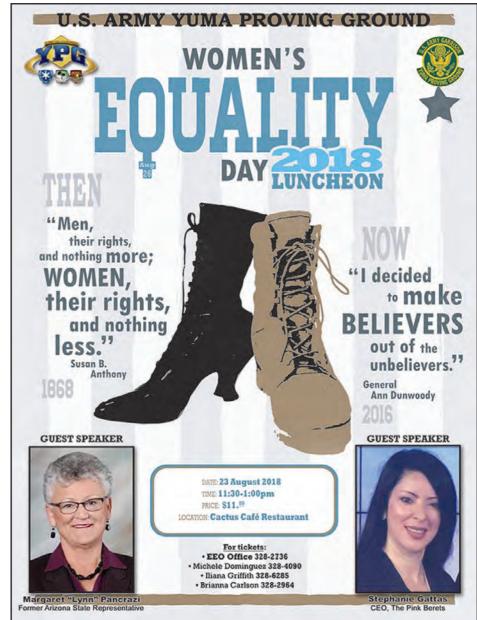
"It is really noteworthy and speaks volumes about what our program is all about. It's not just a one day or one month process: we do various things throughout the year to reinforce the message."



At the event, YPG Commander Col. Ross Poppenberger reminded the crowd the importance of antiterrorism awareness every day of the year. "I think it is important to bring awareness and remind people to always say something when they see something that isn't right," he said. "We want to take any opportunity to reinforce that message and keep the workforce engaged in vigilance."



YPG Command Sgt. Maj. Jamathon Nelson scans ID cards at the gate early in the morning and reminds incoming personnel about Antiterrorism Awareness Month, one of many initiatives the post leadership engage in throughout the year. "I don't think there is a single employee who doesn't know about our antiterrorism awareness program," said Ron Rodriguez, Director of Operations.



THE OUTPOST



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YPG personnel swim for survivors of sexual assault







Recovering from the crime of sexual assault or abuse is a process that is unique to each individual survivor. A recent sexual harassment and assault prevention training class held at YPG's Kahuna Lagoon swimming pool honored those who have utilized swimming as a way to help heal their body, mind, and soul. After a class about YPG's Sexual Harassment Assault Response and Prevention program led by Family Advocacy Program Manager Melissa Gomez, attendees were led in a high-energy water aerobics program by Command Evaluator Michele Dominguez, who also honchos YPG's Wellness Program. (Photos by Mark Schauer)

THE OUTPOST

AUGUST 20, 2018 **9**



10 AUGUST 20, 2018

THE OUTPOST



One YPG Day in Interior Alaska







With jurisdiction over all of the Army's extreme weather testing, YPG's test locales are far-flung across the Western Hemisphere. When an initial command inspection brought personnel from Yuma to U.S. Army Cold Regions Test Center in early August, the team took advantage of balmy summer weather and rare time together to stage a camaraderie-building event. Putting aside the serious business of resetting and refitting for the upcoming winter test season, the team took a few hours to test their prowess at egg-tossing, horseshoe throwing, and ring toss. (Photos by Sebastian Saarloos)

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