

December 2015

NSSC This Month



U.S. Army Garrison Natick Public Affairs Office



NSSC Stories of the Year



Publisher's Note

John Harlow
USAG Natick and NSSC Chief of Public Affairs



Table of Contents

December 2015

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A Year of Great Stories



The final edition of NSSC This Month looks back on what our staff selected as the Top 10 S&T and Community stories of 2015.

I want to thank Kelly Field and Melody Roussel from USARIEM, Jane Benson and Jeff Sisto from NSRDEC and Bob Reinert and Tazanyia Mouton from the Garrison Public Affairs Office for their contributions throughout the year. Without their writing, we wouldn't be able to tell the stories of the great work done at Natick on behalf of our Soldiers.

Dave Kamm and Mike Stepien throughout the year have provided us with great photography that shines in this publication.

We have a great team to tell your stories, and I am lucky to work with all of them.

There have been some changes around here this year. Brig. Gen. Thomas Todd III is our new senior commander; Lt. Col. Ryan Raymond is our new garrison commander; Joe Cooper is the new director of ILSC; Doug Tamilio is the new acting technical director of NSRDEC; and Lt. Col. Frank Moore is the new PM-FSS. Welcome to our new leaders, and may 2016 be a year of more great things coming from the Natick Soldier Systems Center.

In this issue, we'll take you to Norway, look at the Physical Demands Study and find out what is in an MRE. You will also go on a 220-mile ruck march with three USARIEM Soldiers, see our Soldiers coach youth side-by-side with Celtics players, and read about the big hearts of our workforce as nearly 3,000 pounds of clothing and toiletries were donated to homeless veterans.

It truly is an honor to share the stories of the great people here at the Natick Soldier Systems Center. Natick stories have appeared in publications at AMC, TRACOC, IMCOM, RDECOM, Joint Base Lewis-McChord, Fort Bragg, Fort Belvoir, Fort Hood, Fort Leavenworth, Fort Leonard Wood, Fort Lee, Fort Benning, Fort Gordon, Fort Bliss, Fort Wainwright, Soldiers Magazine and the Army, Navy, Air Force and DoD homepages. By telling your story to us, it goes viral.

Thanks for sharing your stories with us. Be safe during the holiday season, and we are looking forward to telling more great stories in 2016.

John Harlow
USAG Natick and NSSC Chief of Public Affairs

NSSC This Month

NSSC

Senior Mission Commander
[Brig. Gen. Thomas H. Todd III](#)

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About this newsletter

NSSC *This Month* is a monthly newsletter covering NSSC news within the Army and commercial media.

NSSC *This Month* is maintained by the USAG Natick Public Affairs Office.

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Cover: U.S. Army photo



NSSC Science & Technology

Pack Man	4
Up on the Roof	6
Cold Truth	8
What's in That MRE?	10
'City-in-a-Box'	12
Better Fit	14
Physical Demands	16
Pattern Emerges	18
Test Case	20
Natick developing new 'Battlefield Kitchen'	23

NSSC Community

Honoring a Hero	26
Best Foot Forward	30
Farewell, Justin	32
'Lucky' Day	34
Green Takes Root	36
Red Tails	38
Troops Coaching Hoops	40
Clothing Homeless Vets	42
Dish It Out	44
Doing What's Right	45



Photo: Tazanyia Mouton, USAG-Natick Public Affairs



Pack Man

Landry designs new rucksack for paratroopers

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (Jan. 30, 2015)

He used to be one of them, so when paratroopers from the [82nd Airborne Division](#) asked Rich Landry to design a rucksack to meet their needs, he was thrilled.

“That’s my past,” Landry said. “This ... is my favorite kind of work, because the whole parachute (piece) is just such an interesting dynamic when you start talking about load and how all the pieces have to work together.”

“It’s a huge challenge, but when it’s a lot of fun, it’s certainly easier.”

An individual equipment designer in Load Carriage Systems, [Product Manager Soldier Clothing and Individual Equipment](#), [Natick Soldier Systems Center](#), Landry spends most of his time thinking about how to lighten the Soldier’s load.

“One of the things we always say is, we don’t do all the critical design work here,” Landry said. “It’s Soldiers that do that. We put it into something tangible.”

In this case, Soldiers were telling Landry that the Modular Lightweight Load-carrying Equipment, or [MOLLE](#), large and medium rucksacks in the Army

inventory were too large and small at 3,000 and 5,000 cubic inches, respectively, for their purposes.

And the MOLLEs, as well as other existing systems, had to be fitted with the current Harness, Single-Point Release, or HSPR, that wrapped around the rucksacks and secured them to the parachutes, making them difficult to pack and unpack. Soldiers also wanted a design that interfaced well with body armor and was as comfortable as possible.

“It took time to set up existing rucksacks with the HSPR,” Landry said. “So that was one of the problems that the 82nd Airborne Division had. They needed flexibility to rig, to de-rig, and to possibly reconfigure the rucksack loads at various phases before the airborne operation. The ability to reconfigure the load was critical.”

Enter the MOLLE 4000, a 4,000-cubic-inch rucksack that Landry designed, using a frame already in the [U.S. Marine Corps](#) inventory as a foundation. In fact, Landry had worked on that pack, as well.

Soldiers also had asked for a permanent harness for airborne operations on the outside of the new rucksack, but Landry’s solution was a removable harness that looked permanent.

[Continued on page 24](#)



Up on the Roof

Natick airbeam technology at Carnegie Hall

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (Jan. 26, 2015)

The wide-reaching, overarching success of airbeam technology is music to Natick's ears. The technology has made its debut in a new incarnation as a part of a surprisingly luxurious rental tent used for a gala on the rooftop of [Carnegie Hall](#).

Airbeam technology consists of inflatable, high-pressure arches. The arches replace metal frames in tents and can be deployed rapidly. The airbeams come in small, lightweight packages. Large shelters and shelter complexes can be set up quickly and with fewer personnel than metal frames.

The [Natick Soldier Research, Development and Engineering Center](#), NSRDEC, along with its industry partners, has a long history of developing the very best shelters to protect the nation's Soldiers and their equipment. Many of the technologies developed by NSRDEC and industry for the military have directly and indirectly resulted in commercial applications.

Todd Dalland, co-founder and president of [Pvilion](#) of Brooklyn, New York, designed the groundbreaking rental shelter for the Carnegie Hall rooftop event.

"The special event tent that Pvilion designed and produced for the rooftop of Carnegie Hall in midtown Manhattan uses airbeams developed by [Federal Fabrics-Fibers](#) for its structural supports instead of aluminum frames," said Dalland. "This represents the first time that high-pressure airbeam technol-

ogy has crossed over from military applications, associated with Natick, to commercial applications."

"This was really an eye-opening demonstration of what this technology can do in the rental tent industry," said Jean Hampel, team leader of the Fabrics Structures Team, part of NSRDEC's [Expeditionary Basing and Collective Protection Directorate](#), and a longtime expert in military airbeam shelters. "It shows the cost is coming down so it can be used in rental tents, and that's a really big commercial application."

Pvilion designed, engineered and produced the shelter, which is the first practical and affordable rental tent using high-pressure airbeams. The company enlisted Federal Fabrics-Fibers to fabricate the airbeams and Anchor Industries to fabricate the fabric top. Stamford Tent installed the shelter at Carnegie Hall.

"Since it's on a rooftop, you can't lay out many large pieces of framework," said Hampel. "Basically, with this, you just unroll it, inflate, and it stands up on its own. This was a very unique capability."

Pvilion began working on various types of shelters with Natick in the late 1980s. Pvilion has collaborated with Natick in three areas, including General Purpose Tents, Flexible PV Fabric Tents, and Airbeam-Support Tents. Pvilion has been involved in the development of high-pressure airbeams for more than 20 years.

"I think Natick may be the best new tent technology incubator in the world," said Dalland. "Natick has the best understanding of where military tents need to go in the future, and they are able to help support small, new tech companies with projects that move tents closer to Natick's vision."

Federal-Fabrics-Fibers of Lowell, Massachusetts, has also been involved in key textile technology collaborations with NSRDEC, including the airbeams used in the Pvilion tent.

NSRDEC, a pioneer in airbeam technology (and shelters in general), guides industry partners with its vast knowledge of military requirements and military textiles to oversee the technology development, the results of which have included airbeam-based military medical shelters, chem-bio protective shelters, aircraft shelters and expeditionary shelters.

"It's safer than a metal frame tent in a storm," said Hampel. "If you're in a metal frame tent, you could have metal falling down on you or what's stored in the tent. With airbeams, they'll bend and pop back up. It's a big advantage."

Natick has been improving and perfecting airbeam technology since the 1970s and began working with Federal-Fabrics-Fibers in the early 1990s. The late Zvi Horovitz established Federal-Fabrics-Fibers with his wife,

[Continued on page 24](#)



Photo: Julie Skerratt Photography, Inc.



Photo: Tech Sgt. Amy Longren

Cold Truth

USARIEM returns to Norway to study arctic conditions

By Kelly Field, USARIEM Public Affairs / NATICK, Mass. (March 3, 2015)



The [U.S. Army Research Institute of Environmental Medicine](#), or USARIEM, once again partnered with the [Norwegian Defence Research Establishment](#) to study nutrition and physiological responses to cold-weather training.

For the second time in three years, researchers from USARIEM traveled to Norway to study Norwegian soldiers participating in cold-weather training. About 75 Norwegian soldiers, from the 2nd Battalion, Brigade North, Norwegian Army, stationed on Skjold Garrison enrolled in this randomized controlled trial.

“The results of our last study showed that short-term winter training alters nutritional requirements,” said Dr. Stefan Pasiakos, a nutritional physiologist with USARIEM’s [Military Nutrition Division](#). “We observed decrements in several markers of nutritional status, including protein retention, suggesting muscle mass is compromised during short-term military training in the cold.”

Pasiakos said this gave researchers the information they needed to design a targeted nutrition intervention to attenuate those effects in Soldiers participating in a similar winter training program. The research team expected to produce physiological decrements that mirrored those observed in their last study.

“Our primary objective was to determine the efficacy of an optimized recovery food product designed for combat rations,” Pasiakos said. “We were trying to identify ways to effectively use nutrition to promote recovery and resistance to muscle loss during military operational stress.”

Pasiakos said that often times Soldiers can experience severe calorie decrements during training because they either quickly strip down rations and remove food with nutritional value because they do not want to carry the extra weight, or they simply do not have the time to eat all the

food they are given. For example, Soldiers threw away about a third of their food rations, causing a severe calorie deficit throughout training during Pasiakos’ previous study in Norway.

Researchers divided the Soldiers into three intervention groups, aimed at testing whether supplementing existing rations with a protein or carbohydrate-based snack product would improve these various markers of nutritional status. USARIEM partnered with [Natick Soldier Research, Development and Engineering Center’s Combat Feeding Directorate](#) to develop and create nearly 5,000 snack products for use in this study.

“The groups were each given their standard combat ration allotment for their training exercise. One

group served as the control and received no additional food,” Pasiakos said. “The other groups received their three rations plus, either four carbohydrate or protein-based snacks, like a First Strike Ration bar or a crispy rice bar.

“By providing easily accessible snacks, we were trying to see to what extent we could actually offset the physiological decrements that occur during severe calorie deficit. If we are able to develop a food product that Soldiers like to eat and also promotes recovery, this would allow us to make some positive changes to our combat rations,” Pasiakos said.

USARIEM researchers also examined the risk of frostbite on peripheral areas such as the fingers, wrists, calves and toes. Dr. John Castellani, a research physiologist with USARIEM’s [Thermal and Mountain Medicine Division](#), said that these areas are the most susceptible to frostbite, but they are the least understood.

“Currently, we have limited information on finger and toe skin temperatures in the field or in an operational setting,” Castellani said. “The information that we collected is important because it will allow us to build biophysical models that will enable Soldiers to choose the correct cold-weather clothing ensembles as well as evaluate if the Army’s cold-weather doctrine for injury prevention is accurate.

“This study will enable USARIEM to provide Soldiers with practical solutions in extreme environmental temperatures so that they continue to perform their mission with a low risk of cold injury,” Castellani said.

Both Pasiakos and Castellani said that these types of field studies are extremely important for them

“This study will enable USARIEM to provide Soldiers with practical solutions in extreme environmental temperatures so that they continue to perform their mission with a low risk of cold injury.”

Dr. John Castellani, USARIEM

as scientists because they provide a level of reality that can not be re-created in the laboratory. While the information collected during this trip is just beginning to be analyzed, USARIEM researchers are excited for the results.

“Typically, field studies give us the most realistic model to test our hypotheses. When military units provide us the opportunity to conduct a study, our mission is to execute strong science without being disruptive to their operations,” Pasiakos said. “USARIEM has a long history of doing just that and, most importantly, it gives us the operationally relevant evidence we need to improve science and, ultimately, warfighter health and performance.”



What's in That MRE?

New online Combat Rations Database can tell you

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (March 16, 2015)

When Soldiers rip open [Meals, Ready-to-Eat](#) in a combat zone, most probably are thinking more about flavor and filling their stomachs than about the nutrition.

That doesn't mean nutrition isn't important, however. The new online Combat Rations Database, or ComRaD, formally launched earlier this month by the Department of Defense's [Human Performance Resource Center](#) (HPRC), provides warfighters, military dietitians, food service officers and leaders the opportunity to learn more about the nutritional value of what's inside those packages. The interactive website can be found at <http://hprc-online.org/comrad/>.

ComRaD is the result of a collaborative effort between HPRC, the [Natick Soldier Research, Development and Engineering Center](#) (NSRDEC), and the [U.S. Army Research Institute of Environmental Medicine](#) (USARIEM) at [Natick Soldier Systems Center](#). The database contains nutrition information about the MRE, First Strike Ration, Meal, Cold Weather, and Food Packet, Long Range Patrol.

Before ComRaD, military customers needed to contact experts at NSRDEC's [Combat Feeding Directorate](#) (CFD) to obtain accurate nutritional information. The lack of public access to this information has left customers to obtain nutritional information from alternate sources that are sometimes unreliable and inaccurate.

Today's increased emphasis on performance nutrition in the military provided the boost needed to get the website up and running.

"Military dietitians expressed a need for publicly available nutrition information that could be used to help educate warfighters on how to properly fuel themselves before a mission, during a mission and post mission,"

said Julie Smith, senior food technologist with the CFD.

In the past, one had to rely on the Nutrition Facts Labels provided on the food component packages to have any idea what was in them. Holly McClung, a research dietitian at USARIEM, said those labels aren't always accurate.

"That's why the website's so important," McClung said. "That's where we want the warfighter and the dietitians to go to, because we know that the nutrition info is accurate and up to date."

How does McClung know this?

"The nutrition information that feeds into the database comes from actual chemical analysis of the food component," McClung said. "That's ... where USARIEM came in. We funded the chemical analysis of food components in the 24-menu MRE and other ration lines, which is difficult, expensive and time consuming."

"This is why it's taken us so long to complete the process. At this website, the user will be able to get nutrition on every individual component, the composition of complete ration lines, and individual MRE menus that are 100-percent chemically analyzed, so we feel confident in the nutritional data."

A quick look at the website would seem to reveal that warfighters are consuming too many calories and that their intake of ingredients such as sodium is too high. The numbers are deceiving, however.

"A civilian might look at what the energy needs are for a warfighter, or look at how much is provided in a ration, and think the rations are providing too many calories and/or fat, etcetera," McClung said. "What they have to realize is that the rations are con-

structed to meet the energy and nutritional needs of physically active warfighters. So, while there may be excessive energy available in the ration for a Soldier sitting at a desk, the ration may just meet the requirements of a physically active Soldier (who is) on (his or her) feet for a 12-hour patrol.

"That's why we hope the warfighter will use the website, as it will help them to figure out how many calories they need and guide them to make good decisions on what they should be choosing to eat," McClung said.

Combat Feeding developed the ComRaD website in collaboration with HPRC, but it's hosted by HPRC.

"Part of their mission is to educate the warfighter," said Smith of HPRC. "Their website provides warfighters and their families with a one-stop clearinghouse for evidence-based information and key resources in all aspects of performance to achieve total fitness and, ultimately, human performance optimization."

The ComRaD website will change over time, Smith said.

"We're already working on ... additional features to the website that will provide ComRaD users with Unitized Group Ration nutrition information, as well as a cart feature that will allow users to track what they have eaten by adding and removing ration components in order to view their overall daily nutritional intake."

"I think that it will be an evolving website (with) future improvements based upon the feedback that we get from users," said Smith, "which is really going to be invaluable."

For more information about ComRaD, email usarmy.natick.nsrdec.mbx.nati-amsrd-nsc-ad-b@mail.mil.

A Soldier digs into a First Strike Ration in the mountains of Afghanistan. Nutritional information about the First Strike Ration and other individual rations is now available at the online combat rations database.



Photo: Michael Stepien, Combat Feeding Directorate



'City-in-a-Box'

Providing shelters for U.N. peacekeepers in Africa

By Bob Reinert, USAG-Natick Public Affairs / NATICK Mass. (March 11, 2015)

While they protect civilians during their stabilization mission in the [Central African Republic](#), or CAR, [United Nations](#) peacekeepers are living and working in [Force Provider](#) base camps procured from Product Manager Force Sustainment Systems at [Natick Soldier Systems Center](#).

In June 2014, U.N. representatives approached the PM FSS Force Provider Team about base camps for the CAR mission. Working with the [Army G4](#), the [Office of the Secretary of Defense](#) and the U.N., PM FSS contracted with the U.N. for six Force Provider Expeditionary 150-person camps at a cost of \$19 million.

It was a new experience for PM FSS, much more accustomed to working with the U.S. military.

"We've never done anything thing like this with ... the U.N.," said Mike Hope, Combat Field Service Equipment Team leader for PM FSS at Natick. "We've done some homeland (security) ... and disaster relief work."

Three Force Provider base camps, pre-positioned in Italy, were established just four months later by a PM FSS technical assistance team and are fully operational, affording U.N. personnel a better quality of life during their deployment to CAR. Three more are in the process of being set up there.

"There was a concerted effort to make this (deployment) go through faster than normal channels," said John MacDonald, lead production manager for the Combat Field Service Equipment Team. "The need was there. They had to get the capability."

The U.N. had begun its critical mission to CAR earlier in 2014.

"(We're) supporting the United Nations peacekeeping effort there that's trying to prevent genocide in the region," said Army Capt. Matt Porter, Force Provider assistant product manager. "The timeline it got done was pretty impressive."

Early feedback from U.N. personnel about the base camps, which feature airbeam shelters, showers, latrines, laundry, and air conditioning, has been nothing but positive, Hope said.

"To have a 'city-in-a-box' show up and be able to rapidly deploy and everything hooks together quickly, to provide that quality of life, is just (great)," Hope said. "Having that plug-and-play system, and they can actually take out any system and put it anywhere they want, even independently? That was big for them."

Still, trained PM FSS personnel are needed to help foreign nationals operate and maintain the camps in remote, hostile locations. Three are deployed now in CAR.

"It's not a safe place," Hope said. "All your protection is by the U.N. There's no U.S. military presence there. It's a touchy (situation)."

"This was one we were really looking at, and we were really worried about it. There's been some concerning moments. There's a lot of fighting going on over there."

As MacDonald pointed out, Force Provider has given the U.N. troops an unusual level of comfort in the field.

"Living conditions tend to go along with the living conditions they're used to in their military and their country," MacDonald said. "We've got a pretty good, high standard ... of living in the field. It's fulfilled a need that maybe they didn't even realize they had."

"Now they've got Force Provider, which is a premier camp. They're doing much better and living much better."

According to Hope, U.N. officials were so impressed with the camps that they now want to purchase more for use in other missions worldwide.

"They're looking to tailor Force Provider to their requirements," Hope said. "It's been really positive. We've got a thumbs-up from everybody."



Shelter photo: PM FSS Background photo: U.S. Navy



Better Fit

3-D shape database improves clothing, equipment

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (April 17, 2015)

A new database at the [U.S. Army Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, is a perfect fit for America's Soldiers.

The ANSUR II 3-D Shape Database uses three-dimensional shapes and contour data to improve the fit of clothing and equipment for warfighters. It incorporates the latest Army anthropometric survey data and 3-D whole body scans, providing a searchable platform for the data and the 3-D shapes.

The center completed the latest comprehensive anthropometric survey of Soldiers, called [ANSUR II](#), in 2012. The previous survey was completed in 1988. The 2012 survey set out to address changes in Army personnel body size and shape, and the resulting data showed that Soldiers have increased in overall body girth since 1988. The new study also set out to document the sizing needs of the increasing number of women serving in the military.

The 2012 data collection included 3-D scans of the head, foot and entire body. This innovation provided geometric and morphological data on military personnel that could not be obtained through traditional body measurement techniques.

Dr. Peng Li, a computer scientist on NSRDEC's anthropology team, is working on a novel approach to use all of the 3-D scan information to define common shapes for items, such as body armor and helmets. Scans provide contour information that is essential for proper fit.

"Peng has been working on tools to make the body scans more accessible and more usable," said Steve Paquette, a research anthropologist and team leader for NSRDEC's anthropology team.

"We developed our own shape descriptor and query method for 3-D body scans," Li said. "It will help determine different shapes for body armor and protection and gear for heads and faces."

"The anthropology team's primary mission is to maintain 'the' data base on Soldier body size," Paquette said. "This has been true since Natick opened. Most of the data over the years have been traditional measurements that you take with calipers and tape measures. With the 2012 study, we also took body scans, and it's those 3-D scans that Peng has been working with. He is actually developing tools for searching 3-D shapes.

"Say if you want to search for someone with a narrow head, or a wide head, Peng has been working on a shape searching tool. We not only collect data on Soldiers, we also develop tools to better use the data."

"The ANSUR II 3-D Shape Database is an integrated database that provides access to both traditional measurements and 3-D scans collected in ANSUR II survey," Li said. "It allows a user to search or query body dimensions and shapes, and to download search results in spreadsheet and 3-D surface files."

The goal was to acquire data from males and females to help Army engineers, scientists and designers develop equipment, clothing, shelters, kitchens, airplane cockpits, and vehicle crew stations that best serve the dimensions of the Soldier. The study included 7,435 men and 3,922 women.

Based on their access to data of body measurements and their ability to analyze the data, Paquette's anthropology team, which includes Li, a computer scientist, and Brian Corner, a 3-D morphologist, played a key role in the design of female body armor.

Women's body dimensions are very different from their male counterparts, and they need equipment designed for them specifically. Smaller versions of items developed for males do not fit female Soldiers properly. Team members devised eight new sizes based on the female anatomy data. They provided statistics based on those theoretical sizes.

"We worked with team leader Annette LaFleur and the design, pattern and prototype team, and they started making patterns based on that data," Paquette said. "Then we took those patterns and got prototypes made of those patterns. And then we put armor on actual women and tested it. Sometimes, you need to adjust the sizes or add an additional size."

Peng's work with 3-D shapes will help researchers to better use the shape data to solve problems of sizing and human interface.

"We work closely with human factors and biomechanics," Paquette said. "It's not just what size they are, but how the human interfaces with the environment or work station. Can they reach? Can they see? Anthropometry is just one piece of the whole picture."

3-D shape data has become an integral part of the product design process.

"First, the database allows the designers to more easily check population distribution with multiple range restriction," Li said. "For example, a designer can check how many subjects in the database fit into a box in three or five dimension ranges such as chest circumference, waist circumference and stature. Secondly, the designers can also look at a real 3-D shape of those subjects. Finally, if a user has advanced CAD [computer-aided design] systems, she or he can transfer 3-D whole body data to a CAD system as a model to be fit with a product's prototype design."

The shapes captured by the scanner help with the design of items where close, accurate fit plays an important role in providing optimum protection, as is the case with body armor, helmets and goggles.

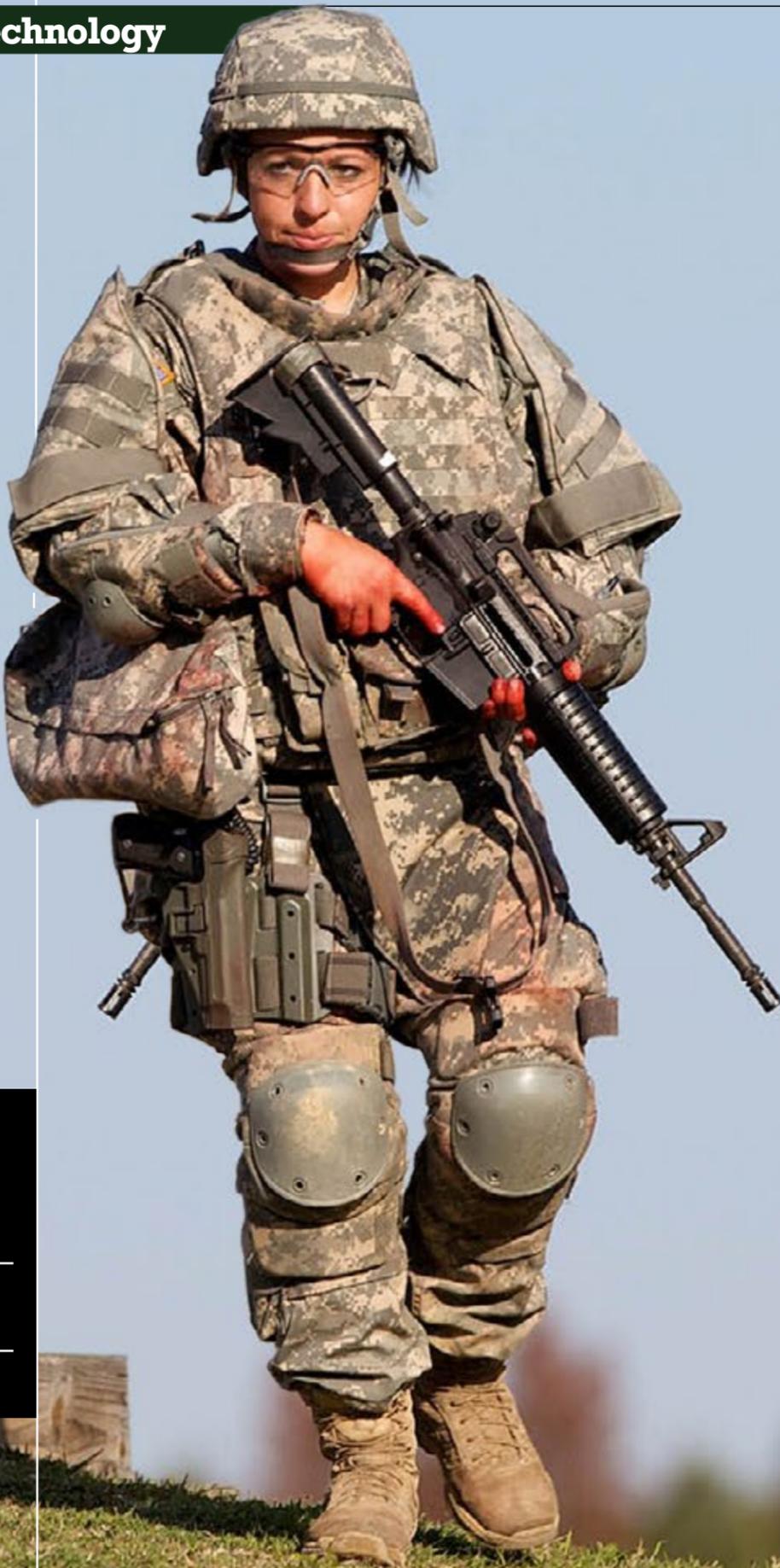
"Comfort, performance, safety and fit - that's what it's all about," Paquette said. "If it doesn't fit right, you don't even want to wear it."

Photo illustration: Philip Fujawa, NSRDEC Strategic Communications





Physical Demands



USARIEM researchers continue study

By Kelly Field, USARIEM Public Affairs / NATICK, Mass. (May 22, 2015)

Researchers from the [U.S. Army Research Institute of Environmental Medicine](#), or USARIEM, traveled to [Fort Carson](#), Colorado, three times this year as they continue to collect data for the Physical Demands Study.

USARIEM is working with the [U.S. Army Training and Doctrine Command](#) as part of the comprehensive [Soldier 2020](#) initiative. The purpose of the Physical Demands Study, or PDS, is to provide valid, reliable and accurate predictive tests to select Soldiers for accession into physically-demanding occupations.

USARIEM's role in this initiative is to examine the physical performance requirement of the specified combat arms occupations and to develop predictive physical tests that will apply uniformly to every Soldier being recruited for these military occupational specialties, or MOSs, regardless of gender, age or ethnicity.

"The Army's scientific approach for evaluating and validating MOS-specific standards aids leadership in selecting the best-qualified Soldiers for each job within the Army profession," said Jack Myers, a planner in the Training and Doctrine Command's, or TRADOC's, G-3/5/7 section. "This will ensure force capability and readiness."

Over the past two years, USARIEM researchers have traveled thousands of miles, conducted several stages of testing, and spoken with hundreds of Soldiers at all levels.

"First, the physically demanding tasks for each combat arms MOS were defined by branch commandants and command sergeants major," Myers said. "We then vetted this through commanders and CSMS [command sergeant majors] from the operational force. The tasks were approved by [TRADOC] and then reviewed by SMA-hosted

[sergeant major of the Army-hosted] board of directors."

Subject matter experts, within each branch, identified 31 physically demanding occupational requirements necessary to be successful in combat MOSs. Once the tasks were identified and verified, TRADOC conducted the first phase of testing to verify tasks, conditions and standards across the operational force.

The 31 tasks were validated by having more than 500 Soldiers from eight brigades - heavy and light units - throughout five installations perform the tasks. While the task validation events were conducted by TRADOC, USARIEM researchers were able to observe the Soldiers in action.

"During each verification, we learned a lot about the tasks while making measurements related to task standards, such as weight lifted, number of repetitions, and distances walked," said Marilyn Sharp, the study's principal investigator from USARIEM.

The first action taken by USARIEM, for the PDS, was to conduct focus group interviews with junior and senior enlisted Soldiers to obtain feedback on the accuracy and completeness of the tasks identified for their respective MOSs. By and large, Soldiers in the focus groups confirmed that the tasks, conditions and standards were appropriate.

USARIEM then observed and measured small groups of male and female Soldiers performing each of the 31 critical tasks in a controlled laboratory environment. This

enabled researchers to take measurements to examine the physiological demands of each task. Measurements included heart rate, respiration, oxygen consumption, perceived exertion and time to completion for each individual Soldier.

"We then observed these same tasks in a more controlled lab experiment, with Soldiers performing tasks to standard in combat gear," Sharp said. "This allowed us to compare measurements like heart rate, oxygen consumption, and the Soldier's perception of how hard they were working."

Sharp said that these measurements were very controlled and that all participants had to complete the task the same way.

Researchers then compared physiological requirements of tasks, skill, equipment, perception of difficulty and importance to MOS.

"We categorized each task by the type of movement needed - lift, carry, pull, et cetera, - and the physical demands, the muscle strength, power, muscular endurance and aerobic endurance, and then ranked the tasks by difficulty level," Sharp said. "The tasks with the highest physical demands were selected as representative of that MOS."

"We reported the critical tasks selected to each schoolhouse and got their concurrence that these would serve as the basis from which we would build the predictive models."

The tasks with the highest physical demands were then simplified into task simulation tests. These simulations captured the physically-demanding aspects, but they removed the highly-skilled portions of the tasks.

The first trip to Fort Carson was used to determine the reliability of the task simulations. Soldiers performed the tasks four times over a two-week period to identify learning effects and to ensure that a Soldier scored similarly over the course of each test. If the test was not reliable or a similar score was not obtained from test to test, the simulation was unsuitable.

Continued on pg. 25



Pattern Emerges

Army to field latest camouflage July 1

By Bob Reinert, USAG Natick Public Affairs / NATICK, Mass. (June 1, 2015)

If you can't see it, you can't attack it.

Since the conflicts of the 18th century, that's been the thinking behind [military camouflage](#). Today, when it's applied to their uniforms, it can save Soldiers lives. That fact has driven the Army's decades-long efforts to improve its camouflage patterns.

The next step toward greater Soldier protection comes July 1, when the Army begins to make the Operational Camouflage Pattern available for the [Army Combat Uniform](#) in select Military Clothing Sales Stores. The pattern will replace the current Universal Camouflage Pattern. The UCP has been used for the past decade.

The transition period for the pattern will extend from July 1, 2015 to Sept. 30, 2019. The entire Army will be in the Operational Camouflage Pattern by Oct. 1, 2019. New Soldiers will receive ACUs with the pattern beginning in January 2016.

The Operational Camouflage Pattern will be made available to the National Guard, Army Reserve and Senior Reserve Officer Training Corps in summer 2016.

Prompted by Soldier feedback about the UCP, the Army in 2010 began providing the Operation Enduring Freedom Camouflage Pattern, or OEFCP, to Soldiers deploying to [Afghanistan](#). During this period, the [Natick](#)

[Soldier Research, Development and Engineering Center](#) also began developing the pattern that was later named the Operational Camouflage Pattern.

The Operational Camouflage Pattern testing and evaluation effort has been described as the most comprehensive ever conducted by the Army. Different camouflage patterns were evaluated for effectiveness in different operating environments with varied terrain, vegetation, seasons, and times of day.

The latest version of the ACU will come in the Operational Camouflage Pattern and will also incorporate changes resulting from Soldier feedback. These include modifications to the collar, pockets, knee and elbow patches, and trouser waistband. Instead of the current sand color, the Operational Camouflage Pattern will be worn with a tan 499 T-shirt and belt, and coyote brown boots.

The introduction of the ACU in Operational Camouflage Pattern is being phased in to reduce the cost to both Soldiers and the U.S. taxpayer. During this four-year period, Soldiers will also be permitted to wear uniforms and equipment in OEFCP.

The phase-in allows Soldiers to use their annual uniform replacement allowance to gradually replace current uniforms as they wear out. It also allows the Army to use exist-

ing stocks of uniforms and other camouflage-printed gear, such as backpacks.

The change is viewed as fiscally responsible. The Operational Camouflage Pattern ACU is expected to have a similar cost to the UCP ACU.

"All enlisted Soldiers receive an annual stipend for the purchase of uniforms and accessories," said [Sergeant Major of the Army Daniel Dailey](#). "I myself will wait until I am issued my clothing allowance before purchasing a uniform with the Operational Camouflage Pattern."

"I encourage all Soldiers and leaders to do the same by budgeting for a new uniform, belt, boots and T-shirts as you receive your clothing allowance over the next two to three years."

During the transition period, Soldiers may mix and match items with either the OEFCP or the Operational Camouflage Pattern. They can also wear OEFCP Flame Resistant ACUs during that time.

"Presenting a professional appearance is very important to Soldiers, but we will not inconvenience or burden our troops," Dailey said. "We will still be the most lethal fighting force the world has ever known, even if our belts don't match for the next few years."

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*Sergeant Major of the Army
Daniel Dailey*



Photo: PEO Soldier



Test Case

Evaluating protective eyewear and soft body armor

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (June 9, 2015)

Researchers, at the [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, have devised new, more operationally-relevant ways to evaluate protective eyewear and soft body armor. These new test methods and apparatus are transitioning to the [Aberdeen Test Center](#), or ATC, and will be incorporated into standardized test operating procedures.

The quick transition to ATC has been enabled by the Science and Technology, or S&T, Objective, or STO, Force Protection Soldier and Small Unit program, formerly TeCD 1b, which focuses on aligning and transitioning science and technology projects to programs of record and various customers.

“STO Force Protection: Soldier and Small Unit comprises 77 projects that are delivering knowledge products, materiel, and test methods - all aimed at understanding and increasing Soldier performance and protection in an operationally relevant environment,” said Jaelyn Fontecchio, STO lead, NSRDEC [Warfighter Directorate](#). “New and relevant test methods are critical to the ability to accurately assess products or systems during their S&T development. As new products emerge through research and development, the use of standard test methods, as is or modified, are not always applicable particularly when dealing with revolutionary or novel products and materials. In many cases, new test methods are required to measure parameters of interest and require an upfront investment. Failure to do so can lead to non-conforming products, shortened product service life, and increased testing costs.”

Natick’s new test methods for protective eyewear and soft-armor protection were needed to evaluate

evolving, state-of-the-art protection and new materials/designs, in situations where previous methods were incapable of testing the new materials/designs accurately.

The new test methods include a soft-armor flexibility test, a soft-armor durability test, an eyewear abrasion test, and an eyewear anti-fog test. The new NSRDEC-developed tests are consistent, accurate, reliable, repeatable, and most important, operationally relevant, to ensure that equipment better meets the needs of Soldiers.

SOFT ARMOR TESTING

Previous test methods, which existed for evaluating soft-armor flexibility and durability were written based on woven fabric constructions.

These methods were inapplicable to new, higher-performance materials, which were not made of woven construction.

NSRDEC developed a flexibility test for soft armor, which consists of a spherical bend procedure that characterizes the flexibility of multilayer, soft armor ballistic panels.

“Previous soft-armor tests didn’t really translate to someone wearing it in a real environment,” said Robert DiLalla, ballistic and blast thrust area manager. “There was no means to say, was this too hard or too soft? So, we came up with a study that took soft armor panels that were comprised of materials of varying stiffness and put them on Soldiers and had them do a set series of tasks. We asked them how the overall comfort was and took goniometer and reach measurements. We then developed a method by which we could take a

Continued next page

Photos: Department of Defense

Test Case continued

sample of that soft armor, plunge it through an eight-inch-diameter hole, and we measured how much force it took to plunge it two inches through. We took all that data of all those designs and compared it to the human-factors assessment. And believe it or not, as you got panels that took more force to plunge, you could see that the Soldiers would say it was too stiff or prohibited range of motion. We found the threshold where Soldiers didn't like it. We also found a lower threshold where they started to say that it was too soft."

Thus, the new test methods are a standardized way to evaluate soft armor based on direct Soldier input.

"It is very simple, reliable and repeatable," DiLalla said. "The apparatus provides an accurate way to test current armor and future designs. The reason that this test is better is that we can actually test a system level, multi-layered system unlike the previous method of measuring the fabric stiffness of a single ply. We wanted to come up with a method that was operationally relevant and that reflected what the Soldiers would think, and at the same time not prohibit new materials/constructions from being used."

The second new test method measures wear durability with an apparatus that subjects an armor sample to load conditions that replicate physical movements used frequently by warfighters - including squatting, bending and twisting - in a single mechanical stroke.

"In this case when we say durability, we are trying to predict wear life or say that the system will at least last for some period of time. If Soldiers are in theater and wear this every day for a year - will the protection hold up to wear over 12 months? We don't want a system that will degrade in performance from normal, expected field use. We developed a test method to measure that. We came up with an apparatus that can mechanically work an armor sample in one stroke, and it's repeatable. Previously, there was no test method available to show how long the ballistic protection would last with typical use."

PROTECTING EYEWEAR TESTING

Previous testing methods for eye protection, including goggles and spectacles, did not adequately test for real-world conditions, including the desert conditions that have been prevalent in many Soldier operations.

"Our eyewear must be scratch resistant, fog resistant, and protect from dust and sand infiltration," said Michelle Markey, NSRDEC

science and technology researcher. "This can be accomplished through design and specialty coatings. More ventilation can mean less fog, for example, but it can also mean more dust and sand gets in. It's a challenging balance that continuously needs to be looked at."

Previously, there wasn't a very reliable, effective test method for the laboratory. So, researchers had to rely on user field test data, which is time consuming and expensive. NSRDEC developed a new fog test and apparatus that measures anti-fog performance and provides quantifiable measurements that apply to real scenarios.

"Instead of having to test products in the field or a large chamber, we can now do it at a laboratory scale," Markey said.

Eyewear for Soldiers also needs to work, as part of a system and in conjunction with a helmet, which made private industry test methods inapplicable.

"Wearing eyewear with a helmet can affect air flow," Markey said. "The existing test methods didn't account for design, style, how it is worn, and the various environmental conditions the eyewear is used in. So, Natick came up with a test methodology to look at all these different considerations.

"A heated moisture bath in the head form is used to simulate heat and moisture from the eyes. Mounting on a head form also allows the space factor between the eyewear and the head to be considered, as well as the effect of other equipment, such as helmets. The environment is also a factor. Is it cold? Is it warm? What is the relative humidity and what effect does it have? The test apparatus addresses all of this, and is enclosed in a chamber, basically creating a miniature controlled environment for consistent test conditions."

SERVICE

This type of testing will improve Soldier safety because Service members will be more likely to keep their protective goggles and spectacles on if they do not have problems with fogging.

NSRDEC also developed a new standard test method for abrasion resistance. The method

incorporates the use of rapidly blowing sand to replicate real-world conditions. None of the previous methods could accurately replicate this type of damage. In fact, eyewear that performed well under previous methods sometimes performed poorly when exposed to the blowing sand test mechanism.

"Abrasion resistance is always a key concern with eye protection," Markey said. "It's a challenge because of the nature of the impact-resistant material we use. It is soft and has to be coated to keep it from scratching. The durability of those coatings must be tested, ideally with something similar to what is experienced in the field. In a desert environment, blowing sand can be quite abrasive."

CONCLUSION

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"People tend to focus on just the products, but they don't realize that behind the scenes we are working diligently to develop new methods to better assess the performance of these products."

Robert DiLalla, NSRDEC

methods to better assess the performance of these products," DiLalla said. "In many cases, old-test methods can't be applied to the new products. So, we need to be the lead, not only in developing these new products, but in developing operationally relevant methods to assess them.

"TECD Force Protection Soldier and Small Unit has been committed not only to developing new material solutions and knowledge products, but also to the development of improved test methods, which is one part of providing better capabilities to the Soldier. The program is set to wrap up at the end of FY2016 with numerous products transitioning to multiple stakeholders."

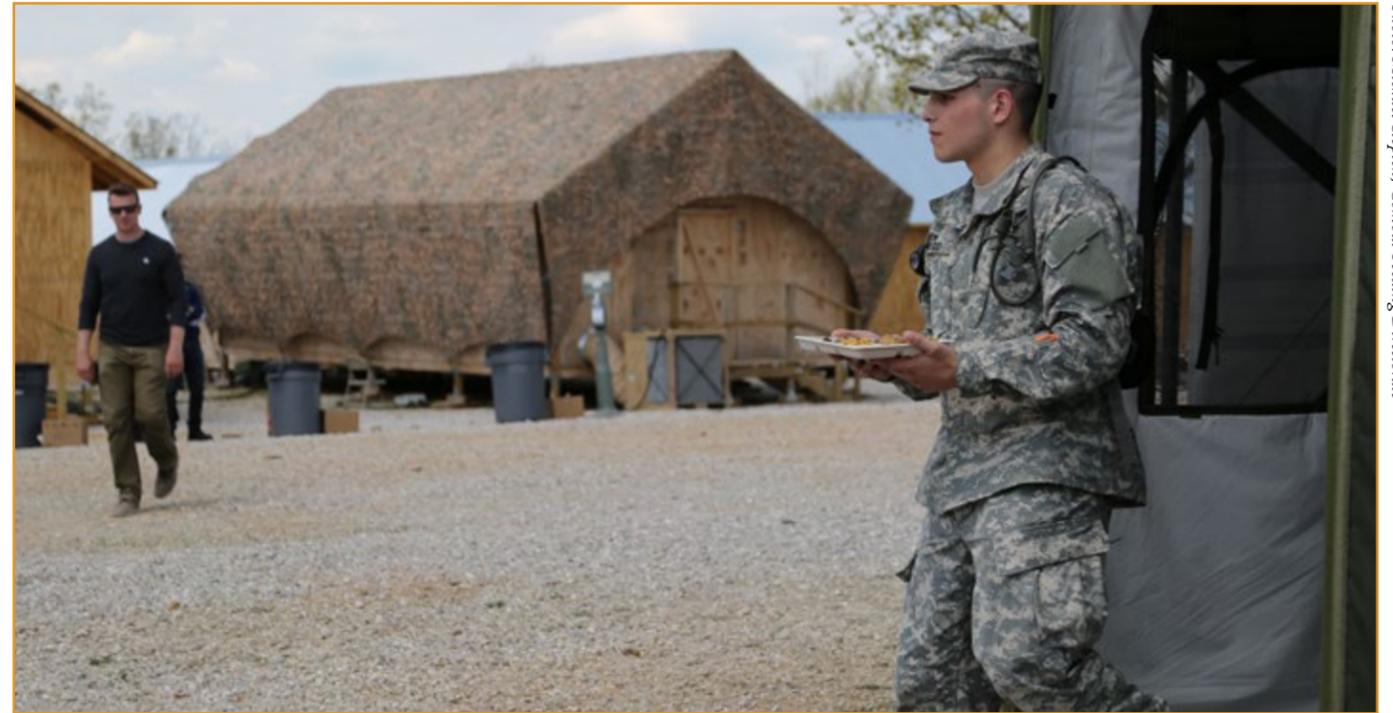


Photo: Michael Seppien, Combat Feeding Directorate

Natick developing new 'Battlefield Kitchen'

By USAG Natick Public Affairs / NATICK, Mass. (Sept. 30, 2015)

Mention "BK" to some people, and a certain fast-food establishment might come to mind. At the [Natick Soldier Systems Center](#), however, those two letters refer to the latest in field feeding technology.

The Battlefield Kitchen, or BK, being developed in a cooperative effort between the [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, and [Product Manager Force Sustainment Systems](#), or PM FSS, is a self-contained, efficient mobile kitchen that can provide up to three hot meals daily to as many as 300 Soldiers during military operations. The BK can serve a full range of individual and group rations.

"It's like walking into a restaurant. It's like walking into a real kitchen as opposed to a piece of military equipment," said Joe Jordan, team leader, Food Service Equipment Team, PM FSS/[Combat Feeding Directorate](#), NSRDEC, who added that the BK would provide "a better ability to provide good meals to the Soldiers."

A trailer-mounted system, the BK can be towed by a truck and can be transported by sea, rail or air. It will replace the [Mobile](#)

[Kitchen Trailer](#), or MKT, which was introduced in the 1970s and uses inefficient open-flame combustion appliances that also vent burner exhaust into the kitchen. The BK features closed-combustion, thermostatically-controlled appliances that will make roasting, grilling, boiling, frying and baking food a cooler, cleaner and quieter process.

"In hot ambient conditions, it gets very, very hot inside of the current kitchens," said Tim Benson, program integrator, field services and field feeding, PM FSS. "[The BK is] going to be a healthier environment for the cooks and the customers, not having the burner exhaust going into the kitchen."

The process also becomes significantly more energy efficient, according to Benson.

"We're looking for at least a 20-percent improvement in fuel efficiency over the current set of appliances, with an objective of 40 percent," Benson said. "But the main benefit of the appliances is that they're closed combustion. The current appliances are open combustion, which means that all the heat and the exhaust and the noise from burners

The BK features closed-combustion, thermostatically controlled appliances that will make roasting, grilling, boiling, frying and baking food a cooler, cleaner and quieter process.

goes into the kitchen environment, and less [heat goes] into the food."

"Using heat from combustion to directly heat the appliances is so much more efficient than using electrically powered appliances," Jordan said. "A kitchen this size can use a 3kW generator as opposed to a 30kW or 60kW generator required by electric appliances. That allows the kitchens to be truly expeditionary, carrying the generator right onboard the kitchen while still providing a quiet and quality product."

The BK appliances aren't only more efficient, they produce better results.

"The appliances are designed with heat exchangers that better distribute the heat so that you get more uniform, better quality cooking, on average," Benson said. "You're capturing all that heat that used to escape into the environment, [and] putting it [where] it needs to go."

The Army expects to acquire about 1,500 of the systems, which also include running water, refrigeration and on-board power generation. Development should take place in fiscal years 2016-18, and production is planned to begin in FY 2019.

“Why should we have two to three pounds of excess equipment permanently attached on that rucksack that they’ve got to carry around with them?” Landry said. “This is so simple. It’s a (minute-long) process. Normally, when you’re rigging a rucksack with the removable standard (HSPR), it can be as long as a 10-minute process, especially when you’ve got new ... paratroopers that haven’t done it before or haven’t done it very often.”

Landry said the removable system is more cost effective than a permanently sewn harness, which could add as much as \$200 to the cost of a rucksack. He added that any failure in either the pack or the harness would leave the other reusable, avoiding replacement of the entire \$400 system.

The MOLLE 4000 tested well, but Soldiers recommended a few more modifications, such as a stronger carry strap, side compression straps and — most importantly — a flap closure on top to replace the original zip closure. The flap will allow for load flexibility when necessary and be more durable when released and lowered to the bottom of a 15-foot lowering line during a jump.

“We got it right (as) to what their concept was, but then we learned in the technical testing that we needed to change the design slightly,” Landry said. “We all learned something, and that’s fine. That’s what you want. That’s why you test.”

The current version will go into safety certification testing during March and be operationally tested in late spring at Fort Bragg, North Carolina. Upon completion of a yearlong user assessment, airborne units could receive their first MOLLE 4000s before fiscal year 2017.

The final product could have applications beyond airborne operations.

“This pack can be used by any unit in the Army if they’ve got a size requirement like this, and all they do is remove the harness,” Landry said. “It can be an Army common item at some point in time, and wouldn’t that be great?”

“Once it gets on the ground, it must carry the load efficiently, because once a paratrooper lands, the pack’s job really begins, and the mission is to be as fast and effective as possible in the fight.”

And Landry said he hopes that others might see the utility in that.

“To have a service-common pack of this design,” Landry said, “would be really the ultimate goal.”



Photo: Julie Skerratt Photography, Inc.

Bracha Horovitz, in 1991, and NSRDEC’s collaboration with Horovitz resulted in key innovations.

Hampel said that the circular loom used by Horovitz was much better suited for inflatable fabrics than the usual flat loom and that Horovitz developed a computer-controlled device that could weave a curve into a tube. The innovation greatly advanced and improved airbeam technology, making airbeam shelters more durable, easier to set up, move and maintain.

“As we were working with Zvi, we guided the research with our expertise in military textiles — it must be flame resistant, abrasion resistant, etc.,” said Hampel. “We added that knowledge to make sure we ended up with a product that would work in a military environment.”

NSRDEC and Federal-Fabrics-Fibers also overcame the big challenge of preventing air leaks through seams by creating seamless airbeams.

Bracha Horovitz serves as president and CEO of Federal-Fabrics-Fibers and continues the company’s dedication to serving the needs of both the military and commercial sector.

“Zvi was an innovative guy who generated the idea, and Bracha has kept the technology alive and made many improvements,” said Hampel.

“We feel exceptionally fortunate to have a successful relationship with NSRDEC and are proud to make such an impact in the world of military shelters in creating an automatic-deploying tent that fulfills the needs of our warfighters on expeditionary operations,” said David Retter, director of sales and marketing at Federal-Fabrics-Fibers.

Hampel has seen impressive developments in airbeam technology over the years. One application, in particular, stands out most in her mind.

“The Chemically and Biologically Protected Shelter, which incorporates Federal-Fabrics-Fibers airbeam technology, is the first type of medical facility that a Soldier would see in the field,” Hampel said. “These shelters were used during the first Gulf War and saved lives as they provided an environmentally conditioned environment, which prevented shock and provided a capability for advanced medical care.”

Continued from pg. 17

Once the reliability of the task simulations was established, a suite of predictive tests was selected by subject matter experts.

The predictive tests are physical-fitness-type tests. The same Soldiers performed the task simulations and the predictor tests to develop a test battery to predict performance on the task simulations. This aspect of testing is called the test validation phase and involved field artillery, armor and infantry task simulations.

Two more field studies will be conducted during the summer on Fort Stewart and Fort Riley. This will complete the data collection for the predictive test validation phase. The data will be analyzed, and recommended courses of action will be presented to TRADOC.

“It’s very deliberate and it’s very scientifically based,” said [Gen. David G. Perkins](#), TRADOC commanding general, of the study. “One (advantage) of it is it’s giving us really concrete data that’s quantifiable and measurable. It’s really giving us insight even beyond what it originally was chartered for.”

Perkins lauded USARIEM’s work on the study.

“It’s invaluable, really, because for one thing, they’re extremely responsive,” Perkins said. “The fact that you can do it all in house ... we’re much more innovative. We can adapt more quickly to rising insights. You really can innovate and adapt much quicker.”

Sharp said that developing valid, reliable and accurate predictive tests to be used to select Soldiers to serve in the physically demanding occupations is essentially what these past couple years have been all about for her and her team. While the study still has a few more months to go before being wrapped up and all the data are analyzed, Sharp is excited about the results.

“We want a battery of four to seven predictive tests that will give us a good idea if a Soldier has the potential to be successful in that MOS when they are called upon to perform the physically demanding tasks expected of them,” Sharp said. “We are looking for tests that could be used early in a recruit’s career and be safe and cost-effective.”

“They must also use little equipment, require little training and experience, and most importantly, be representative of the most physically-demanding aspect of a military occupation. The goal is to help find the right Soldier for the right job.”





1st Lt. Matthew Greene unveils the sign for "General Greene Avenue," the roadway leading to the gates of the Natick Soldier Systems Center, or NSSC, which was renamed July 10, 2015, in honor of his father and NSSC's former commander, Maj. Gen. Harold J. "Harry" Greene, who was killed in Afghanistan, Aug. 5, 2014.



HONORING A HERO

Town of Natick dedicates 'General Greene Avenue'

By Bob Reinert, USAG Natick Public Affairs / NATICK, Mass. (July 10, 2015)

To honor a former [Natick Soldier Systems Center](#) commander who was killed in [Afghanistan](#), the [Town of Natick](#) renamed the street that leads to the installation's gates, July 10.

"General Greene Avenue" was dedicated in the name of [Maj. Gen. Harold J. "Harry" Greene](#), who died Aug. 5, 2014, at age 55. At the time of his death, he was deputy commander of the Combined Security Transition Command.

Greene became the highest-ranking U.S. officer killed on foreign soil during wartime since the [Vietnam War](#). He had served as Natick's senior commander from 2009 to 2011.

The dedication ceremony was attended by his widow, Dr. Susan Myers, children Army 1st Lt. Matthew Greene and Amelia Greene, daughter-in-law Kasandra Greene, father Harold F. Greene, and brothers Jon Greene and Steve Greene. The ceremony featured the unveiling of the street sign on the corner of North Main Street and the former Kansas Street.

Myers said that Greene loved Natick not just because he was a Massachusetts native and the state was home to his favorite teams, but because the installation's mission was so important.



"I especially loved Harry's gift of translating complex ideas so that everyone could understand what needed to be done and then encouraging us to do and be our best,"

Myers said. "Many of you know how he loved to make this tough work fun but also ensure that we planned for the future, such as getting resources to improve facilities, to recognize people for their excellence, and to thank us for supporting him."

After the dedication, a "Soldier's Cross" - consisting of a bronze helmet, inverted rifle with bayonet, and combat boots - was revealed near the NSSC main gate. The memorial to Greene was funded by Hanscom Federal Credit Union, and the Natick Veterans Relief Fund donated the benches placed near it. The memorial bears a plaque that includes Greene's name, dates of his birth and death, the years of his command at Natick, and this inscription: "A Soldier's Soldier who truly served his Nation with honor."



Left: The Natick police color guard marches by the sign for General Greene Avenue shortly after its unveiling in Natick.

Below: The "Soldier's Cross" memorial to Greene is unveiled near the NSSC front gate.



The dedication of General Greene Avenue marked the end of a year-long, \$2.5 million project to improve the roadway. The collaborative effort involved the Town of Natick, the [Commonwealth of Massachusetts](#) and NSSC.

Josh Ostroff, of the Natick Board of Selectmen, called it a "worthy endeavor," noting that the man for whom the avenue is named "encouraged collaboration and teamwork. He loved his country and he used his unique skills as an engineer, a communicator, a team builder and a leader to serve the nation, and that was the hallmark of his career and of his time leading this base."

Ostroff also read letters from U.S. Sen. Elizabeth Warren of Massachusetts, U.S. Sen. Ed Markey of Massachusetts, and U.S. Rep. Katherine Clark of Massachusetts.

Massachusetts State Senate and House of Representatives resolutions were read by Sen. Richard J. Ross and Sen. Karen E Spilka, and Rep. David Linsky, respectively.

Maj. Gen. Scott Rice, the adjutant general of the Massachusetts National Guard, attended Rensselaer Polytechnic Institute with Greene. He related a piece of advice that Greene was fond of sharing.

"He said, 'Everything you do - everything - is about people,'" Rice recalled. "I thank God for that time that I had with my friend, Harry Greene, and his family."

Brig. Gen. William Cole, current NSSC senior commander, recalled how Greene was once his boss and how he would rise early one day each week for a video teleconference with Cole, who was in Afghanistan.

"I loved working for Gen. Greene," Cole

said. "He always helped me solve problems and meet challenges. Whenever we spoke, he gave me 100 percent of his attention and shared smart advice that came not only from his head, but also from his heart.

"He was a universally admired leader. I thank God for having put Gen. Greene in our lives, and I ask that we all do our best to exemplify his legacy of selfless leadership."

John Harlow, Greene's public affairs officer at NSSC, remembered the fun-loving side of his former boss. He asked those in attendance to adopt some of Greene's zest for life.

"Smile a little more often, laugh a little more often, and truly care about the people around you," Harlow said. "If you do that, there will be a little bit of Gen. Greene in each and every one of you."

Myers said that Greene loved the people of Natick like they were his family.

"Harry loved the challenge of helping find sustainable and effective solutions to tough problems and was not afraid to tell people what he thought they needed to hear," said Myers, "even if it was not popular or something we wanted to hear.

"We can do better like Harry did by taking responsibility, accountability and leading

by example. Thank you for your dedicated service and for helping us carry Harry's legacy forward by actively contributing to the betterment of our families, communities, nation and the world."

Myers joked that Greene was always working on his social skills while at Natick.

"Harry loved to get to know as many of you as possible because he genuinely cared and loved you as he loved his family," Myers said. "He loved the joke about the extrovert engineer being the one who looked at other people's shoes instead of his own."

After the ceremonies, Greene's son spoke about memories of his father.

"I would remember my father as a very intelligent man," Matthew said. "He was someone that was probably one of the Army's leading technological innovators. He liked to shake things up."

"My father was a hard worker, a dedicated Army man. He spent a lot of time on the road, especially as I got older, making sure that he fulfilled his duties to the country. But there was always time and opportunity ... for his family."



"I would remember my father as a very intelligent man. He was someone that was probably one of the Army's leading technological innovators. He liked to shake things up."

1st Lt. Matthew Greene



Best Foot Forward

Ruck marching from Boston to New York to prevent veteran suicides

By Bob Reinert, USAG Natick Public Affairs / NATICK, Mass. (Aug. 27, 2015)

Two Soldiers and an Army Reservist who work at the [U.S. Army Research Institute of Environmental Medicine](#) at Natick Soldier Systems Center will ruck march Sept. 8-11 from Boston to New York to raise money for a charity seeking to reduce veteran suicides.

Kristen Heavens, a Reserve first lieutenant who came up with the idea, Staff Sgt. Shaun Morand and Spc. Sonya Edler will be part of a team from Active Heroes' Carry the Fallen – Team Minuteman who will share the 220-mile march from the Massachusetts State House in Boston to New York's Freedom Tower with approximately 50 pounds on their backs.

The team will arrive in New York on the 14th anniversary of 9/11 to raise awareness of veteran suicides and to remember all those who lost their lives on and since that fateful day in the fight against terrorism. They will then participate in the Carry the Fallen – 9/11 Memorial Ruck on Sept. 12 in New York.

They will raise funds to support Active Heroes, which is building a military family retreat center in Shepherdsville, Ky., in hopes of reducing the 22 suicides occurring daily among veterans. That's more than 8,000 each year, or in excess of 100,000 since 9/11. The Boston-New York ruck march will symbolically cover 10 miles for each of the 22 daily suicides.

By doing the ruck march, Heavens, Morand and Edler will honor Justin Fitch, the retired Army major who finished his career at Natick and has terminal colon cancer. Fitch, the former Team Minuteman leader, has devoted his remaining days to ending veteran suicides. As they ruck march, the team will carry Fitch's gear.

"He wakes up to pain every, single day — physical, mental, everything," said Heavens of Fitch. "Yet, he still chooses to drive on and still chooses to be positive."

Fitch, now living in Wisconsin, is obviously touched by what his former teammates are doing in his name.

"I am humbled and honored by this meaningful effort from such great members of my team," Fitch said. "While it has my name attached, it is not about me; it is about the 22-plus veterans committing suicide daily.



"One of the biggest things I always say is, everybody has their baggage — it's all how you carry it. And this is to kind of symbolize that we'll carry it with you. We want to help you, and we're here for you. We'll carry it for you."

1st Lt. Kristen Heavens

"These are all good things — exercise, discussion, camaraderie, fundraising and awareness. I just wish I could be out there physically with them, but it is beyond (my) limits."

The three Soldiers from Natick, who are using leave and vacation time to do this ruck march, will be pushing their own limits. While all of them have done charity rucks in the past — including Heavens' grueling 54.4-mile effort back and forth on the [Boston Marathon](#) course — none has tackled anything close to this epic trek through Massachusetts, Rhode Island, Heavens' and Morand's home state of Connecticut, and New York.

"The distance that we're traveling is much further than we'll have traveled in the past," Morand said. "You'll ruck for six hours, then

you'll be logistics support for six hours, and then you'll sleep for six hours, ideally."

Two or three ruckers will march at a time. They will be followed by support crew in a pair of vans, one of which will have seats removed to accommodate sleep.

"All of the logistics are going to be challenges," Heavens said. "The physicality of this is going to be a challenge. Obviously, your body's not used to all of this."

The day after they arrive in New York, they will add a symbolic 9.11 miles in the 9/11 event.

"Getting started that morning is going to be tough," Morand said. "Getting your feet going that morning is going to be tough."

"We'll make it through that," Heavens said. "Nine miles after you've done 220 shouldn't be tremendous. I mean, we can kind of push through that."

If motivation wanes along the way, the three need only remember the cause they are supporting.

"I think just the fact that we've got 22 veterans a day committing suicide is just appalling in this country," Morand said. "So, something needs to be done, and to raise that awareness is, I think, such a high priority."

Heavens agreed that it's all about focusing attention on veteran suicides.

"One of the biggest things I always say is, everybody has their baggage — it's all how you carry it," Heavens said. "And this is to kind of symbolize that we'll carry it with you. We want to help you, and we're here for you. We'll carry it for you."

For additional information about the Boston to New York City ruck march, visit <https://fundraise.activeheroes.org/fundraise?fcid=484177>.



Photo: Tazariya Mounir, USAG Natick Public Affairs



Farewell, Justin ...

Cancer claims crusader against veteran suicides

By Bob Reinert, USAG Natick Public Affairs / NATICK, Mass. (Oct. 5, 2015)

A retired Army major who had devoted the final months of his life to raise awareness of veteran suicides died of colon cancer after a long, courageous fight.

Maj. (Ret.) Justin Fitch, 33, the former Headquarters Research and Development Detachment commander at [Natick Soldier Research, Development and Engineering Center](#), died Oct. 3 in his hometown of [Pleasant Prairie, Wisconsin](#).

Fitch used his own story to shed light on veteran suicides. While serving in Iraq in 2007, Fitch had contemplated taking his own life. He got to the point where he was sitting in his shipping-container sleeping quarters with the barrel of his M-4 rifle in his mouth.

"It's OK to seek help," Fitch said later. "You can get help. Look at me."

His victory over suicide and subsequent three-plus-year cancer fight became a compelling human interest story that attracted national media attention, giving a platform from which he pointed out that 22 veteran suicides were occurring daily. He often noted that some 8,000 veterans — more than all those service members who had died in the entire Global War on Terrorism — had killed themselves each year.

"We're raising awareness, and that's very important," Fitch said last April. "Part of fixing a problem is knowing that a problem exists. (Suicide is) a very taboo topic with a lot of stigma. It's just not talked about."

Fitch endured dozens of chemotherapy treatments and numerous surgeries while continuing his duties as HRDD commander at Natick, serving as a powerful example for his Soldiers. In his off hours, Fitch participated in long ruck marches as the leader of "Team Minuteman," part of the ["Carry the Fallen"](#) organization that works to raise awareness of veteran suicides.

Though doctors once gave him just months to live, Fitch shrugged off their estimates to continue what he always called his "final mission," reducing the number of daily veteran suicides to zero. He would go to any lengths to tell that story — even if it meant allowing a TV crew in to shoot video while he received chemotherapy.

More than once during a media interview, Fitch had to apologize, stop suddenly, and allow a wave of pain to wash over him. He would then collect himself and continue to answer more questions.

Because his own story of near-suicide was playing out so publicly, Fitch was often approached by other veterans who were at risk. He gave out his cell phone number freely, and he answered that phone whenever it rang — day or night.

Though doctors once gave him just months to live, Fitch shrugged off their estimates to continue what he always called his "final mission," reducing the number of daily veteran suicides to zero.

"If all we do is just save one life, one that wouldn't have been saved otherwise," Fitch often said, "I say that's mission success."

Soldiers and civilians at [Natick Soldier Systems Center](#), Fitch's last duty station before his medical retirement in December 2014, paused for a moment of silence Oct. 5 at the flagpole in front of the NSSC headquarters building. Many also took time to share their favorite memories of him.

"He was a commander who took care of his Soldiers," said Brig. Gen. William Cole, NSSC

senior commander. "He took the time to get to know them, learn about them and share with them. He gave them wise counsel on how to succeed in the Army and also in life.

"If anyone represented what Ready and Resilient means ... it was Justin Fitch. Our Army is better because Major Fitch served. The Natick Soldier Systems Center is better because Major Fitch touched so many here."

Kristen Heavens said that she found it difficult to find enough words to describe Fitch.

"He woke up every morning knowing that he would be in pain, yet he made the decision to not only fight it head on, but to have a positive outlook," Heavens said. "This man embodied each of the Army values deeply, and I'm honored to have known him."

His former first sergeant, Brian Gemmill, recalled how Fitch always went the extra mile to achieve what others thought couldn't be done.

"His mental resiliency far outmatched his physical state, and he never let his cancer slow him down," Gemmill said. "I think that everyone who knew him feels the same way. Justin Fitch lived his life and died trying to solve complex problems, never giving in to common excuses and absolutely never taking no for an answer."

Staff Sgt. Shaun Morand spoke of Fitch's leadership qualities, which he witnessed at Natick.

"He didn't stop leading Soldiers when their military time was done, or even when his was," Morand said. "He just took care of them with every bit of strength he could muster and until his final breath. I'm proud to have known him, and I hope to carry on his mission and make him proud.

"His legacy carries on in the lives he saved and the lives he changed."

"If all we do is just save one life, one that wouldn't have been saved otherwise, I say that's mission success."





Photo: Michael Stepien, NSRDEC



'Lucky' Day

Celtics mascot visits NSSC

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (Dec. 11, 2014)

Given the time of year and his attire, the Soldiers and civilians at the [Natick Soldier Systems Center](#) could be forgiven if they rubbed their eyes Dec. 11 after momentarily thinking that they had just seen an elf at the base.

Actually, the diminutive visitor sporting the shamrock-accented costume turned out to be "[Lucky the Leprechaun](#)," the team mascot of the hometown [Boston Celtics](#), who was touring Natick as part of a Department of Defense/National Basketball Association initiative known as "Commitment to Service."

This collaboration between DOD and the NBA features Service members and athletes voluntarily working side-by-side to serve and improve communities throughout the U.S. The effort's four "pillars" include community, health, leadership and transition.

In introducing Commitment to Service earlier this year, Gen. Martin E. Dempsey, chairman of the Joint Chiefs of Staff, spoke of the initiative's great potential.

"Through 'Commitment to Service,'" said Dempsey, "we can help others understand the military, continue to find innovative ways to address the needs of communities in which we live and work, and foster a spirit of service across the country."

Lucky arrived at Natick wearing a modified version of his leprechaun costume, which featured camouflage, the American flag and white Shamrocks. He blended in nicely as he chatted with Soldiers.

He routinely performs trampoline-powered, acrobatic dunks during Celtics games, so Lucky kept his energy level high at Natick. After sampling combat rations and meeting with Soldiers, he braved 40-mph winds in Natick Soldier Research, Development and Engineering Center's Doriot Climatic Chambers, walked a treadmill in "full battle rattle," donned a free-fall parachute, and tested his shooting ability in the Engagement Skills Trainer.

At the Department of Defense Combat Feeding

Directorate, Lucky sampled the Asian beef strips after warming them in a flameless ration heater.

"I could get used to this," Lucky said of the food. "This is good. This is better than what I make in my kitchen."

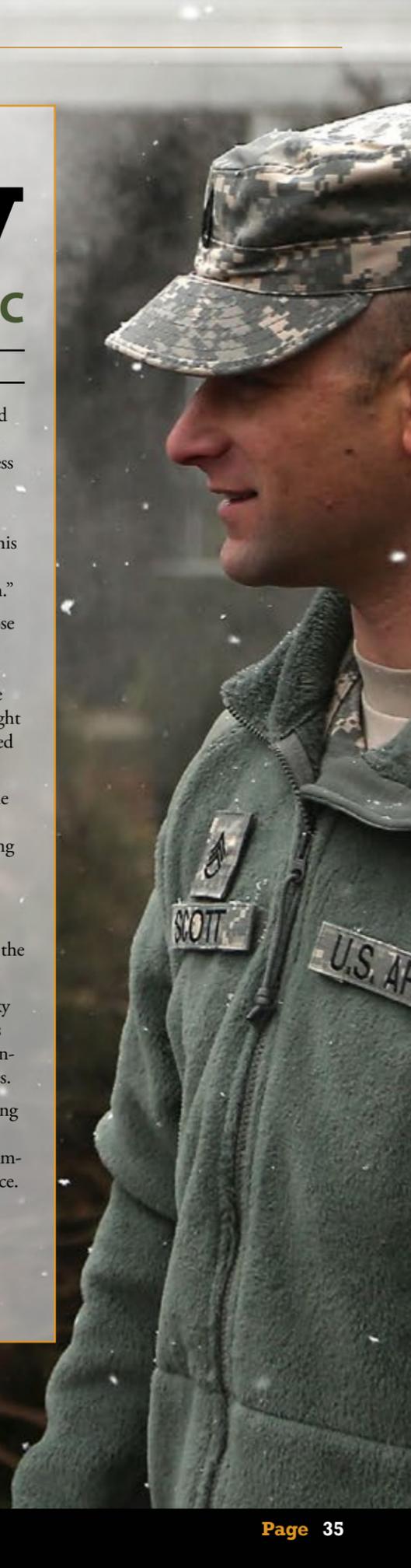
He burned off some of those calories on the treadmill, adding his own touch by spinning a green and white Celtics basketball on his right index finger as he negotiated a nine-percent grade.

From there, it was on to the Engagement Skills Trainer, where he simulated shooting an M4 carbine.

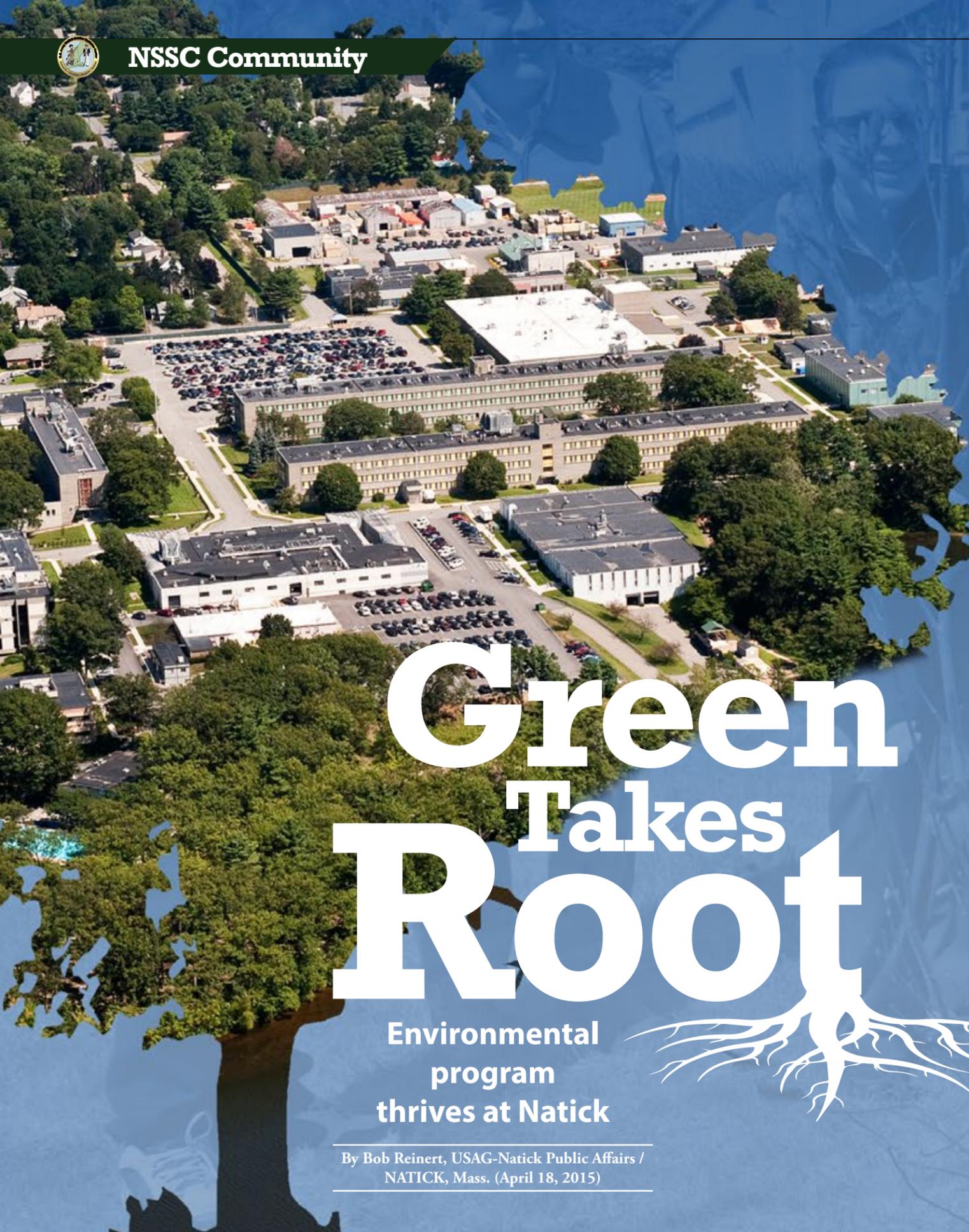
"It's got more kick than I thought it would," Lucky said. "Am I anywhere near the target?"

Throughout the visit, Lucky asked thoughtful questions and obviously enjoyed learning about what Natick does.

"I'm fascinated by everything that goes on here," Lucky said. "So, basically, it's for improving Soldier performance. I guess that makes sense. Soldiers are athletes."



Inset Photos: Rob Hawley, NSRDEC Strategic Communications



Green Takes Root

Environmental program thrives at Natick

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (April 18, 2015)

Given that the [Natick Soldier Systems Center](#) occupies a mere 78 acres on a peninsula tucked between [Lake Cochituate](#) and a residential area, you might not believe that the installation could have a robust environmental program underway.

Yet, the Army research and development center's six-person Environmental Office is addressing everything from groundwater cleanup to green procurement training.

"We continually work at it with limited resources," said John McHugh, U.S. Army Garrison-Natick's environmental chief, who has been here for 23 years. "We've done continuing improvements."

McHugh said he has seen great progress on environmental matters since arriving here in 1992 after the installation was identified as a "Superfund" site by the [Environmental Protection Agency](#) following a transformer rupture in the mid 1980s discharged PCBs into Lake Cochituate.

"A lot was happening at that time," McHugh said.

The cleanup included the removal of three PCB hot spots from Pegan Cove, which was completed in 2010.

"That came in as a very successful project," McHugh recalled. "That came in under budget and on time."

Natick also began treating its groundwater in 1998. That effort will continue until 2025.

"We've already treated 500 million gallons of water," McHugh said. "It runs 24/7."

As McHugh pointed out, some of that groundwater is reused by NSSC for such non-drinking purposes as fire flow, heating and cooling make-up water, watering lawns and commodes. As much as 30,000 of the 50,000 gallons treated each day are reused.

"Which is nice, because we don't pay for it," McHugh said. "It's about 40 percent of our water consumption, roughly."

For years, the Environmental Office has worked to rid the installation of mercury

used in research and development. Also, all 5,500 chemicals used by researchers here are inventoried on a database that keeps track of their locations.

In a major project recently completed, Natick removed six 20,000-gallon underground tanks that once held No. 6 heating oil for a boiler plant that is no longer used.

"Once we removed (those), we removed a huge environmental liability," said Rich Valcourt, a Natick environmental engineer. "No longer ... do we have a fossil fuel in the ground. Getting rid of that was huge."

The nearby lake added urgency to the process, Valcourt said.

"The last thing we needed was to have an incident where the ... tanks rusted out somewhere, and then we were leaking fuel into the ground," Valcourt said. "Then you're talking an extremely large and expensive remediation."

At the same time that Natick was removing the oil tanks, two 2,000-gallon gasoline and diesel tanks at the central fuel point were also unearthed. They were replaced by a compartmentalized, above-ground storage tank and a new dispenser, which are far better for the environment.

"Because you can see leakage," said McHugh, "a lot of the significant testing is gone."

Single-stream recycling has been another success story at Natick.

"We've done well, because we're actually diverting over 50 percent of our waste stream from solid waste," said McHugh, noting that goal was reached in about five years. "We could do better. We're going to continue to work on changing people's attitudes."

"We've met the ([Department of Defense](#)) goals. A number of installations have not met the DoD goals to divert 50 percent out of the solid-waste stream."

Natick reached the DoD goal with time to spare.

"We hit that a year early," said Lt. Col. Brian Grea, USAG-Natick garrison commander. "It was a 2015 goal. We hit 50 percent in 2014."

"There are recycling bins all over this post. There are only so many landfills."

According to Valcourt, [U.S. Army Public Health Command](#) will arrive soon to conduct a "solid waste characterization study."

"They will go through our waste and sort everything," said Valcourt, "and they'll be able to tell me how much is being recycled, how much is not being recycled, how much is

"We're actually diverting over 50 percent of our waste stream from solid waste. We're going to continue to work on changing people's attitudes. We've met the (Department of Defense) goals. A number of installations have not met the DoD goals to divert 50 percent out of the solid-waste stream."

John McHugh, USAG-Natick environmental chief

biodegradable, how much is compostable. They're going to give a complete breakdown."

Natick has also begun recycling scrap metal, and the proceeds are placed in a Qualified Recycling Program, or QRP, account. The moneys can then be used to fund the QRP, pollution-prevention projects, or Family and Morale, Welfare

and Recreation programs.

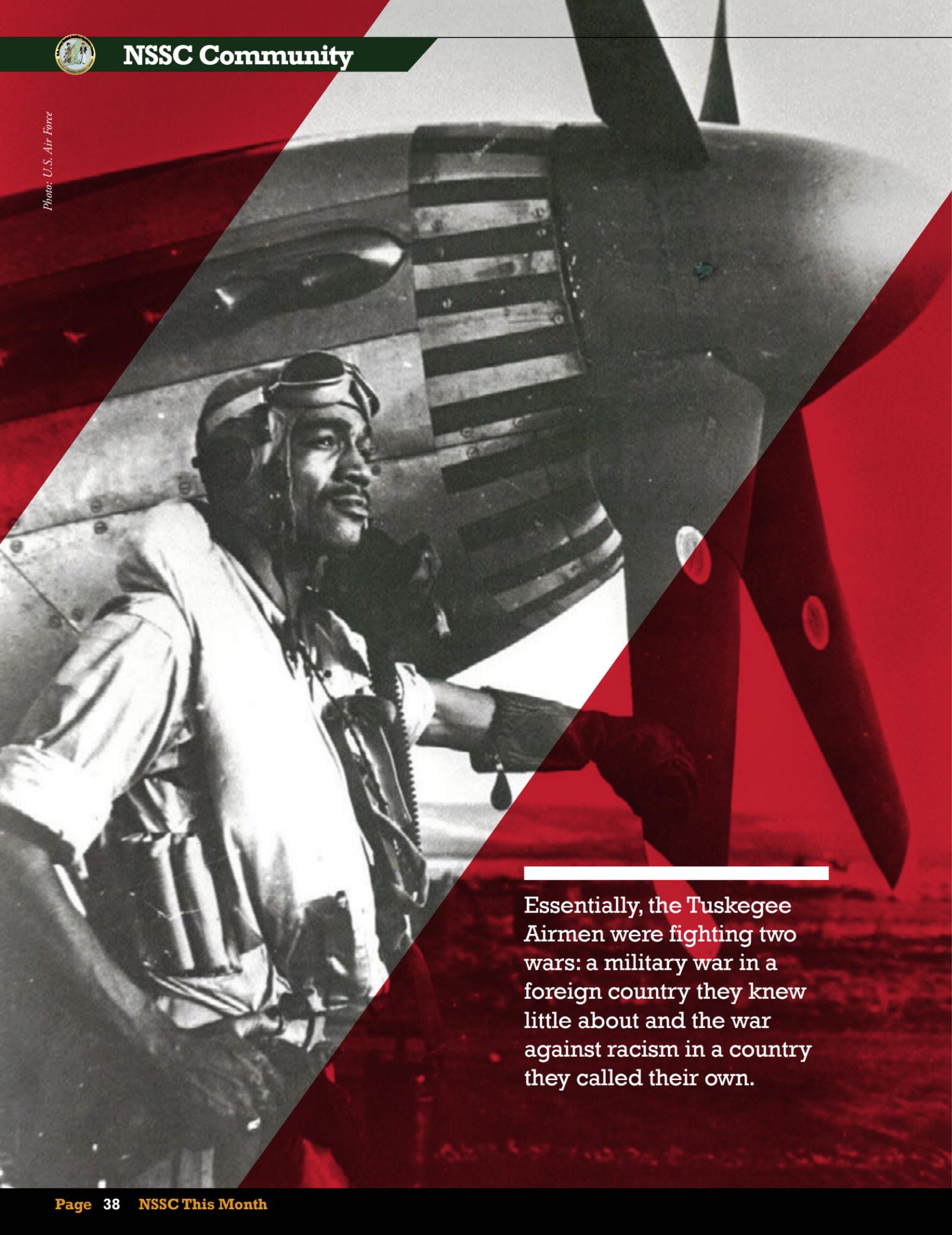
"We don't generate that much money; however, it's something," Valcourt said. "If it's one dollar that I can save the installation, and use it to do good things here ... then ... that's what we'll do."

According to Valcourt, the next big initiative for the Environmental Office is to support the "Zero Waste Cafeteria," a [Natick Soldier Research, Development and Engineering Center](#) Program Bootstrap Innovation

Continued pg. 47



Photo: U.S. Air Force



Essentially, the Tuskegee Airmen were fighting two wars: a military war in a foreign country they knew little about and the war against racism in a country they called their own.

Red Tails

Tuskegee Airmen share their experiences at Natick

By Tazanyia L. Mouton, USAG-Natick Public Affairs / NATICK, Mass. (Feb. 20, 2015)

Members of the [Tuskegee Airmen](#) spoke Feb. 19 at the [Natick Soldier Systems Center](#) during the African American/Black History Month observance.

Willie Shellman, president of the New England Chapter of the Tuskegee Airmen, gave valuable history before introducing the program's guests for a question-and-answer session with the audience.

"Beginning in World War I, and throughout the history of the United States, blacks have participated in every armed conflict and served with honor and valor," said Shellman. "Moving into the World War II period, the law of the land was quite different than that."

Lynchings were common in places throughout the states and [Jim Crow Laws](#) were used to deny American citizens of color equal rights and equal protection.

"Conditions back in the North were not much better, where the law was separate but equal, but the practice was separate and unequal," Shellman said.

Having defended America, blacks wanted the opportunity to join the [Army Air Corps](#), but they were denied.

City organizations such as the [National Association for the Advancement of Colored People](#) and the [Urban League](#), politicians and senators lobbied for the elimination of discrimination within the U.S. military.

In April 1939, Congress passed a law that authorized the Civilian Pilot Training Program, and soon after, six Historically Black Colleges and Universities were allowed to participate in the program.

"In spite of blacks participating in the Civilian Pilot Training Program, they still were not entered in the Army Air Corps," Shellman said, "so in late 1940, a lawsuit

was brought by a student from Howard University for admission into the Army Air Corps."

Under pressure from the media and the NAACP, the War Department was compelled to set up a program to allow blacks into the Army Air Corps, and a separate but equal training program was established at Tuskegee (Ala.) Institute.

In March 1941, the 99th Fighter Squadron was formed.

The Tuskegee Airmen participated in major campaigns through Italy and Germany and were soon requested as escorts by white bomber pilots. The Airmen flew more than 2,000 missions, were well decorated, and had aviation records far superior to other groups of flying squadrons during WWII.

Although the Tuskegee Airmen were tackling amazing feats, they still faced an enormous struggle.

Retired Lt. Col. Enoch Woodhouse and Dr. Harold May shared their stories of when they first joined the military.

"When I volunteered to go into the Air Corps, (and) I got on the train from Fort Devens to Cincinnati, and the train crossed the Ohio River going into Kentucky, I knew I was going into a new country," said May. "I had never been in the South before, but I had heard about the South and about Jim Crow, and I knew that I better not get off that train."

Woodhouse told a story of when he was yelled at by a conductor stating that he could not ride the train he was on, while on his way to training.

"What really hurt me — and it still bothers me — I felt embarrassed in front of my friends (and) high school classmates, because I felt I wasn't good enough," Woodhouse

said. "So I got off the train, with \$3.40 in my pocket and a duffle bag."

He remembered later that a black gentleman explained that blacks were not allowed on that train and that another would be coming along. Twenty hours later, and with a dirty uniform, Woodhouse finally arrived at training.

Essentially, the Tuskegee Airmen were fighting two wars: a military war in a foreign country they knew little about and the war against racism in a country they called their own.

One audience member inquired about advice the Tuskegee Airmen would give on how to begin a dialogue involving serious issues such as the ones they had tackled.

"Just be sure of yourself and don't worry about comparing yourself to anyone else," said May. "The fact of the matter is that we are all fellow members of the human race."

With the benefit of hindsight, would they have still forged ahead with their mission of integrating the military?

"Hell, yes!" Woodhouse quickly responded.

Soon after the war ended, Jackie Robinson broke into the major leagues and President Harry S. Truman established Executive Order 9981, which outlawed segregation in all branches of the military service.

"The Tuskegee Airmen were a vital element as our society moved from a prejudicial, segregated society towards a more open society," said Shellman.

In July 1949, the last of the all-black flying organizations in the Air Force were inactivated at Lockbourne Air Force Base, Ohio. Later, Brown v. Board of Education found that separate but equal laws were unconstitutional, Rosa Parks refused to give up her seat on a public bus, and Dr. Martin Luther King Jr. began work on what would become the beginning of the [Civil Rights Movement](#).



Photo: Tazanyia Mouton, USAG-Natick Public Affairs



Pvt. Chris Baker, a human research volunteer, coaches a Jr. Celtic on basketball skills during a clinic at Madison Park High School, Jan. 31.

Troops Coaching Hoops

Natick Soldiers commit to serve youth basketball program

By Tazanyia Mouton, USAG-Natick Public Affairs / ROXBURY, Mass. (Feb. 4, 2015)

A group of human research volunteers from the [Natick Soldier Systems Center](#) participated alongside members of the [Boston Celtics](#) as part of the [Commitment to Service](#) initiative during a Jr. Celtics Event at Madison Park High School, Jan. 31.

Through the [Commitment to Service](#) program, the [National Basketball Association](#) and the [Department of Defense](#) have forged a comprehensive partnership while using the popular sport.

The joint venture supports local communities and hundreds of thousands of active and retired armed forces members, and their families, each year.

The program is based on four pillars: community, health, leadership and transition.

The recent community service activity involved the Celtics' program, Jr. Celtics, which challenges more than 650 children in grades three through five to develop their basketball game through skills, drills and leadership training.

Along with Soldiers and Celtics players as mentors, youth coaches were also on hand from [Up2Us](#), a leader in the sports-based youth-development movement.

Up2Us promotes everything from health to inspiring children to take on roles as leaders, to the importance of teamwork.

According to the Up2Us website, "sports is not 'just a game,' it's one of the most powerful tools to positively transform kids' lives."

Pvt. Jacob Hammons said participating in the event made him feel great.

"I like working with kids, and it's an opportunity to come out and spend time with the Celtics and teach the children different techniques of basketball," Hammons said. "I just mainly thought I would be doing research for the Army (here at Natick), and I never thought I would have an opportunity to do volunteer work such as this."

Spc. Jack Forest, whose hometown is Elmira, New York, said he was excited to see some familiar faces.

"I've spent probably the last 10 years with youth in the community, both in Boston and back in my hometown," Forest said.

Forest said he was motivated when the Jr. Celtics began to file into the gym.

"I think if you come with high energy, the kids will have high energy, and I think it goes vice versa (and) you can feed off the kids — especially that age group," Forest said. "I think they always bring a certain level of excitement that pumps you up."

Pvt. Chris Baker, a Macon, Georgia, native, said he has always enjoyed doing community service and has worked with children in the past.

"I used to be a mascot for the Cherry Blossom Festival down in Macon," Baker said. "I enjoy volunteering because it gives me a sense of happiness and it also reminds me of the times when I would volunteer in my hometown."

The NBA has always urged players to get involved in community service acts through programs such as NBA Cares, the league's global outreach initiative that addresses many important social issues such as education, youth and family development, and health and wellness.

Through NBA Cares, the league and its teams support a range of programs such as "Hoops for Troops," "NBA Green," and "NBA Fit."

Sam Taub of the Celtics' community relations department said the team always takes part in various community activities.

"Being involved in the community is a foundation of the organization," said Taub. "We're blessed to have the most dedicated, loyal fans in the NBA, and that's why we like to give back to them through programs like this."

Taub said having Soldiers participate in these events has been an amazing addition.

"It's been incredible having Soldiers come out and interact with our players (and) interact with people in our community," said Taub. "They're so dedicated to protecting our country, and they do so much for us, and having the privilege to work alongside them is so valuable." "They bring so much energy to our programs ... more pride and excitement ... and we're honored to be involved with the Army and all of the military."



Clothing Homeless Vets

NSSC holds spring drive

By Tazanyia Mouton, USAG Natick Public Affairs/NATICK, Mass. (May 29, 2015)

Although there has been an eight-percent reduction in the homeless veteran population between January 2012 and January 2013, there is still a long way to go to eliminate the problem.

According to a 2013 Housing and Urban Development study, on any given night in January of that year, there were an estimated 58,000 homeless veterans on the streets, a 24 percent decline since 2010. With this in mind, the [Natick Soldier Systems Center](#) community banded together to do their part during the spring veteran clothing drive.

The event organizer, Sarah Ross, a [Human Research Volunteer](#) coordinator with the [Natick Soldier Research, Development and Engineering Center](#), has committed herself to this cause. As with other clothing drives, Ross made sure she had everything in place, and bins were ready to be filled when the clothing drive began on April 27. There was only one issue.

Four days before the clothing drive was slated to begin, Ross was notified that she was to go on temporary duty during the week of the clothing drive.

“Even though this is not my job, this is a priority,” said Ross.

Ross said that as much as the clothing drive is near her heart, she didn’t have much time to ponder about the progress of the drive because she was in the field recruiting Soldiers to become a part of the HRV program. Plus, she had enlisted the help of one of the HRVs, Pvt. 2 Topher Cheney, for the drive.

“I just happened to be coming into the (Doriot Climatic) Chambers to sign in one

day, and she was talking about it and asked me if I could do anything to help her out,” said Cheney.

Cheney said whenever there’s an opportunity for him to help, he’s all in.

“Actually, I used to be homeless a couple of years ago,” said Cheney, “so stuff like that really hits home for me.”

Cheney said when he was younger, he found himself going down a bad road and eventually was kicked out of his house at age 18. Cheney lived with friends for a time, but he soon found himself on the streets.

“I was sleeping under bridges and eating out of dumpsters, and one day it finally clicked like, ‘Man, this is stupid,’ and then I started working again and worked my way out of poverty,” Cheney said.

Cheney also said part of his motivation to get off the streets was thinking about his father, a former Marine drill instructor.

“I remember my Dad and just how ashamed he would have been of me,” said Cheney.

Cheney’s father passed away when he was 18, a few months before getting kicked out of his house, and he said that was part of his spiral out of control, which ultimately landed him on the streets.

“He and I were the exact same person, so we butted heads about everything,” said Cheney. “And we didn’t speak to each other for almost a year before he died.”

Cheney said his father’s death hit him hard.

“That’s when everything got worse and I just lost it,” said Cheney.

Pvt. 2 Topher Cheney, a human research volunteer with the Natick Soldier Research, Development and Engineering Center, stands in front of a trunk load of donations being delivered to Veterans Inc. in Worcester, Mass., May 28. The issue of veteran homelessness is close to Cheney as he was once homeless before he joined the Army.

While on the streets, Cheney said he would frequent [Interfaith-Good Samaritan](#), an establishment that helps men, women, children and families during emergency situations. Being at Interfaith-Good Samaritan guaranteed that Cheney would know where his next meal was coming from.

“They helped me out a lot,” said Cheney. “When I’m back home, I grab food and I’ll donate to them.”

In Cheney’s eyes, this was a way for him to pay it forward.

By working two jobs, Cheney was able to get off the streets, find an apartment, and begin moving on with his life. After deciding to enlist in the Army as an aircraft electrician, Cheney has remained on the right road to becoming a leader.

“My entire life was military discipline over and over, and how to be a leader,” said Cheney. “After it finally clicked that I needed to get it together, the leader started coming out.”

Ross said she’s happy that Cheney stepped up to the plate when he was needed.

“That’s why the Soldiers are so great in helping, because I think it’s wonderful that they can see that as a Soldier, they are making a difference for Soldiers before them,” said Ross, “and the reason they can serve in the capacity that they do is because of Soldiers who served before them.”

The spring clothing drive brought in more than 1,500 pounds of clothing and personal hygiene products that will assist homeless veterans and their families. The next clothing drive will be in November.

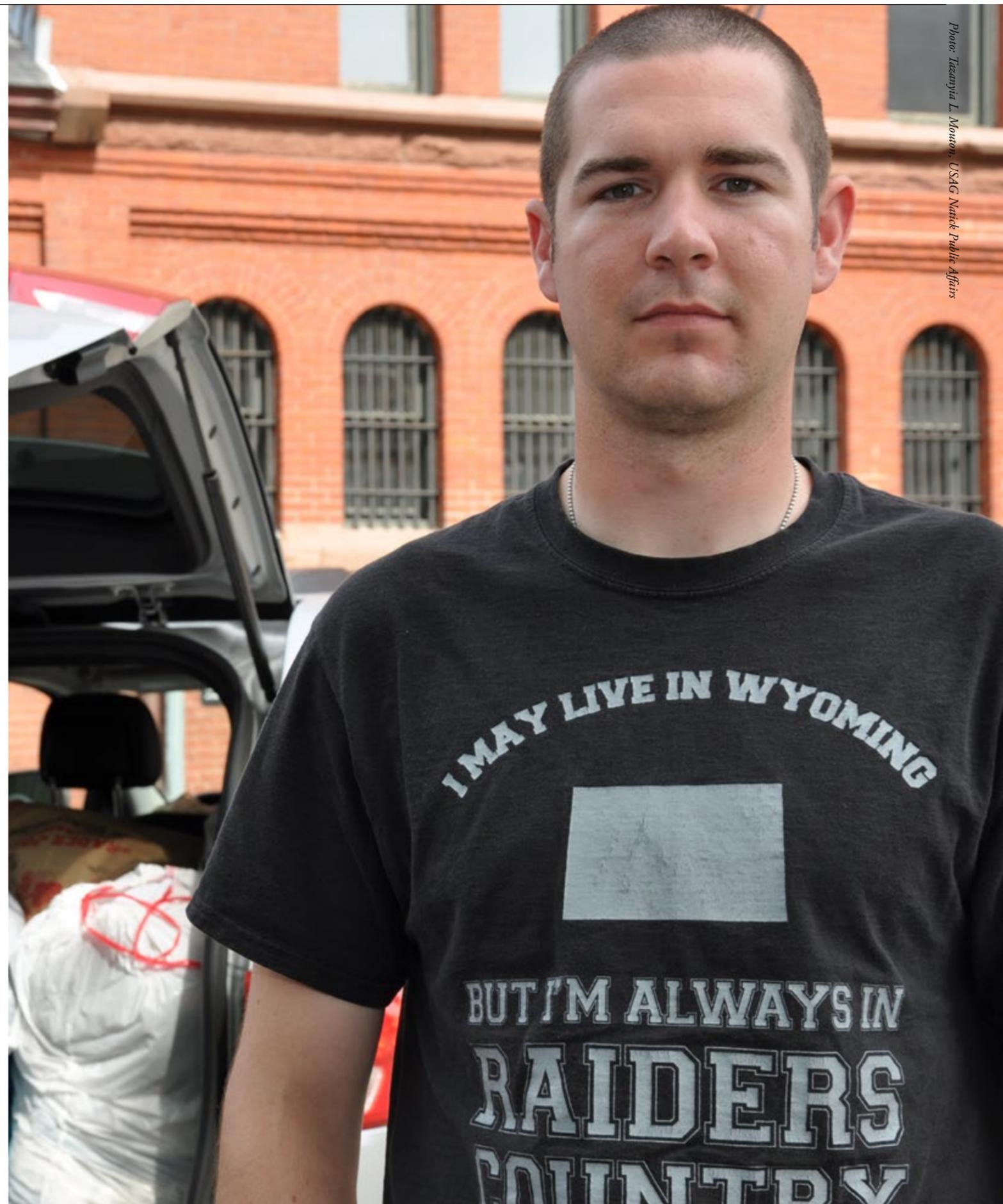


Photo: Tazanyia L. Mouton, USAG Natick Public Affairs



By USAG Natick Public Affairs / NATICK, Mass. (Nov. 19, 2015)

Realizing that food makes up 21 percent of all the waste dropped into this nation's landfills, three ambitious folks at the [Natick Soldier Systems Center](#) seek to put the installation on a diet of sorts.

Jo Ann Ratto, Danielle Froio, and Rich Valcourt want to curb NSSC's appetite for the styrofoam containers and conventional plastic dinnerware available in the cafeteria, Combat Feeding Directorate sensory laboratory and pilot plant, and the dining facility, diverting those items and food scraps from the solid waste stream into a compost pile at a local farm.

"It's called 'Zero Waste Cafeteria,'" said Ratto of the Combat Feeding Directorate, Natick Soldier Research, Development and Engineering Center, or NSRDEC. "So, we're replacing all of the styrofoam in the cafeteria with compostable items, whether they're made out of a biodegradable plastic or they're going to be made out of a natural fiber material, or paper."

The Commonwealth of Massachusetts recently announced a ban on food waste in commercial operations if it exceeds one ton per week. According to Valcourt, a [U.S. Army Garrison Natick](#) environmental engineer, NSSC currently produces three-quarters of a ton per week.

"So we're under the threshold, but ... we want to be the stewards of the environment," Valcourt said. "That (maximum) could be lowered in the near future. So we went forward."

Through a "Bootstrap Initiative" sponsored by the NSRDEC chief scientists, Ratto was able to obtain \$17,000 in funding for the project earlier this year. Such initiatives are submitted by NSRDEC employees in hopes of streamlining processes and minimizing bureaucracy. A large portion of that money was used to buy biodegradable tableware that will be available in the cafeteria and individual bins that the workforce can use to dispose of food waste in their work areas.

"Given that the success of this initiative is largely dependent on the workforce's participation, a significant part of this effort will focus on educating the workforce about the switchover to compostable food service products in the cafeteria, and how this affects the way in which they dispose of their food waste and dinnerware," Froio said. "Visual cues will help guide employees through the sorting process, in an effort to minimize contamination of the compostable bins with non-compostable items, like condiment packets, potato chip bags and other commercial packaging that is either purchased in the cafeteria and PX or brought in from home, and consumed in the dining area."

"We're going to be collecting all the food waste and those compostable items all in one bin," Valcourt said.

"You can take your plate that has leftover food on it and throw it right in the same bin," Ratto added.

Conventional trash bins will also still be available for the collection of all non-compostable items.

Waste from food preparation will also make its way to the compost pile, but what happens when employees take meals back to their offices?

"People in the work area (will) have little bins — they're two-gallon bins — and we're going to have a biodegradable bag in there," said Ratto, noting that the bins are well vented. "They're odorless. They won't smell."

"That's important that people know where to put stuff," said Valcourt, "because there's going to be multiple places to put your trash."

The waste will be picked up and transported weekly to the farm. The program will run three to four months, when data will be collected to assess how much waste has been diverted from landfills and, instead, converted into compost, a valuable product that can be used by the community.

Data collection will also include surveys which that employee feedback about the new compostable products and the initiative as a whole. This combination of data will help determine if the cafeteria can be a zero-waste facility.

"We want to collect at least three months of data," Ratto said. "I think it's going to be exciting for the base, and it's going to be educational and environmental."

Valcourt said the garrison will pick up where the program leaves off.

"We're going to move forward with it," said Valcourt, adding that he hopes it will help Natick reach a solid waste diversion rate of 60 percent this fiscal year. "Going to this ... program will help out, greatly."

"This is a great program. It's long overdue."

For more information or to volunteer time to the Zero Waste Cafeteria program, call Jo Ann Ratto at ext. 5315, Danielle Froio at x6903 or Rich Valcourt at ext. 5582.



During an observance of Dr. Martin Luther King Jr.'s birthday at Natick Soldier Systems Center on Jan. 21, Donna Leon called her NSSC co-workers to action in the service of others.

Leon said. "But because of my family background, I was not exactly sure why."

Trouble began for her before she was able to take her seat on the bus, when an older girl hit her.

"I protected myself and fought back ... a little, skinny, chicken-legged first-grader," Leon said. "It should not have been that way, but it was. When all was said and done, I asked that older school girl who had hit me and who had called me out of my name, I asked her if she was OK. Doing right is not always easy."

The challenges didn't stop there, but neither did Leon's resolve to always reach out to others. The retired Soldier urged her co-workers to also do what they could for those around them.

"Be aware of your surroundings," Leon advised. "Take time to speak to others or offer your assistance. You might make their day. If they ignore you or turn you down, shake it off and move on to the next thing, knowing that you made a genuine effort."

"Because, after all, we are human and have our bad days, and that's OK. Make an effort to get through the mess of it all and start doing what is right once more."

Leon conceded that she sometimes gets tired and wants to stop making the effort.

"When I get this way, not wanting to serve, I have to stop and take the time to reflect on those who have helped me along the way," said Leon, "especially in my adult life."

"Please understand this — when you genuinely, and not for your glory, help someone, they will never forget."

Leon said that Dr. King's dream for a bright future has yet to be fully realized, and she called her colleagues to action in that quest.

"Since when did doing nothing ever change anything?" Leon said. "Now is the time to strive to do what is right, and if you fail, strive to do what is right — again!"

"The time is always right to do what is right. Please say this with me. The time is always right to do what is right."

"Ladies and gentlemen, that time? That time is now!"

Doing What's Right Remembering Dr. Martin Luther King

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (Jan. 22, 2015)

In a stirring address to her colleagues, a member of the [Natick Soldier Systems Center](#) workforce reminded them of words from [Dr. Martin Luther King Jr.](#) that resonate today, nearly 50 years after they were first uttered.

During the federal holiday observance Jan. 21 in Hunter Auditorium, Donna Leon echoed a passage from Dr. King's June 1965 commencement speech at Oberlin College: "The time is always right to do what is right."

With her charitable parents serving as unyielding role models, Leon has always tried to do what is right. Her lifetime of service

to others was recognized last July, when she became the U.S. Army's recipient of the [NAACP 2014 Roy Wilkins Renown Service Award](#).

As she spoke at NSSC's MLK program, it became apparent that Leon had chosen the right path even in the face of considerable resistance. She recalled her initial day of first grade, which coincided with the beginning of integration for schools in her North Carolina hometown. She was the only African-American in her class.

"I knew for some reason there were those who believed I was different, a lesser person,"



One step at a time

As researchers from the U.S. Army Research Institute of Environmental Medicine at Natick Soldier Systems Center continued their Physical Demands Study, two women Soldiers graduated Aug. 21 from Ranger School, becoming the first of their gender to do so. USARIEM is working with the U.S. Army Training and Doctrine Command to provide valid, reliable and accurate predictive tests to select Soldiers for

physically demanding occupations. Capt. Kristen Griest, center, an MP with 716th Military Police Battalion, Fort Campbell, Kentucky, and 1st Lt. Shaye Haver, an Apache pilot with 4th Combat Aviation Brigade, 4th Infantry Division, Fort Carson, Colorado, started training with the first gender-integrated Ranger Course, Class 06-15, in April. Both Griest and Haver are graduates of the U.S. Military Academy, West Point, New York.

Proposal that seeks to divert waste from landfills by using biodegradable plates and utensils and diverting food waste from landfills to composting facilities.

Greata said that food waste accounts for 21 percent of Natick's solid waste stream. "All that waste goes in the trash," Greata said. "It increases the solid waste that has to be picked up and taken out of here."

Valcourt said that NSSC might work with the Town of Natick on future compost collections.

"We've turned a new page," Valcourt said. "We're really trying to develop a good partnership. The Army is lucky to be in Natick. We have a great town here."

Natick also has tapped Boston's world-class colleges and universities for their environmental expertise.

"I've pointed (our laboratories) towards the MIT chemical substitution database," Valcourt said. "If you can accomplish the mission using something that's less hazardous, guess what? We don't have to manage it. It could be less hazardous to use from a health and safety perspective."

Chemical substitution is part of Natick's Certified Green Laboratory program. The installation also certifies green offices. Recently, NSSC added a green procurement program.

Other Natick environmental programs include installing more energy-efficient windows, lighting, computers and HVAC systems; reducing water usage; acquiring electric vehicles; subsidizing employee use of mass transit; installing solar light pipes and BigBelly Solar Intelligent Waste and Recycling Collection Systems; and organizing electronic waste collection days. McHugh wants to do even more.

"I would love to have solar power," McHugh said. "I think a lot of these roofs would be (ideal) for that."

"We're trying to get more and different products here that would reduce our energy consumption."

Photo: Staff Sgt. Scott Brooks



“WE PROVIDE AND WE EQUIP THE MAN AND THE WOMAN, THE SON AND DAUGHTER OF OUR NATION. THAT’S WHAT MAKES THE ARMY UNIQUE. IT REALLY IS ALL ABOUT THE SOLDIERS.”

Brig. Gen. Thomas H. Todd III
Senior Mission Commander
Natick Soldier Systems Center

